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# Joint Annual Meeting 2026
# Swiss Society of Cardiology (SSC), Swiss Society for Heart and Thoracic Vascular Surgery (SSCS), Swiss Society of Pneumology (SSP) and Swiss Society for Thoracic Surgery (SSTS)

## Abstracts SSC/SSCS: Posters

Basel (Switzerland), June 10–12, 2026

# JOINT ANNUAL MEETING OF THE SWISS SOCIETY OF CARDIOLOGY (SSC), THE SWISS SOCIETY FOR HEART AND THORACIC VASCULAR SURGERY (SSCS), THE SWISS SOCIETY OF PNEUMOLOGY (SSP) AND THE SWISS SOCIETY FOR THORACIC SURGERY (SSTS)

## BASEL, JUNE 10–12, 2026

## POSTERS SSC AND SSCS

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The abstracts of the oral presentations from this conference have been published in Supplementum 298 of the Swiss Medical Weekly (https://doi.org/10.57187/5576).

## POSTER WALK: HEART FAILURE I

### P001

### RoMa: A Cardiopulmonary Exercise Testing Based Risk Tool in Hypertrophic Cardiomyopathy

Robin Willixhofer[1 2], Massimo Mapelli[1 3], Nikita Baracchini[4], Nicola Campana[1 5 6], Teresa Maria Capovilla[4], Elisabetta Salvioni[1], Carlo Vignati[1], Filippo Maria Rubbo[1 4], Damiano Magri[7], Emiliano Fiori[7], Irene Mattavelli[1], Anna Apostolo[1], Jeness Campodonico[1], Marco Merlo[4], Gianfranco Sinagra[4], Piergiuseppe Agostoni[1 3]

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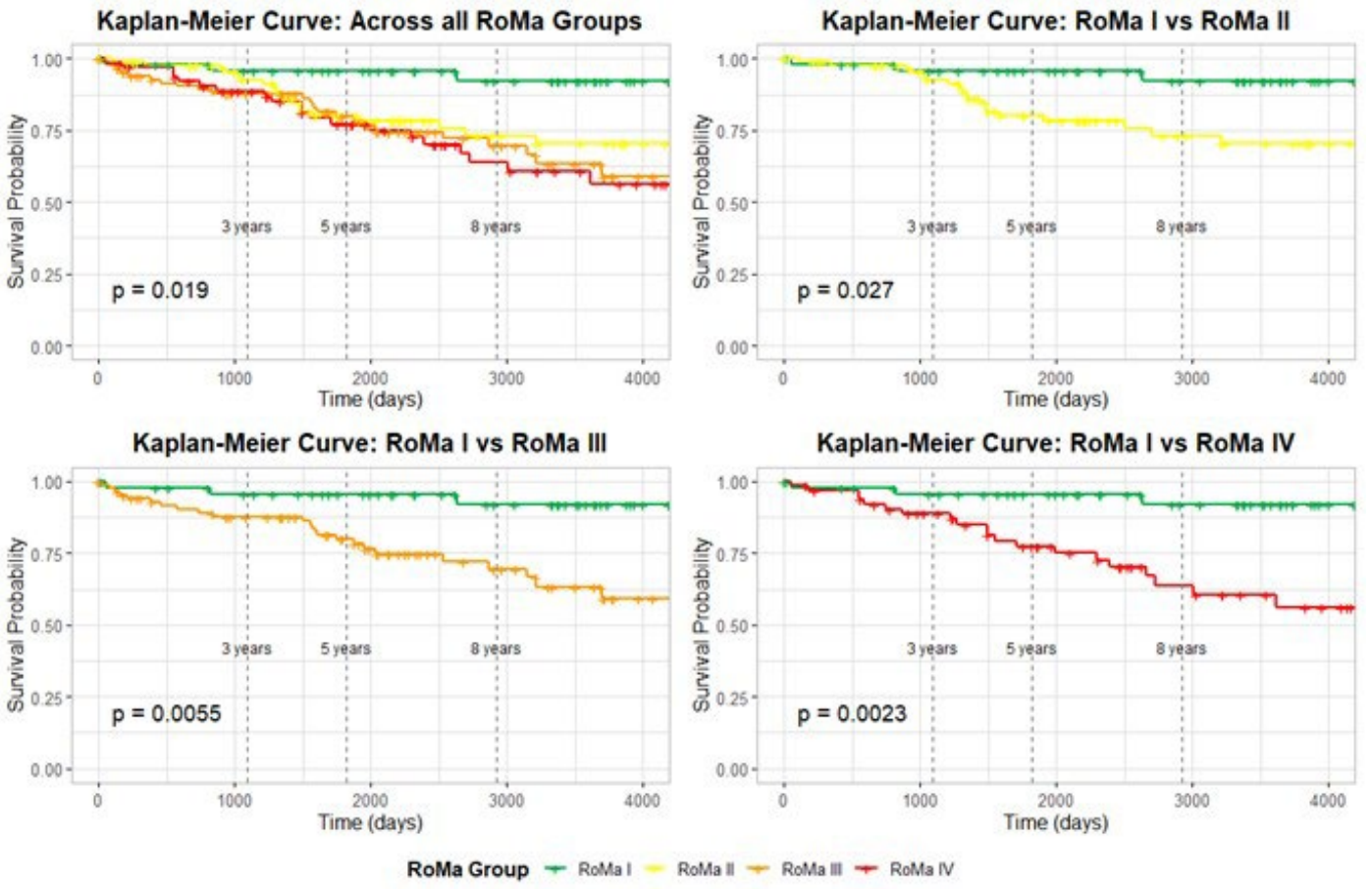
**Introduction:** The RoMa classification, based on peak heart rate and oxygen pulse derived from cardiopulmonary exercise testing (CPET), was recently proposed to stratify patients by physiological reserve during exercise. We aimed to externally validate the RoMa classification in an independent multicenter cohort of patients with hypertrophic cardiomyopathy with longitudinal outcome data.

**Material & Methods:** In this retrospective multicenter cohort study conducted from 2009 to 2020 with a median follow-up of 2115 days (≈6 years), HCM patients, undergoing CPET, were consecutively enrolled. HCM was defined as a maximal left ventricular (LV) wall thickness ≥15 mm in the absence of another cause of hypertrophy, or ≥13 mm in genotype-positive individuals with LVOT obstruction and corresponding ECG findings. Patients were enrolled regardless of LVOT obstruction and were naïve to disease-specific therapy (eg, mavacamten). The final cohort comprised 292 patients (age 51 [36-63] years, 70% male sex), including 30% with obstructive LVOT. Patients were categorized into RoMa I–IV based on percent predicted heart rate and oxygen pulse. Follow-up was complete for all participants. The primary endpoint was a composite of all-cause and cardiovascular death, sudden cardiac death (SCD) or aborted SCD, heart failure–related hospitalization, stroke, systemic embolism, surgical myectomy, and heart transplantation.

**Results:** Functional capacity declined across RoMa groups (peak $VO_2$ 29.2 to 17.9 mL/kg/min; p-trend <0.001). During follow-up, 68 composite events occurred. Kaplan–Meier analysis showed significant differences in event-free survival across groups (log-rank p = 0.019). In multivariable analysis, RoMa II–IV compared with RoMa I were independently associated with higher hazard ratios for the composite outcome (HRs 3.89 to 5.37; all p <0.05), while genotype, LVEF <50%, male sex, and LVOT obstruction were not predictive.

**Conclusion:** The RoMa classification independently predicts long-term, clinically relevant outcomes in HCM regardless of LVOT obstruction and may provide a novel approach to risk stratification.

**COI:** No



## P002

### Real-World Effectiveness, Response Patterns, and Cost-Utility of Mavacamten in Obstructive Hypertrophic Cardiomyopathy: insights from the SWISS-MAVA Cohort

Niccolo Maurizi[1], Dennis Jensen[2], Annina Vischer[3], Simon Stämpfli[4 5], Pierre Monney[1], Christiane Gruner[2]

*[1]Service of Cardiology, Lausanne University Hospital, Lausanne, Switzerland, [2]Department of Cardiology, University Heart Center, University Hospital Zurich, Zurich, Switzerland, [3]Medical Outpatient Department, University Hospital Basel, Basel, Switzerland, [4]Heart Center Lucerne, Luzerner Kantonsspital, Lucerne, Switzerland, [5]Center for Molecular Cardiology, University of Zurich, Schlieren, Switzerland*

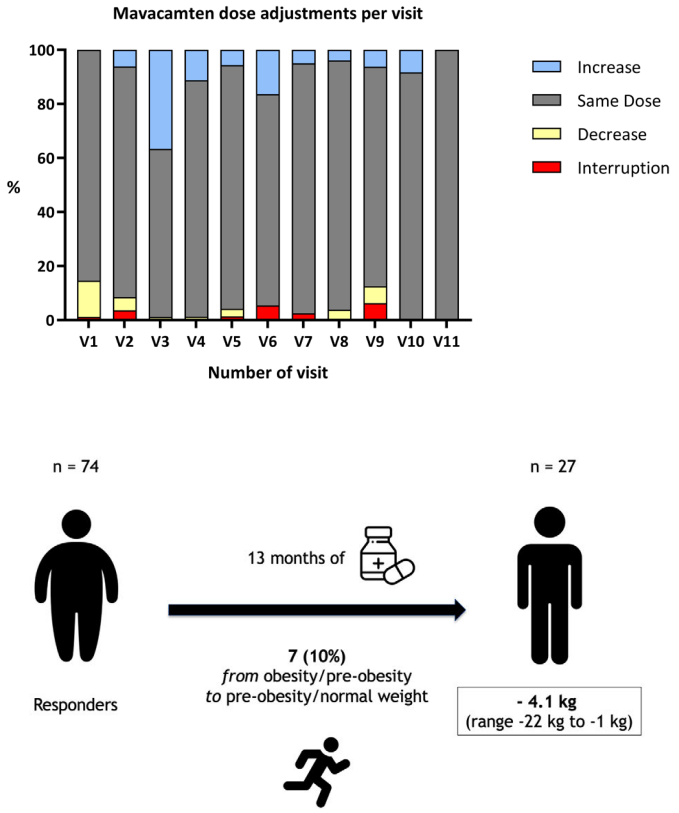
**Introduction:** Evidence of real-world use and challenges related to mavacamten are much needed. The SWISS-MAVA Cohort was established to evaluate the real-world effectiveness and safety of mavacamten in the treatment of Obstructive Hypertrophic Cardiomyopathy (oHCM) in a nationwide cohort.

**Material & Methods:** A multicenter, observational registry including consecutive patients with oHCM treated with Mavacamten across 4 Swiss referral centers was established. Successful response was defined: left ventricular outflow tract gradient (LVOTG) was <30mmHg or <50mmHg with ≥1 NYHA class improvement by the end of follow-up. Early response was attributed to patients successfully responding within 6 months from treatment initiation without subsequent LV dysfunction during follow-up.

**Results:** Eighty-two patients (59.5±13.4 years) were included. At last available follow-up (52.4±21.4 weeks), 65/82 (79.3%) had an LVOTG <30mmHg and 71/82 (86.6%) improved by ≥1 NYHA class from baseline with an LVOTG <50mmHg. Eight (9.8%) patients did fulfill the definition of successful response: 5 due to persistent LVOTG >50 mmHg, 2 without symptomatic benefit and 1 both. Early response was observed in 62 (75%), whereas 12 (15%) responded to treatment after 54.2±20.3 weeks. Among all responders, a total of 341 (4.6/patient) visits were needed to achieve a stable and effective dose. Among them, 27 (36%) experienced weight loss (-4,1 [2-9]kg) and 7 (10%) passed from obese to overweight and to normal weight. In those not meeting the response criteria, titration occurred along 57 (7.1/patient) visits. Using a within-cohort, 1-year cost-utility framework and NYHA-based health state utilities, mavacamten therapy was associated with a mean gain of 0.038 quality-adjusted life-years (QALYs) per patient compared with standard care.

**Conclusion:** In this European real-world cohort, most patients achieved early and sustained hemodynamic and symptomatic response, while late and non-response was uncommon. In responders, treatment was associated with favorable weight changes. Short-term cost-utility analysis already showed a modest QALY gain.

**COI:** NM, SS and PM served as consultants for Bristol Myers Squibb. AV has received speaker and advisory board honoraria, as well as research and travel grants, from the following companies: Bristol Myers Squibb, Amarin, Servier, Medtronic, Vifor, NovoNordisk, Norvartis, AstraZeneca, MSD. All agreements are strictly between the University Hospital Basel and the respective companies. There are no personal contracts. All honoraria received are transferred directly to the Research Fund of the Medical Outpatient Department, University Hospital Basel. CG has received consulting/presenter fees from Bristol Myers Squibb, Cytokinetics, GE healthcare.




## P003

### Risk prediction in ATTR-CM patients under Tafamidis treatment: Results from the multicentre SWISS-CARE registry

Moritz Hundertmark[1], Giovanni Baj[1], Nicola Ciocca[1], Sarah Hugelshofer[2], Annina Studer[3], Simon Stämpfli[4], Niklas Ehl[5], Philippe Meyer[6], Otmar Pfister[7], Isaac Shiri[1], Christoph Gräni[1]

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**Introduction:** Transthyretin amyloidosis cardiomyopathy (ATTR-CM) is an increasingly recognized heart failure (HF) aetiology. Whether established risk factors from early trials apply to patients under novel disease-modifying therapy remains unknown.

**Material & Methods:** A total of 452 prospectively included tafamidis-treated patients with scintigraphy- or biopsy-proven wild-type ATTR-CM from six Swiss tertiary centers participating in the SWISS-CARE registry (NCT04776824) were included in this analysis. All received tafamidis 61 mg daily with 12-month follow-up intervals (median 698 days, Q1-Q3: 361-1182). Variables predicting first major adverse cardiac events (MACE; i.e. HF hospitalization, sustained ventricular tachycardia, cardiovascular death) were analyzed using multivariable Cox proportional hazard models.

**Results:** Patients were predominantly male (93%), median age 79 (74-82) years, with NYHA class II/III (71%/12%) and NAC stage I/II (67%/23%). During follow-up, 55 (12.2%) patients died and 90 had a first HF hospitalisation (19.9%). First MACE occurred in 113 (25%) patients at median 558 days (318-1025). Patient who suffered MACE were significantly older, had a higher NYHA class, had increased NT-proBNP, reduced renal

function and LVEF (all p <0.001). Adjusted multivariable analysis identified independent MACE predictors for age (years) (HR 1.31, 95%CI: 1.03-1.65, p <0.05), presence of arterial hypertension (HR 1.61, 95%CI: 1.07-2.41, p <0.05), NT-proBNP (pg-ml) (HR 1.31, 95%CI: 1.03-1.68, p <0.05), and presence of moderate-to severe tricuspid valve disease (HR 1.61, 95%CI: 1.08-2.41, p <0.05). Higher LVEF was independently correlated with lower risk (HR 0.81, 95%CI: 0.67-0.98, p <0.05).

**Conclusion:** In tafamidis-treated ATTR-CM patients, age, hypertension, NT-proBNP, and moderate-severe tricuspid valve disease identify those at increased residual risk despite disease-modifying therapy while higher LVEF indicates lower risk.

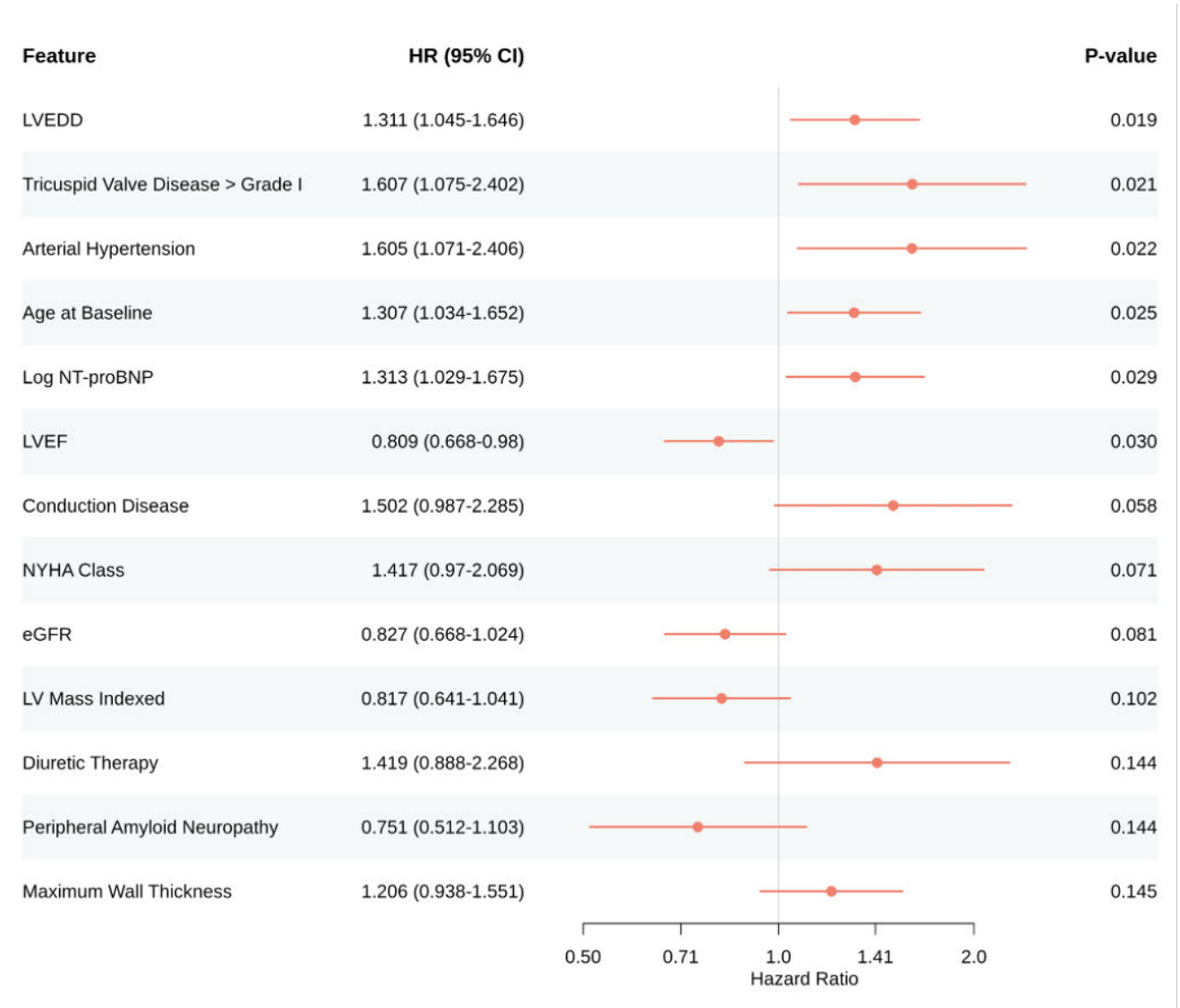
**COI:** Consultancies for Alnylam, AstraZeneca, Bayer, Pfizer

| Characteristic | Overall (N = 452)[1] | No MACE (N = 339)[1] | MACE (N = 113)[1] | p-value[2] |
|---|---|---|---|---|
| Age (y) | 79 [74, 82] | 78 [74, 82] | 79 [76, 83] | **0.003** |
| **Gender** | | | | |
| Male | 420 (93%) | 315 (93%) | 105 (93%) | >0.9 |
| Female | 32 (7%) | 24 (7%) | 8 (7%) | >0.9 |
| **Anthropomorphic Measures** | | | | |
| Height (cm) | 173 [169, 178] | 173 [169, 178] | 173 [168, 178] | 0.9 |
| Weight (kg) | 78 [70, 87] | 78 [71, 86] | 76 [67, 88] | 0.3 |
| BMI (kg/m²) | 25.7 [23.7, 28.2] | 25.8 [23.8, 28.4] | 25.4 [22.8, 27.9] | 0.2 |
| **Amyloidosis Subtype** | | | | 0.4 |
| TTR - h/m | 13 (2.9%) | 10 (2.9%) | 3 (2.7%) | |
| TTR - unspecified | 100 (22%) | 80 (24%) | 20 (18%) | |
| TTR - wild type | 325 (72%) | 237 (70%) | 88 (78%) | |
| Unknown | 14 (3.1%) | 12 (3.5%) | 2 (1.8%) | |
| **NYHA Class** | | | | **<0.001** |
| I | 70 (16%) | 59 (18%) | 11 (9.8%) | |
| II | 320 (71%) | 248 (74%) | 72 (64%) | |
| III | 58 (13%) | 29 (8.6%) | 29 (26%) | |
| IV | 0 (0%) | 0 (0%) | 0 (0%) | |
| **NAC Score** | | | | **<0.001** |
| Stage I | 268 (67%) | 225 (75%) | 43 (42%) | |
| Stage II | 93 (23%) | 54 (18%) | 39 (38%) | |
| Stage III | 30 (7.5%) | 14 (4.7%) | 16 (16%) | |
| Stage IV | 11 (2.7%) | 6 (2.0%) | 5 (4.9%) | |
| **Laboratory Values** | | | | |
| NT-proBNP (pg/mL) | 1,710 [955, 3,066] | 1,432 [874, 2,583] | 2,774 [1,478, 4,717] | **<0.001** |
| Creatinine (µmol/L) | 101 [86, 123] | 99 [85, 116] | 112 [92, 142] | **<0.001** |
| eGFR (CKD-EPI, mL/min/1.73m²) | 65 [51, 80] | 67 [55, 81] | 59 [43, 74] | **<0.001** |
| **Echocardiography** | | | | |
| LVEF (%) | 55 [45, 60] | 55 [47, 61] | 50 [44, 57] | **<0.001** |
| LV Mass Indexed (g/m²) | 145 [125, 175] | 144 [125, 172] | 152 [126, 184] | 0.2 |
| LVEDD (mm) | 45 [40, 50] | 44 [39, 49] | 47 [43, 52] | **0.001** |
| Maximum Wall Thickness (mm) | 17 [15, 19] | 17 [15, 19] | 17 [15, 19] | 0.5 |
| Aortic Valve Disease > Grade I | 87 (21%) | 48 (16%) | 39 (38%) | **<0.001** |
| Mitral Valve Disease > Grade I | 119 (29%) | 65 (21%) | 54 (52%) | **<0.001** |
| Tricuspid Valve Disease > Grade I | 96 (23%) | 52 (17%) | 44 (43%) | **<0.001** |
| **ECG** | | | | |
| Low Voltage ECG | 92 (22%) | 68 (22%) | 24 (22%) | >0.9 |
| Pseudoinfarct Pattern | 78 (19%) | 62 (20%) | 16 (15%) | 0.2 |
| **Medication** | | | | |
| Beta-blocker Therapy | 208 (46%) | 155 (46%) | 53 (47%) | 0.8 |
| RAAS Inhibitor Therapy | 278 (62%) | 211 (62%) | 67 (59%) | 0.6 |
| MRA Therapy | 101 (22%) | 70 (21%) | 31 (27%) | 0.13 |
| Amiodarone Therapy | 44 (9.7%) | 29 (8.6%) | 15 (13%) | 0.14 |

| Characteristic | Overall (N = 452)[1] | No MACE (N = 339)[1] | MACE (N = 113)[1] | p-value[2] |
|---|---|---|---|---|
| SGLT2 Inhibitor Therapy | 162 (36%) | 130 (38%) | 32 (28%) | 0.054 |
| Diuretic Therapy | 304 (67%) | 217 (64%) | 87 (77%) | **0.011** |
| Oral Anticoagulation | 251 (56%) | 182 (54%) | 69 (61%) | 0.2 |
| **Comorbidities** | | | | |
| Atrial fibrillation | 260 (58%) | 189 (56%) | 71 (63%) | 0.2 |
| Diabetes Mellitus | 86 (19%) | 59 (18%) | 27 (24%) | 0.2 |
| Cancer | 90 (20%) | 63 (19%) | 27 (24%) | 0.2 |
| Coronary Artery Disease | 142 (32%) | 106 (32%) | 36 (32%) | >0.9 |
| Obstructive Sleep Apneoa | 59 (13%) | 43 (13%) | 16 (14%) | 0.8 |
| Stroke | 51 (11%) | 38 (11%) | 13 (12%) | >0.9 |
| Peripheral Amyloid Neuropathy | 225 (50%) | 178 (53%) | 47 (42%) | **0.034** |
| TAVR or SAVR | 26 (5.8%) | 18 (5.3%) | 8 (7.1%) | 0.5 |
| Pacemaker Implanted | 53 (12%) | 39 (12%) | 14 (13%) | 0.8 |

[1]n (%); Median [Q1, Q3]

[2]Fisher's exact test; Wilcoxon rank sum test; Pearson's Chi-squared test



## P004

### The hemodynamic basis of bendopnea: a prospective invasive cohort study

Silvano Fehr[1], Jasmin Schaffer[1], Johannes Rigger[1], Joannis Chronis[1], Philipp K. Haager[1], Marco Cederqvist[1], Mario Gehler[1], Marc Buser[1], Hans Rickli[1], Micha Maeder[1]

[1]*HOCH Health Ostschweiz, St. Gallen, Switzerland*

**Introduction:** Bendopnea, i.e., dyspnea after bending forward, is a recently described symptom in a subset of heart failure (HF) patients providing prognostic information. However, the pathophysiology underlying this symptom is incompletely characterized. We assessed the association between hemodynamics and a) the sensation of bendopnea and b) a recently proposed bending oxygen saturation index (BOSI), a putative quantitative marker of bendopnea.

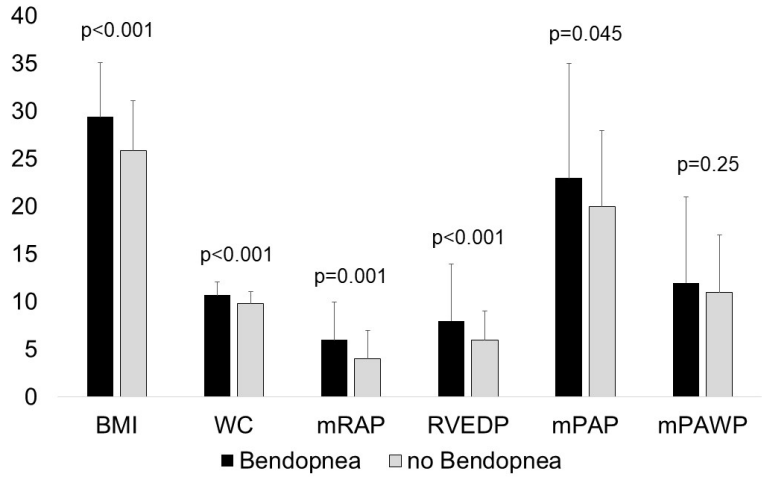
**Material & Methods:** In 223 patients with a spectrum of HF syndromes (age 73±11 years, 31% females) undergoing right heart catheterization, a standardized bending maneuver was performed to assess a) the symptom of bendopnea, and b) the BOSI, which was defined as the difference in the non-invasively assessed oxygen saturation between the upright sitting and bending positions after 30 seconds (a reduction in% oxygen saturation expressed as a positive value).

**Results:** Seventy patients (31%) reported any bendopnea. The median (interquartile range) BOSI was 2 (1-2)%. The BOSI was higher in patients with bendopnea compared to those without [2 (1-3) versus 1 (1-2)%; p = 0.008] but the overlap between groups was substantial. Patients with bendopnea had higher body mass index (BMI), larger waist circumference (WC) and higher mean right atrial pressure (mRAP), right ventricular end-diastolic pressure (RVEDP) and mean pulmonary artery pressure (mPAP) compared to those without, whereas the mean pulmonary artery wedge pressure (mPAWP) did not differ between the groups (Table, Figure). The BOSI was statistically significantly but weakly correlated with BMI (r = 0.15; p = 0.02), WC (r = 0.20; p = 0.003) and mPAWP (r = 0.19; p = 0.006), and correlations with mRAP, RVEDP, and mPAP were even weaker (p = 0.05 or higher).

**Conclusion:** Patients with bendopnea are characterized by abdominal obesity and higher right-sided filling and pulmonary artery pressures than those without. The BOSI is weakly correlated to the sensation of bendopnea and invasive hemodynamics. Further research is needed to better understand the role of these measures in clinical practice.

**COI:** No

| | Bendopnea (n=70) | No Bendopnea (n=153) | P value |
|---|---|---|---|
| Body mass index (kg/m²) | 29.4±5.7 | 25.9±5.2 | <0.001 |
| Waist circumference (cm) | 107±14 | 98±13 | <0.001 |
| Hip circumference (cm) | 106±13 | 100±11 | <0.001 |
| Mean right atrial pressure (mmHg) | 6±4 | 4±3 | 0.001 |
| Right ventricular end-diastolic pressure (mmHg) | 8±6 | 6±3 | <0.001 |
| Mean pulmonary artery pressure (mmHg) | 23±12 | 20±8 | 0.045 |
| Mean pulmonary artery wedge pressure (mmHg) | 12±9 | 11±6 | 0.25 |
| Pulmonary vascular resistance (WU) | 2.5±2.1 | 2.2±1.1 | 0.10 |
| Pulmonary artery capacitance (ml/mmHg) | 3.6±2.2 | 3.6±2.1 | 0.94 |
| Stroke volume index (ml/m²) | 34±12 | 35±9 | 0.54 |



## P005

### Sex Differences in Presentation and Outcomes of Transthyretin Amyloid Cardiomyopathy: Data from the Multicenter Swiss-CARE Registry

Nicola Ciocca[1], Rubèn Fuentes Artiles[1], Annina Studer[2], Sarah Hugelshofer[3], Simon Stämpfli[4], Niklas Ehl[5], Lukas Pieczora[5], Annatina Suter[2], Damiano Pongan[3], Stefano Ministrini[4], Otmar Pfister[6], Philippe Meyer[7], Isaac Shiri[1], Lukas Hunziker[1], Moritz Hundertmark[1], Christoph Gräni[1]

*[1]Inselspital, Bern, Switzerland, [2]City Hospital of Zurich-Triemli, Zurich, Switzerland, [3]Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland, [4]Luzerner Kantonsspital, Lucerne, Switzerland, [5]Cantonal Hospital St. Gallen, St. Gallen, Switzerland, [6]University Hospital Basel, Basel, Switzerland, [7]Geneva University Hospitals (HUG), Geneva, Switzerland*

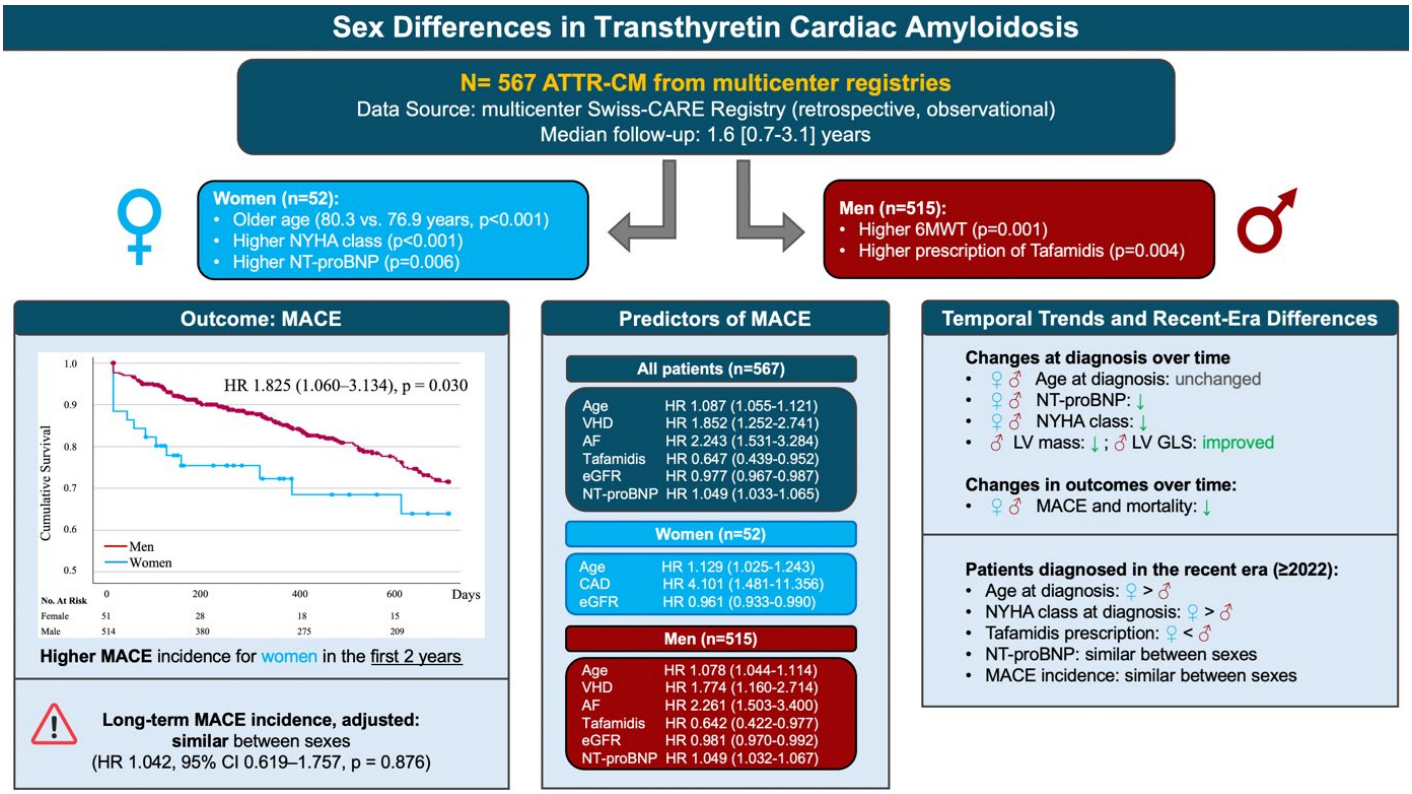
**Introduction:** Transthyretin amyloid cardiomyopathy (ATTR-CM) is more common in men than in women, yet sex-specific data remain limited. We aimed to assess sex-related differences in presentation and outcomes in a multicenter cohort of patients with ATTR-CM.

**Material & Methods:** Consecutive, prospective patients with confirmed ATTR-CM, enrolled in the multicenter Swiss-CARE (Cardiac Amyloidosis Registry) between 02/2018 and 03/2025 were analyzed. The primary endpoint was the first major adverse cardiac event (MACE, i.e. composite of heart failure hospitalization, sustained ventricular tachycardia, thromboembolic events, pacemaker or implantable cardioverter-defibrillator implantation, and all-cause mortality). Kaplan-Meyer-Analyses, Cox proportional hazards models and time-stratified analyses were employed.

**Results:** A total of 567 ATTR-CM (77±7 years, 52 [9%] women) were included. At diagnosis, women were older (80.3±6.1vs. 76.9 ± 6.9 years, p <0.001), had higher NYHA class (p <0.001), higher NT-proBNP (2574 vs. 1632 pg/mL, p = 0.006), and lower 6-minute walk distance (320±111 vs. 411±114 meters, p = 0.001). Tafamidis was less frequently prescribed in women (50.0% vs. 69.7%, p = 0.004). In the first two years after diagnosis, women had higher MACE incidence (HR 1.825, 95% CI 1.060–3.134, p = 0.030) and higher 1-year mortality (HR 3.253, 95% CI 1.061–9.979, p = 0.039) and incidence of MACE correlated with higher age (p = 0.013), lower eGFR (p = 0.009), coronary artery disease (p = 0.007) while trending with higher NT-proBNP (p = 0.090). Long-term outcomes (median follow-up time 1.6 years, IQR 0.7-3.1), adjusted for age and NT-proBNP, did not differ between sexes (HR 1.042, 95% CI 0.619–1.757, p = 0.876).

**Conclusion:** In this study, women had a higher risk of MACE and mortality early after diagnosis; however, among those surviving the first two years, no excess risk was observed in adjusted long-term outcomes. This early disadvantage in women may relate to older age, greater comorbidity burden and more advanced disease stage at diagnosis rather than intrinsic sex-specific differences in ATTR-CM.

**COI:** No



## P006

### Heterogeneous left atrial strain trajectories during mavacamten therapy in obstructive hypertrophic cardiomyopathy

Dennis Jensen[1], Thierry Donati[1], Maria Isabel Gonzalez de Hoyo[1], Felix C. Tanner[1 2], Christiane Gruner[1]

*[1]Department of Cardiology, University Heart Center, University Hospital Zurich, Zurich, Switzerland, [2]Center for Translational and Experimental Cardiology, Schlieren, Switzerland*

**Introduction:** Mavacamten improves symptoms and left ventricular outflow tract (LVOT) obstruction in obstructive hypertrophic cardiomyopathy (oHCM). While favorable changes in left ventricular (LV) diastolic function are also well established, the mechanistic response of left atrial (LA) function remains insufficiently characterized. LA strain may capture distinct stages of atrial adaptation to chronic LV pressure overload and its resolution. This study aimed to evaluate LA strain adaptation during mavacamten therapy in oHCM patients.

**Material & Methods:** We analyzed clinical, biochemical, and echocardiographic data from 38 oHCM patients treated with mavacamten at the University Hospital Zurich. LA strain was assessed at baseline, 6 months and last available follow-up.

**Results:** Over a median follow-up of 56±21.7 weeks, mavacamten led to reductions in resting LVOT gradient by 81.3% (from 50.0±33.3 to 9.3±6.2 mmHg)) and Valsalva LVOT gradient by 76.7% (from 89.0±38.0 to 20.7±16.2 mmHg), respectively (both p <0.001). LA volume index decreased by 21.2% (from 47.6±12.9 to 37.5±11.7 ml/m2, p <0.001). Diastolic function and atrioventricular coupling improved, including decreases in average E/e' (-31%, p <0.001), left atrioventricular coupling index (-14%, p = 0.023) and LA stiffness index (-20%, p = 0.002). In contrast, LA strain values did not improve in the overall cohort. However, patients with baseline left atrial reservoir strain (LARS) below median demonstrated increases in LARS from 15.3±3.5% to 18.2±6.3%, LA pump strain (LAPS) from 6.1±3.4% to 6.6±5.7%, and LA conduit strain (LACS) from 9.1±3.6% to 11.6±4.0%. Conversely, patients with baseline LARS above median exhibited reductions in all LA strain components with significant between-group differences (LARS p = 0.006; LAPS p = 0.033; LACS p = 0.009).

**Conclusion:** LA mechanical adaptation to mavacamten therapy in oHCM follows heterogeneous trajectories determined by baseline atrial function. Higher baseline LA strain likely reflects an adaptive state to high LV filling pressure that regresses after LV unloading, whereas lower baseline LA strain identifies advanced atrial dysfunction with partial recovery.

**COI:** D.J., T.G.D., F.C.T. do not have conflicts of interest. M.G. has received presenter fees from Bristol Myers Squibb. C.G. has received consulting/presenter fees from Bristol Myers Squibb, Cytokinetics, GE healthcare.

**Fig. 1 Mean change in LA Reservoir, Pump and Conduit Strain and LA Stiffness Index from baseline to last follow-up**

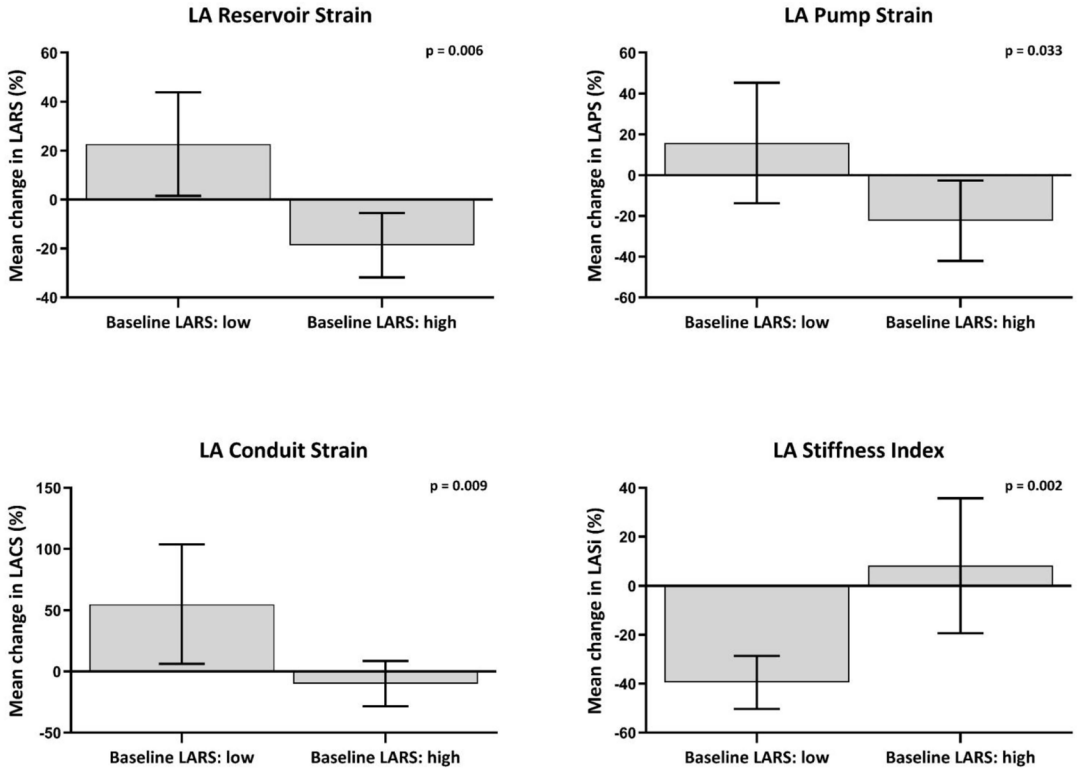



**Fig. 1 Mean change in LA Reservoir, Pump and Conduit Strain and LA Stiffness Index from baseline to last follow-up, LA = Left Atrial; Median LARS at Baseline = 21.2 %; Baseline LARS: low = below median LARS at Baseline; Baseline LARS: high = above median LARS at Baseline**

**Tab. 1 Clinical, laboratory and echocardiographic baseline characteristics of patients undergoing Mavacamten treatment**

| | Variables at baseline | Total (n = 38) | Baseline LARS low (n = 19) † | Baseline LARS high (n = 19) ‡ |
|---|---|---|---|---|
| Clinical History | Age at diagnosis (years) | 51.4 ± 14.9 | 56.5 ± 15.3 | 46.3 ± 12.9 |
| | Age at Mavacamten initiation (years) | 58.4 ± 13.1 | 62.3 ± 12.6 | 54.6 ± 12.9 |
| | Male sex (n) | 26 (68.4%) | 9 (47.4%) | 17 (89.5%) |
| | BMI (kg/m²) | 27.4 ± 5.2 | 27.7 ± 5.0 | 27.1 ± 5.5 |
| | Systolic BP (mmHg) | 132.9 ± 17.1 | 133.7 ± 16.8 | 132.1 ± 17.8 |
| | Diastolic BP (mmHg) | 80.4 ± 10.0 | 79.6 ± 8.5 | 81.2 ± 11.5 |
| | Atrial fibrillation (n) | 5 (13.2%) | 2 (10.5%) | 3 (15.8%) |
| NYHA Class | NYHA II (n) | 12 (31.6%) | 2 (10.5%) | 10 (52.6%) |
| | NYHA III (n) | 26 (68.4%) | 17 (89.5%) | 9 (47.4%) |
| Background Therapy | Beta-Blockers/Calcium Channel Blockers (n) | 35 (92.1%) | 18 (94.7%) | 17 (89.5%) |
| | Disopyramide (n) | 13 (34.2%) | 8 (42.1%) | 5 (26.3%) |
| | ACE-I/ARB (n) | 2 (5.3%) | 1 (5.3%) | 1 (5.3%) |
| | MRA (n) | 2 (5.3%) | 1 (5,3%) | 1 (5.3%) |
| Laboratory | Nt-proBNP (ng/L) | 478 [269 – 1237] | 820 [522 – 1645] | 294 [196 – 638] |
| | Troponin T (ng/l) | 12 [8 – 18] | 12 [9 – 17] | 11 [8 – 20] |
| Echocardiographic | LA volume Index (ml/m²) | 47.6 ± 12.9 | 49.8 ± 15.6 | 45.4 ± 9.5 |
| | LV End Diastolic Volume Index (ml/m²) | 48.3 ± 9.9 | 44.9 ± 8.0 | 51.7 ± 10.6 |
| | LVEF (%) | 67.1 ± 4.5 | 68.1 ± 4.7 | 66.1 ± 4.1 |
| | Maximal LV thickness (mm) | 18.2 ± 2.6 | 18.1 ± 2.9 | 18.4 ± 2.3 |
| | Resting LVOT Gradient (mmHg) | 39 [20 – 82] | 33 [18 – 58] | 62 [25 – 90] |
| | Valsalva LVOT Gradient (mmHg) | 89.0 ± 38.0 | 98.9 ± 38.5 | 79.2 ± 35.7 |
| | Average E/e' | 13.9 ± 5.2 | 16.1 ± 6.0 | 11.7 ± 2.9 |
| | LA Reservoir Strain, LARS (%) | 21.9 ± 8.7 | 15.3 ± 3.5 | 28.6 ± 6.9 |
| | LA Pump Strain, LAPS (%) | 10.0 ± 5.4 | 6.1 ± 3.4 | 13.8 ± 4.1 |
| | LA Conduit Strain, LACS (%) | 11.9 ± 5.5 | 9.1 ± 3.6 | 14.8 ± 5.6 |
| | Left Atrioventricular Coupling Index, LACI (%) | 60.5 ± 24.5 | 74.6 ± 21.1 | 46.4 ± 19.0 |
| | LA Stiffness Index, LASI | 0.60 [0.43 – 0.99] | 0.95 [0.62 – 1.66] | 0.43 [0.31 – 0.53] |

Tab. 1 Clinical, laboratory and echocardiographic baseline characteristics of patients undergoing Mavacamten treatment
LARS = LA Reservoir Strain, Median LARS at Baseline = 21.2 % † LARS below Median LARS at Baseline ‡ LARS above Median LARS at Baseline

## POSTER WALK: SURGICAL CASES

### P007

### The "divine bypass": congenital fistulous connection between the left internal mammary artery and the circumflex coronary artery.

Gojart Hoti[1], Dragan Odavic[2], Juri Sromicki[1], Milan Milojevic[1], Héctor Rodríguez Cetina Biefer[1], Omer Dzemali[1]

*[1]Departement of Cardiac surgery, Allianz Herzchirurgie Zürich-St. Gallen, Zurich, Switzerland, [2]Department of Cardiac Surgery, Allianz Herzchirurgie Zürich-St. Gallen, Zurich, Switzerland*

**Introduction:** Congenital coronary fistulas involving the internal mammary artery (IMA) are rare and are tipically discovered incidentally during work-up for coronary artery disease (CAD). Recognising this anatomy is important, as it may influence surgical strategy and revascularisation planning.

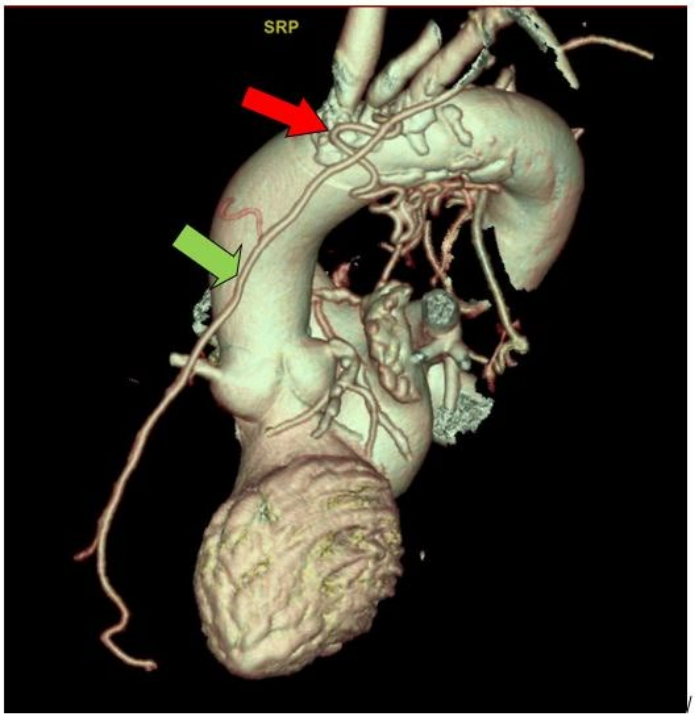
**Material & Methods:** 72-year-old female was referred to our ward for the management of complex triple-vessel CAD after computed tomography performed during assessment of COPD showed significant coronary obstructions. TTE revealed preserved LVEF. Given CCS II angina and NYHA II–III dyspnoea, invasive coronary angiography was performed, followed by CT angiography to define an anomalous vessel course. The patient also had cerebrovascular occlusive disease with approximately 70% stenosis of the common carotid artery.

**Results:** Invasive coronary angiography confirmed a three-vessel CAD with medial 70% stenosis of the LAD, a proximal left circumflex 80% stenosis and a chronically occluded right coronary artery with good contralateral filling. Immediately after bifurcation of the left main coronary artery, an additional branch was visualised coursing cranially toward the circumflex system. Additional CT angiography demonstrated a complex arteriovenous fistulous connection between the left IMA and the proximal left circumflex coronary artery, with an intervening capillary network. Based on coronary anatomy and overall clinical status, the Heart Team recommended surgical myocardial revascularisation. The procedure was performed with the following graft configuration: [LIMA-LAD, SVG-RCA, RA-PLA2]. Postoperatively, the patient was transferred to the ICU, extubated early without neurological deficits. The remainder of the hospital stay was uneventful. Follow-up CT confirmed patency of all bypass grafts, and the patient was transferred to cardiac rehabilitation

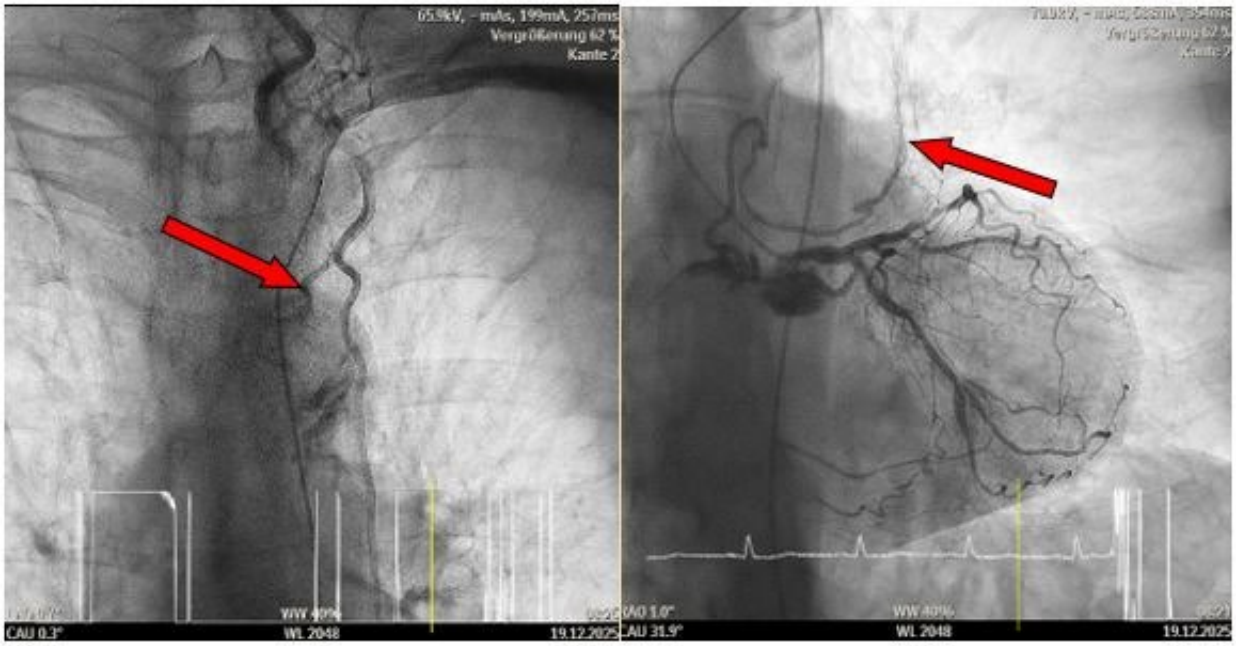
**Conclusion:** This case highlights a rare congenital fistulous connection between the left IMA and the circumflex coronary artery discovered during work-up for multivessel coronary disease. Cross-sectional imaging is essential to delineate anatomy and support Heart Team decision-making and operative planning and graft configurations to allow patient derive most benefits from bypass surgery.

**COI:** No.




*The preoperative 3D reconstruction of the computed tomography scan shows the course of the mammary artery (green arrow) and the lateral branch that runs to the circumflex artery (red arrow).*




*Preoperative, the coronary angiography shows the separate vessel branching off from the proximal left circumflex artery, running cranially with a capillary bed at the level of the pulmonary artery to the aortic arch and ultimately connecting to the left internal mammary artery.*

## P008

### Use Of Sutureless Perceval Valve For Endocarditis After Ozaki Procedure: A Bail-out Strategy In Redo Infectious Aortic Valve Surgery

Ziyad Gunga[1], Mathias Kirsch[1]

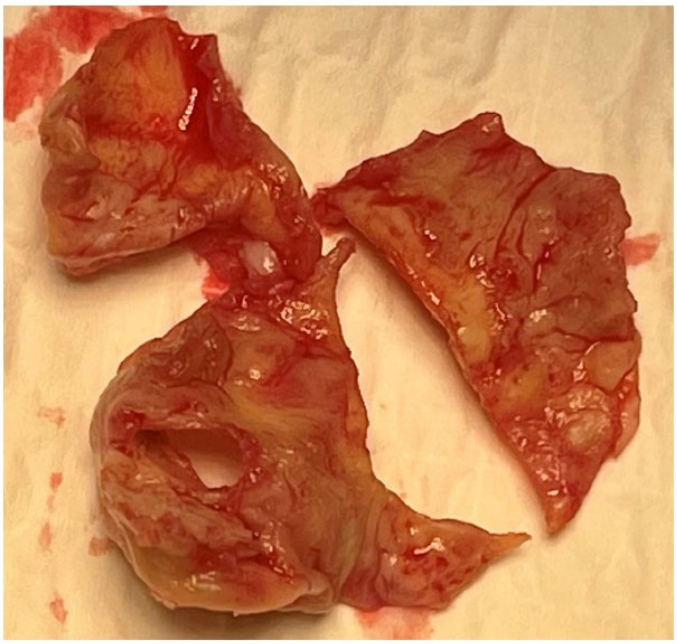
[1]*CHUV, Lausanne University Hospital, Lausanne, Switzerland*

**Introduction:** The Ozaki procedure, an autologous pericardial aortic valve reconstruction, has gained wide adoption due to its excellent hemodynamic results and absence of prosthetic material. Infective endocarditis (IE), though rare, represents its most severe complication and a major technical challenge during reoperation. Sutureless valve technology, particularly the Perceval bioprosthesis, offers advantages in fragile, infected, or reconstructed annuli by minimizing suturing and shortening cross-clamp time.

**Material & Methods:** We describe the first reported case of Perceval sutureless valve implantation as a bail-out strategy for IE after a prior Ozaki procedure. A 68-year-old male previously treated with Ozaki reconstruction and LIMA-LAD bypass presented with septic and cardiogenic shock caused by Streptococcus bovis endocarditis, two years after the first surgery. TOE revealed torrential aortic regurgitation from destruction of the anterior neocuspid and large vegetations. Despite an EuroSCORE II of 89.5%, emergent redo surgery was undertaken. Redo sternotomy revealed extensive leaflet destruction and a sub-annular abscess involving two sinuses. Following radical debridement and annular reconstruction, a medium Perceval valve was implanted due to severe tissue fragility. The prosthesis seated securely with no paravalvular leakage.

**Results: Conclusion:** This case demonstrates that the Perceval sutureless valve can be an effective bailout option for post-Ozaki infective endocarditis, particularly when annular integrity is compromised, and conventional sutured prostheses are high risk. The combination of rapid deployment and minimal annular stress may expand therapeutic possibilities in complex redo aortic surgery.

**COI:** No



## P009

### Management of pericardial effusion associated with empyema: a case report

Lisa Simioni[1], Benoît Rouiller[1], Loreta Korotcenko[1], Jon Andri Lutz[1], Agathe Ménard[1], Mario Togni[1], Stéphane Cook[1], Puricel Serban[1]

[1]*HFR Fribourg – Hôpital cantonal, Fribourg, Switzerland*

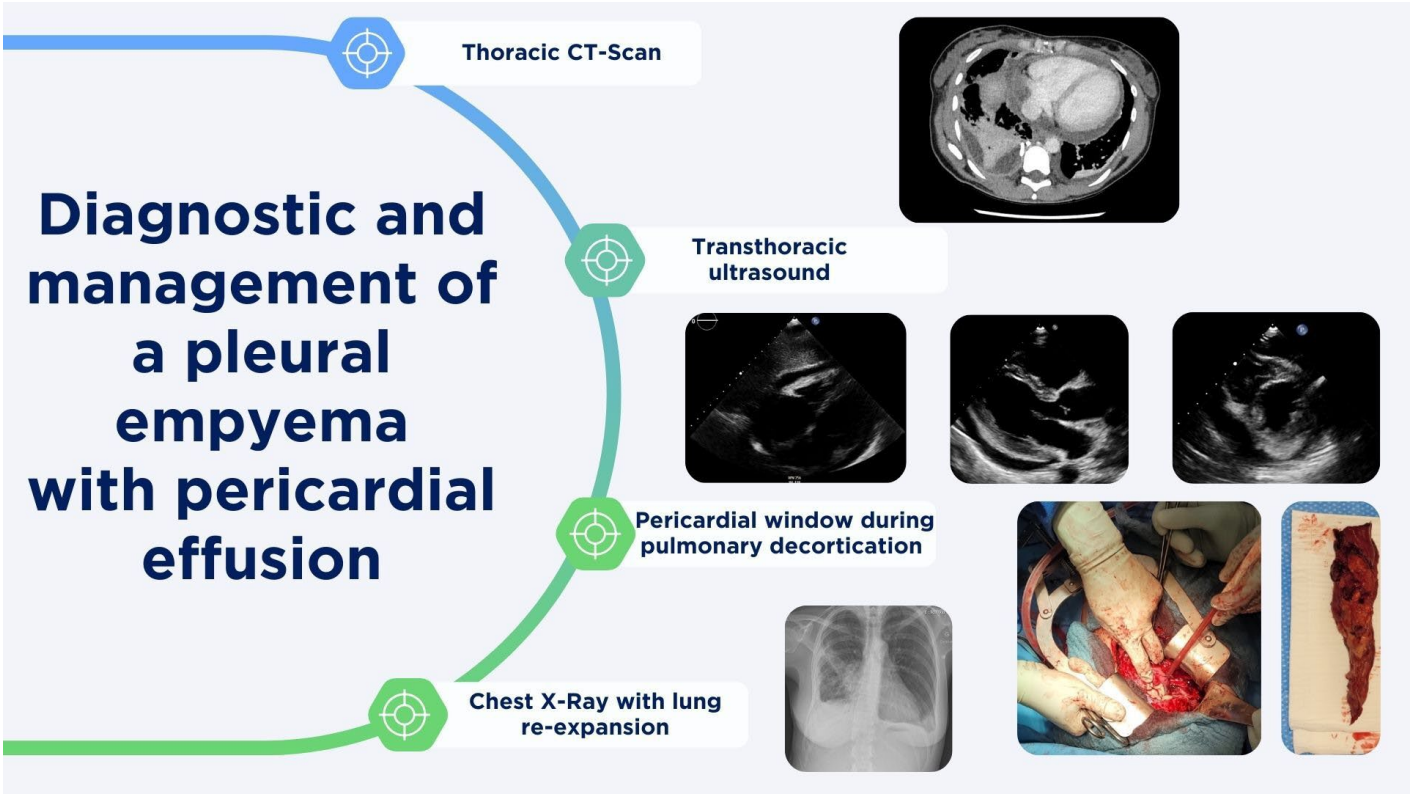
**Introduction:** Pleural empyema complicating pneumonia may require pulmonary decortication and is rarely associated with a significant, potentially life-threatening pericardial effusion. Pericardial drainage is usually performed as a separate procedure, while combined pleuropericardial management in a single operative setting remains poorly described. We report a case of combined pleuropericardial surgical management performed in a single operative setting.

**Material & Methods:** We report the case of a 47-year-old female patient admitted for a pneumonia complicated by advanced right pleural empyema, complicated by a significant pericardial effusion. A diagnostic chest CT scan revealed a pericardial effusion with a maximum of 1.3 cm (figure 1). Transthoracic echocardiography showed a circumferential pericardial effusion measuring 2.2 cm, causing hemodynamic instability with right ventricular compression (figure 1). Given the pleural organization and the patient's deteriorating clinical condition, pulmonary decortication by thoracotomy was indicated. Considering the concomitant presence of the pericardial effusion, its hemodynamic impact, and the infectious context, it was decided to perform pericardial drainage by fenestration with fluid analysis.

**Results:** Pulmonary decortication allowed for complete re-expansion of the left lung. A pericardial window, performed during the same surgical procedure, allowed for the drainage of 200mL of serosanguineous pericardial fluid without intraoperative complications (figure 1). Analysis of the pericardial fluid revealed leukocytes and erythrocytes without any pathogens. The postoperative course was uneventful, with rapid clinical improvement. The follow-up chest X-ray showed good lung re-expansion (figure 1).

**Conclusion:** Performing a pericardial window during the same surgical procedure as pulmonary decortication for empyema complicated by significant pericardial effusion is a feasible and safe strategy in selected patients. This approach allows for comprehensive management of pleuropericardial involvement, while avoiding iterative or delayed procedures. This case highlights the value of a combined and multidisciplinary strategy in complex forms of thoracic infections with cardiac repercution.

**COI:** No




P010

## Stable at 190 beats per minute: sustained ventricular tachycardia in a HeartMate 3 LVAD patient – a case report

Freya Jenkins[1], Lilly Ilcheva Burger[1], Christian Loeschmann[1], Luca Koechlin[1], Igor Tudorache[1], Milan Milojevic[1], Héctor Rodríguez Cetina Biefer[1], Omer Dzemali[1]

[1]*Universitätsspital Zürich, Zürich, Switzerland*

**Introduction:** In patients without left ventricular assist device (LVAD) support, sustained high-rate ventricular tachycardia (VT) typically causes rapid hemodynamic deterioration and constitutes a medical emergency. In contrast, continuous-flow LVADs may maintain systemic perfusion during malignant ventricular arrhythmias. In LVAD-supported patients, systematic circulation is largely determined by pump flow and adequate right ventricular preload and function, rather than by heart rate–dependent native cardiac output.

**Material & Methods:** A 58-year-old man with ischemic cardiomyopathy (preoperative left ventricular ejection fraction was assessed to 20%) underwent coronary artery bypass grafting. Postoperatively, he suffered an in-hospital cardiac arrest due to electrical storm with refractory ventricular arrhythmias. As part of a bridge-to-decision strategy, he was supported with a combined veno- arterial extracorporeal life support and micro-axial flow pump (ECMELLA) before receiving a HeartMate 3 LVAD. Twenty-five days after LVAD implantation, while on the general ward, the patient developed sustained scar-associated monomorphic VT at approximately 190 beats per minute, detected on continuous monitoring and confirmed by electrocardiography (Figure 1). He was already on up-titrated amiodarone therapy. Despite the high ventricular rate, he remained asymptomatic. Mean arterial pressure remained ≥65 mmHg, and LVAD flow stayed consistently above 4 L/min throughout the 90-minute episode, indicating preserved systemic perfusion (Figure 2). No clinical or laboratory signs of end-organ hypoperfusion were observed. Given the prolonged duration of VT and the arisks of right ventricular decompensation, thromboembolism, and arrhythmia progression, a multidisciplinary team decided to proceed with electrical cardioversion. Sinus rhythm was restored safely and successfully, without recurrence.

**Results:**

**Conclusion:** Sustained high-rate VT in LVAD patients may not present as an immediate haemodynamic emergency as it does in non-LVAD patients. Nevertheless, timaly rhythm control remains essential to prevent secondary complications, particularly right ventricular failure and thromboembolic complications.

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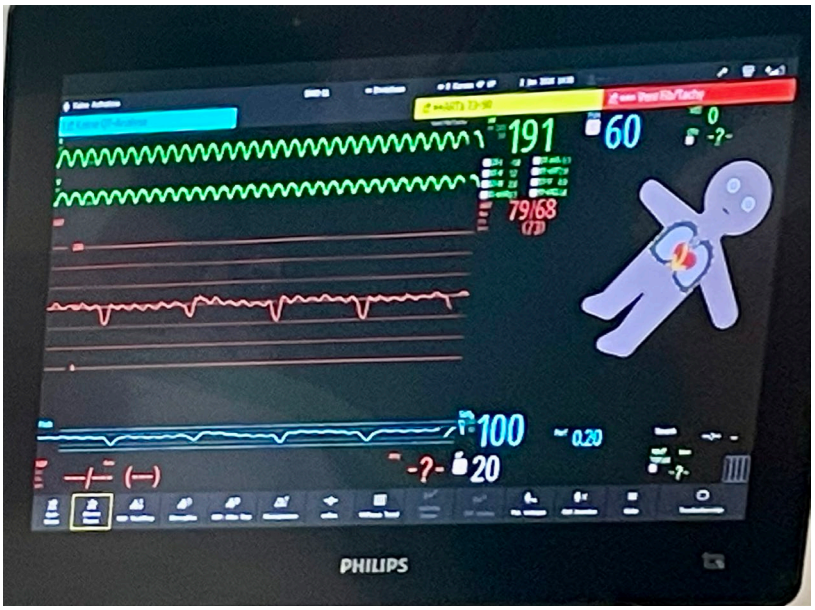
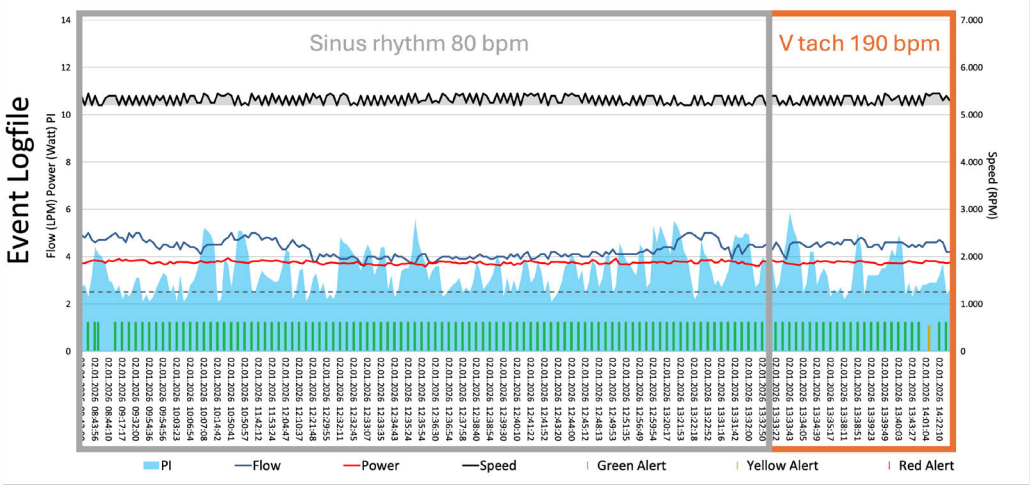



## P011

### Large Intrapericardial Mass Mimicking Malignancy: A Diagnostic and Surgical Challenge

Filip Dulguerov[1], Jorge Sierra[1], Matthias Kirsch[1]

[1]*CHUV, Cardiac Surgery Department, Lausanne, Switzerland*

**Introduction:** Cardiac masses and tumors represent a diverse set of conditions, encompassing primary tumors, metastatic disease, and various other conditions that may mimic tumors, such as thrombus. Their clinical presentation can vary widely, from being an incidental finding on imaging tests conducted for unrelated reasons to more serious manifestations, including cardiac tamponade, arrhythmias, obstruction, and systemic embolism.

**Material & Methods:** Materials & Methods We report the case of a 31-year-old male with a history of autosomal dominant polycystic kidney disease. He was initially hospitalized in late December for viral pericarditis with a minimal, asymptomatic pericardial effusion and was discharged with medical treatment. He was readmitted to the emergency department the following day with epigastric pain, vomiting, and syncope. Ultrasound detected a significant pericardial effusion, which led to percutaneous drainage. Despite minimal drainage output, the patient remained dyspneic. An emergency chest CT scan, conducted to rule out pulmonary embolism, revealed an 8.5 cm mass centered on the pericardium near the right atrium, of undetermined origin. Further evaluation with MRI and PET CT identified a large intra-pericardial mass in contact with the right heart chambers, suggesting malignancy, though no secondary lesions were noted on the whole-body PET scan. A biopsy performed through right thoracoscopy revealed partially calcified fibrous tissue without malignant characteristics.

**Results:** A sternotomy is performed, revealing a large (10x7x4 cm), lobulated fibrous tumor in contact with the right atrium, extending around the aorta and pulmonary artery, but without invasion of cardiac structures. The tumor was easily resected by creating a cleavage plane without the need to use extracorporeal circulation. The lymph nodes from the Barety compartment nodes were removed and sent for histopathological analysis along with the tumor itself.

**Conclusion:** Histopathological diagnosis based on microscopic examination and immunohistochemical analyses revealed a solitary intrapericardial fibroma.

**COI:** No

## POSTER WALK: RHYTHM DISORDERS I

### P012

### Biotronik defibrillators under field safety notice for potentially rapid battery depletion: a multicenter international registry.

Beat Schär[1], Andreas Haeberlin[2], Fabian Noti[2], Marc Strik[3], Sing-Chien Yap[4], Christian Sticherling[1], Dominic Amj Theuns[4]

*[1]Universitätsspital, Basel, Switzerland, [2]Inselspital, Bern, Switzerland, [3]CHU Bordeaux, Service de Cardiologie, Bordeaux, France, [4]Erasmus MC, Rotterdam, Netherlands*

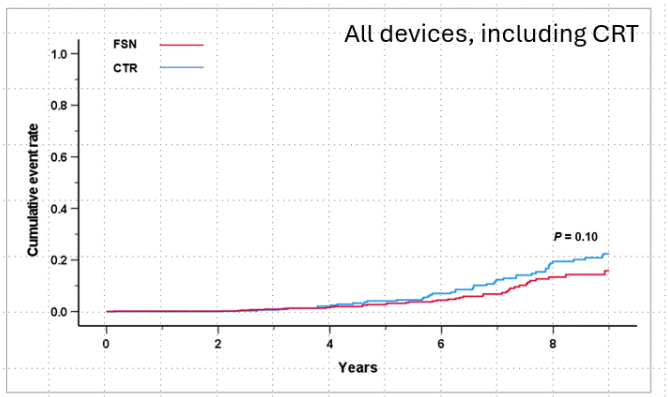
**Introduction:** Some Biotronik ICDs and CRT-Ds show a premature and often rapidly occurring battery depletion due to "lithium plating". Potentially affected models depend on batches and are e.g. Ilivia and Iperia devices. A field safety notice (FSN) with a projected failure rate of 0.17% after 5 years was issued. The FDA classified this incident as a Class II recall. In May 2024, Biotronik product performance reports indicated a cumulative failure rate at 5 years of 1.4%. Aim of this international multicentre registry study is to report real-life data.

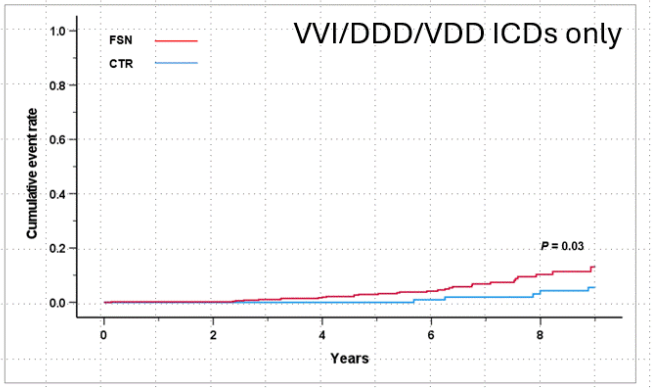
**Material & Methods:** Control devices stem from the same Biotronik models but are not under the FSN. Lead survival was calculated using KM curves.

**Results:** 1053 Biotronik devices were included (442 controls; 611 under FSN). Age of patients was 57±15years (controls 55±15 years versus FSN 59±14 years, P <0.001). 43% of patients had ischemic heart disease (controls 38% versus FSN 47%, P = 0.007). Primary prevention was present in 63%. Type of ICD was single chamber in 33%, dual in 22%, CRT in 20% and VDD in 16% (only data from 954 devices available). Premature depletion was observed in 23 devices in the FSN group (4%). Figure 1 displays failure rate of all device types together. To correct for a potential bias, as CRT was much more prevalent in the control group (39% vs 8% in PA), figure 2 displays failure rate excluding CRTs. Failure rate at five years was 4%, thus higher as declared by Biotronik. The annual failure rate is 1.4% in each group. However, depletion starts occurring 2.4 years after implant in the FSN group, compared to 5.6 years in controls.

**Conclusion:** Premature battery depletion is much more common that reported by Biotronik, highlighting the need for industry-independent data. Close monitoring of patients with a device under FSN is recommended.

**COI:** No




### P013

### Incidence, Predictors and Outcome of Severe Tricuspid Regurgitation After Transvenous Lead Extraction: Real-World Experience from a Swiss Nationwide Cohort Study

Martin F. Reiner[1], Daniel Hofer[2], Dennis Jensen[1], Nadine Molitor[1], Andreas Haeberlin[3], Fabian Noti[3], Tobias Reichlin[3], Giulia Domenichini[4], Beat Schär[5], Michael Kühne[5], Giulio Conte[6], Michal Gruszczynski[7], Haran Burri[8], Christian Grebmer[9], Alexander Breitenstein[1]

*[1]Department of Cardiology, University Heart Center, University Hospital Zurich, Zurich, Switzerland, [2]Department of Cardiology, Stadtspital Triemli, Zurich, Switzerland, [3]Department of Cardiology, Inselspital, Bern University Hospital, Bern, Switzerland, [4]Department of Cardiology, Lausanne, Switzerland, [5]Department of Cardiology, University Hospital of Basel, Basel, Switzerland, [6]Cardiology Department, Cardiocentro Ticino Institute, Lugano, Switzerland, [7]Heart Surgery, Stadtspital Triemli, Zurich, Switzerland, [8]Department of Cardiology, University Hospital Geneva, Geneva, Switzerland, [9]Department of Cardiology, Luzerner Kantonsspital, Lucerne, Switzerland*

**Introduction:** Severe tricuspid regurgitation (TR) is a major complication of transvenous lead extraction (TLE) and is associated with heart failure events and mortality.

**Material & Methods:** This Swiss nationwide cohort study included 638 patients with a planned extraction procedure for at least one transvenous lead with a dwell duration ≥12 months or the use of a dedicated extraction tool. Univariable logistic regression identified patient characteristics associated with severe TR.

**Results:** Median age was 70years (IQR60-78), 30% were female. Severe TR after TLE occured in 6 patients (1%). Patients with severe TR had a lower left ventricular ejection fraction (35%[30-45%] vs. 50%[36.5-60%],p = 0.033), were more likely to have dilated cardiomyopathy (3[50%]vs.99[16%],p = 0.022), moderate TR (4[67%] vs. 84[13%],p = <0.001), ≥1 right atrial lead (1[17%] vs. 9[1%],p = 0.003), ≥2 right ventricular leads (2[33%] vs. 49[8%],p = 0.021) and an ICD-lead (5[83%] vs. 201[35%],p = 0.014). Laser sheaths were more often used for TLE of the right ventricular (2[33%]vs.40[7%],p = 0.013) and the coronary sinus lead (1 out of 3 [33%] vs. 3 out of 108 patients [3%],p = 0.005). Procedure-related death was higher in patients with severe TR (1[17%]vs.5[1%],p <0.001). Univariable logistic regression revealed that dilated cardiomyopathy (OR5.38,CI1.07-27.06,p = 0.041), moderate TR (OR13.05,CI2.35-72.35,p = 0.003), ≥1 right atrial lead (OR13.84,CI1.47-130.78,p = 0.022), ≥2 right ventricular leads (OR 5.95,CI1.06-33.3,p = 0.042), ICD-leads (OR 9.33,CI1.08-80.39,p = 0.042), and the use of a laser sheath for TLE of the

right ventricular lead (OR6.7,CI1.19-37.7,p = 0.031) and coronary sinus lead (OR17.5,CI1.22-250.36,p = 0.035) predicted severe TR.

**Conclusion:** Development of severe TR after TLE is rare. The presence of dilated cardiomyopathy, moderate TR, a higher number of implanted leads and usage of laser sheaths were associated with severe TR. Severe TR was associated with procedure-related death.

**COI:** No

## P014

### Pacemaker implantation in nonagenarians: indications and survival

Liam Hathaway[1], Michael Kühne[1], Patrick Badertscher[1], Philipp Krisai[1], Nicolas Schärli[1], Felix Mahfoud[1], Christian Sticherling[1], Beat Schär[1]

[1]*Universitätsspital, Basel, Switzerland*

**Introduction:** Pacemaker implantations (PI) in geriatric patients are increasing, in accordance with rising life expectancy in Switzerland. However, the rationale is often questioned, not least by patients and relatives, regarding unnecessary expenditure of money, patient end-of-life decision, and clinical necessity. This study aimed to evaluate indications for PI, trends in implantation rates, and survival, depending on underlying bradyarrhythmia.

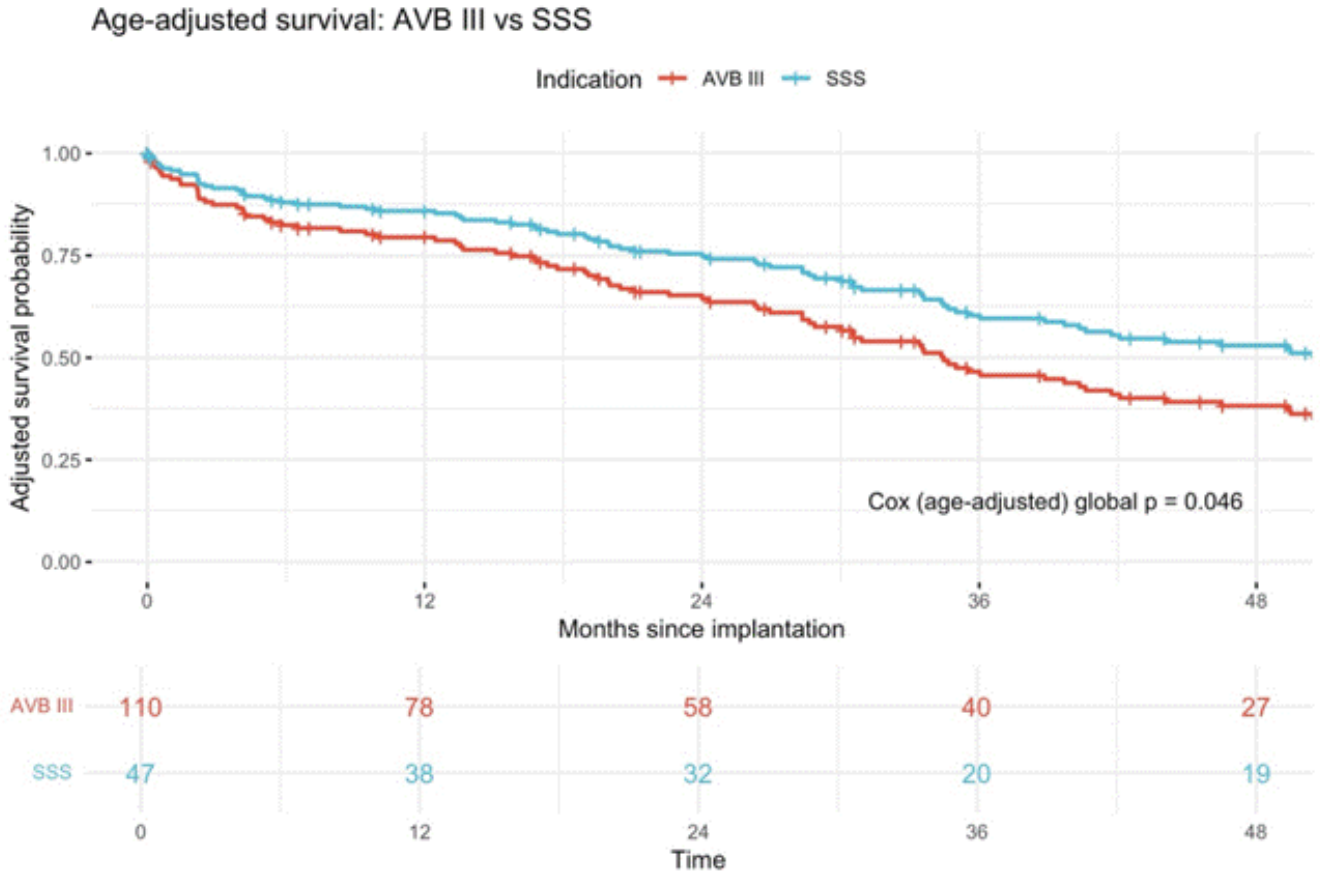
**Material & Methods:** Inclusion of all patients implanted between 2002 and 2024 with any type of pacemaker, aged at least 90-years at time of PI. Indications for implant were derived from charts. Vital status was determined using either obituaries, contact to health persons, or time of last device interrogation, as appropriate. File closure was 4/2025.

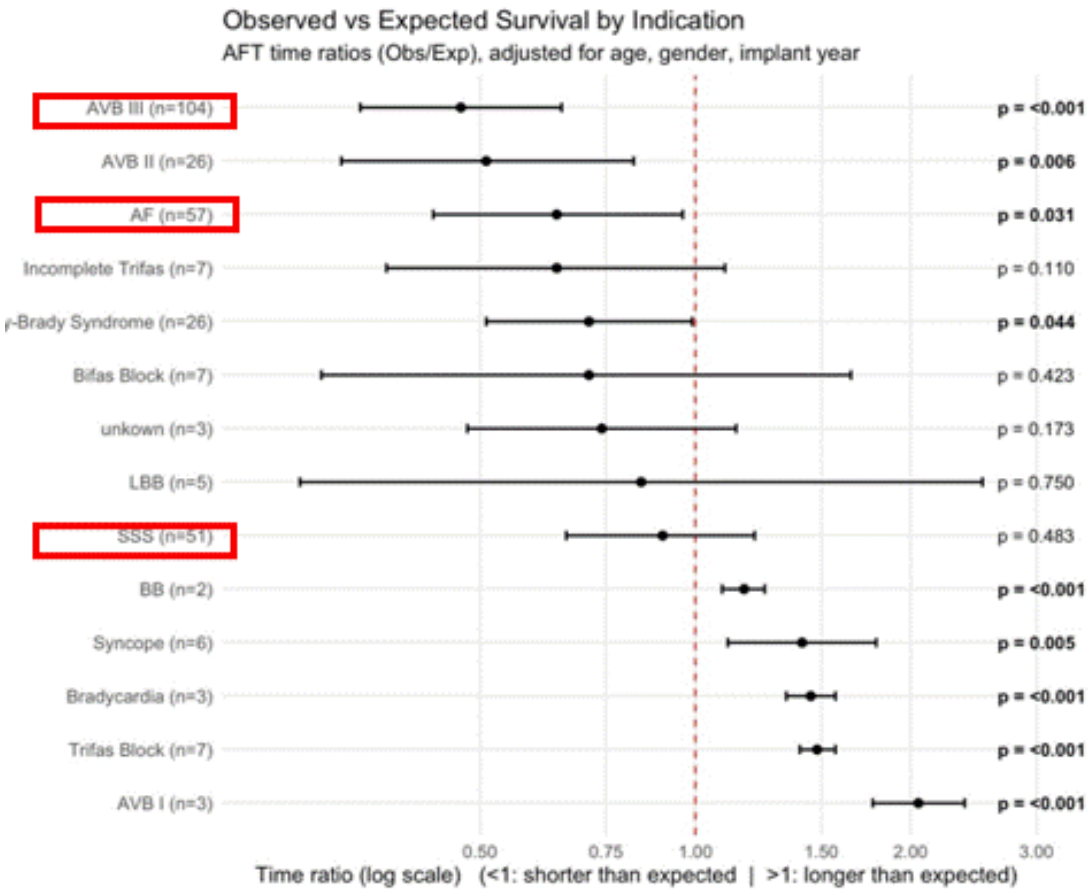
**Results:** 309 patients were included, representing 7% of all implants. Mean age was 92.7-years, with 14% being >96-years. 48% were women, 65% had died at file closure. Main indications were AV-Block III in 34%, atrial fibrillation with slow ventricular response in 18%, and Sick-Sinus-Syndrome (SSS) in 17%. A linear increase of implant rates was observed, from 4 patients (2002/2003) to 50 (2023/2024), finally pertaining almost 10% of all implants. Mean age at implant remained stable.

Age-adjusted survival is shown in Figure 1 (for AVB III and SSS), 54% and 38% at 4 years (p-value 0.046), respectively. Overall mortality was 3.7% at 1, 8% at 3, 16% at 12, 48% at 36 and 69% at 60 months. Using accelerated failure time models to compare actual to estimated survival in the general Swiss population (persons of same age, derived from Swiss Federal Statistical Office), we found an impaired time ratio of 0.67 (95%CI 0.57-0.91, p-value >0.001), especially for AV-Block III (figure 2).

**Conclusion:** Pacemaker implantation in nonagenarians, properly indicated, is a steadily expanding field, offering meaningful survival despite very old age. Median survival after implant was 40 months.

**COI:** No






**P015**

## Impact of Ablation Modality on Alternative Efficacy Endpoint Definition of Pulmonary Vein Isolation for Atrial Fibrillation

Fabian Jordan[1], Corinne Isenegger[1], Behnam Subin[1], Sven Knecht[1], Philipp Krisai[1], Nicolas Schärli[1], David Spreen[1], Christian Sticherling[1], Felix Mahfoud[1], Michael Kühne[1], Patrick Badertscher[1]

[1]*University Hospital of Basel, University of Basel, Basel, Switzerland, Cardiovascular Research Institute Basel, Basel, Switzerland, Basel, Switzerland*

**Introduction:** Pulsed-field ablation (PFA) is an innovative interventional therapy for atrial fibrillation (AF). Previous studies showed similar efficacy for PFA compared to thermal ablation. Little is known regarding the impact of the ablation modality on alternative efficacy endpoint definition.

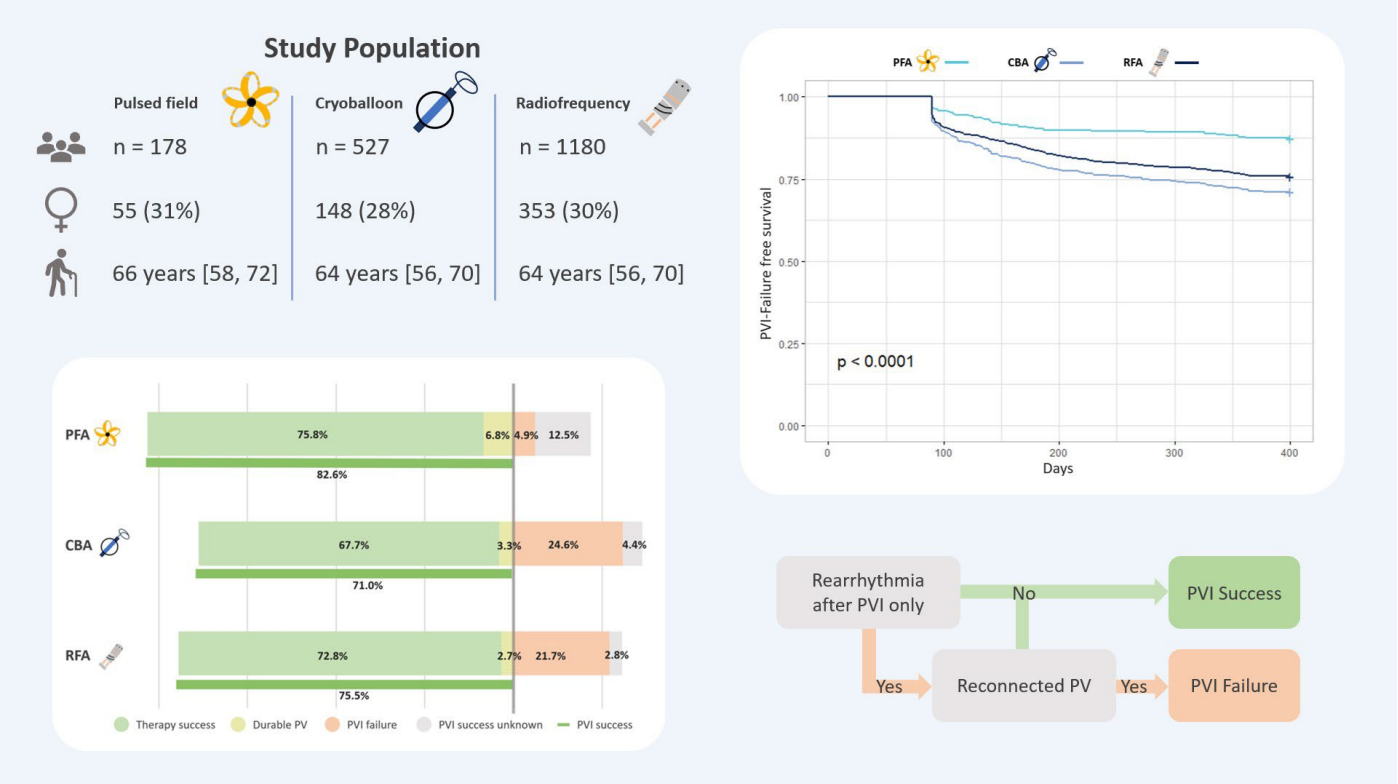
**Material & Methods:** Consecutive patients undergoing first-time pulmonary vein isolation (PVI) for AF using PFA, CBA or RFA without additional lesions (PVI only approach) were enrolled and prospectively followed up for at least 365 days. An alternative efficacy endpoint was used, defined as a) no atrial arrhythmia lasting >30s during a follow-up of 365 days or b) no reconnected PV during the first invasive redo-procedure.

**Results:** A total of 1885 patients who underwent their first PVI for AF and had complete 365 days follow-up data available, were included in the analysis. 178 Patients underwent PFA (9%), 527 CBA (28%) and 1180 RFA (63%). Proportion of female patients was comparable between PFA and the other modalities and left atrial volume index was similar too.

Using an alternative efficacy endpoint definition, treatment success was significantly higher in patients treated with PFA (PFA 83% (n = 147) compared to CBA 71% (n = 374), p <.001 and RFA 76% (n = 897), p <.001). Clinical success using arrhythmia-free survival was 76% for PFA compared to 68% for CBA, p = .052 and 73% for RFA, p = .404. 574 patients with any atrial arrhythmia recurrence (31% of all patients) underwent redo-procedures. Among these patients, durable isolated PV were found during their first redo-procedure in 58% for PFA, in 12% for CBA and in 11% for RFA%; (PFA vs CBA p <.001, PFA vs RFA p <.001).

**Conclusion:** When using an alternative efficacy endpoint based on arrhythmia-free survival and durable isolated PV in patients undergoing PVI for the treatment of AF, PFA was associated with improved success rates compared to RFA and CBA in patients with AF undergoing PVI.

**COI:** No




## P016

### Post-procedural inducibility and the need for ICD implantation after VT ablation in structural heart disease with mild to moderately reduced ejection fraction

Jennifer Beney[1], Thomas Kueffer[1], Valon Spahiu[1], Hildegard Tanner[1], Fabian Noti[1], Andreas Haeberlin[1], Gregor Thalmann[1], Thomas Seiler[1], Nikola Kozhuharov[1], Claudia Herrera Siklody[1], Laurent Roten[1], Tobias Reichlin[1], Boldizsar Kovacs[1]

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**Introduction:** Structural heart disease increases the risk of ventricular tachycardia (VT) and sudden cardiac death. Catheter ablation reduces VT recurrence, and noninducibility at the end of the procedure may help identify patients in whom ICD implantation can be safely deferred. ILR or PPM implantation can support rhythm monitoring.

**Material & Methods:** Patients undergoing first VT ablation between 2019–2024 were prospectively enrolled. Inclusion criteria were structural heart disease, LVEF ≥35%, and ≥3 months of follow-up. Inducibility was assessed at the beginning and end of procedure. ICD or ILR implantation was recommended and guided by shared decision-making. Outcomes included VT recurrence, ICD shock, redo ablation, and death, compared by end-procedural inducibility.

**Results:** Sixty-three patients underwent VT ablation with a median follow-up of 385 days. Sixty-three percents had an ICD at baseline. VT reinduction was performed for 87% with a noninducibility rate of 70%.

Among 44 noninducible patients, ischemic CM was most common for 45.5%, and 61% had an ICD at baseline. Post-ablation, five (29%) received an ICD (median 3 days), five (29%) an ILR (median 10 days), two already had a PPM, and one received a PPM at 6 months. Five patients (8%) had no form of CIED.

Among 11 inducible patients, non-ischemic CM predominated for 47.7%, and 73% had an ICD at baseline. All three without an ICD received one during the index hospitalization.

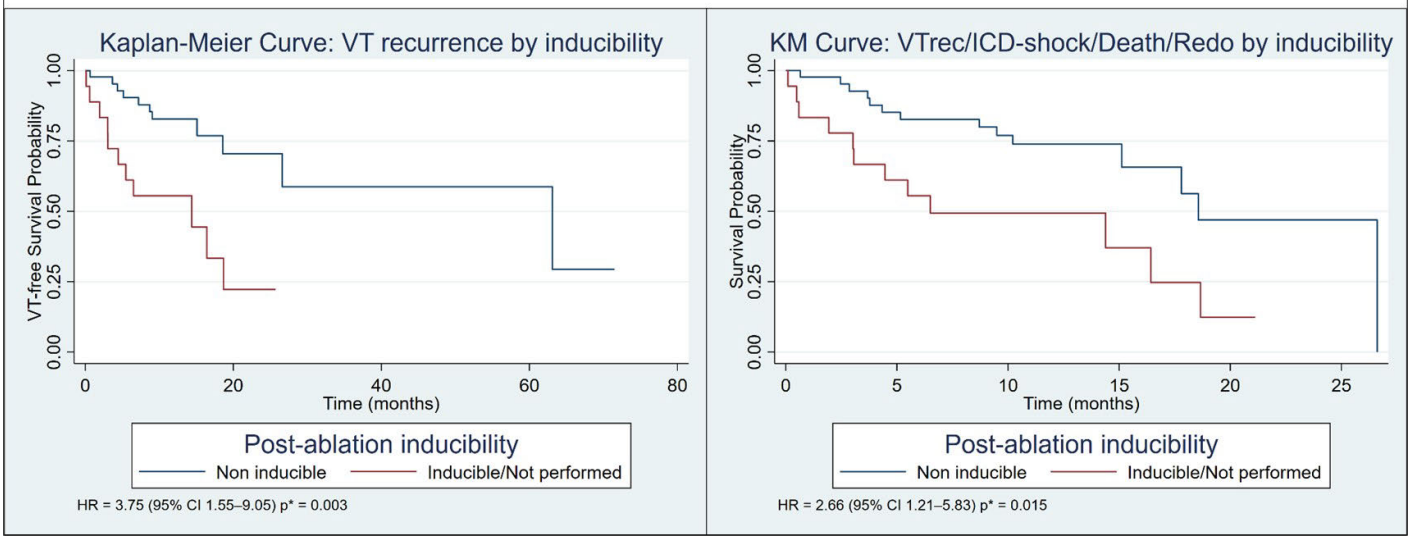
Eight additional patients did not undergo repeat induction due to procedural duration or hemodynamic instability. Of these, five had an ICD at baseline, two were implanted during follow-up, and one declined device therapy.

Non-inducibility versus any inducibility was associated with a higher risk of VT recurrence.

**Conclusion:** Patients with structural heart disease and LVEF ≥35%, post-procedural inducibility was strongly associated with worse outcomes. Tailoring ICD implantation to inducibility status with shared decision-making is a reasonable individualized strategy after VT ablation.

**COI:** No

Figure 1: KM curve for VT recurrence and composite endpoint of VT recurrence, ICD-shock, redo-ablation and death by inducibility or noninduciblity/not performed.




| Table 1<br>Patient characteristics | All<br>(n = 63) | Non-inducible<br>(n = 44) | Inducible/not performed<br>(n = 19) |
|---|---|---|---|
| Age at procedure, y | 66.8 (11.5) | 68.1 (11.3) | 63.8 (11.8) |
| Male | 58 (92.1) | 41 (93.2) | 17 (89.5) |
| BMI | 27.3 (4.4) | 27.7 (4.4) | 26.6 (4.4) |
| NYHA | 1.4 (0.6) | 1.4 (0.6) | 1.4 (0.7) |
| Hypertension | 45 (71.4) | 32 (72.7) | 13 (68.4) |
| Diabetes mellitus | 12 (19.0) | 10 (22.7) | 2 (10.5) |
| Dyslipidemia | 39 (61.9) | 30 (68.2) | 9 (47.4) |
| Prior stroke/TIA | 2 (3.2) | 1 (2.3) | 1 (5.3) |
| Peripheral arterial disease | 3 (4.8) | 1 (2.3) | 2 (10.5) |
| Chronic kidney disease | 11 (17.5) | 7 (15.9) | 4 (21.1) |
| Atrial fibrillation | 18 (28.6) | 12 (27.3) | 6 (31.6) |
| COPD | 7 (11.1) | 4 (9.1) | 3 (15.8) |
| Sudden cardiac arrest | 7 (11.1) | 1 (2.3) | 6 (31.6) |
| Ischemic cardiomyopathy | 27 (42.9) | 20 (45.5) | 7 (36.8) |
| Non-ischemic cardiomyopathy | 21 (33.3) | 12 (27.3) | 9 (47.4) |
| Mixed cardiomyopathy | 15 (23.8) | 12 (27.3) | 3 (15.8) |
| LVEF, % | 49.4 (8.7) | 48.9 (8.1) | 51 (10) |
| Prior implantable cardiac defibrillator | 40 (63.5) | 27 (61.4) | 13 (68.4) |
| Previous ICD shock | 22 (35.5) | 13 (29.5) | 9 (50.0) |
| Creatinine | 98 (35.3) | 91.5 (23.4) | 113.0 (51.4) |
| Kalium | 4.1 (0.4) | 4.1 (0.4) | 4.2 (0.3) |
| Hemoglobin | 137.9 (18.6) | 138.7 (18.7) | 135.8 (18.7) |
| Platelets | 212.2 (62.9) | 213.0 (67.9) | 210.2 (51.1) |
| Leucocytes | 8.4 (3.0) | 8.0 (2.6) | 9.5 (3.7) |
| Baseline medication | | | |
| Amiodarone | 36 (57.1) | 17 (38.6) | 19 (100) |
| Sotalol | 0 (0) | 0 (0) | 0 (0) |
| Class I | 3 (4.8) | 1 (2.3) | 2 (10.5) |
| Beta-blocker | 51 (81.0) | 38 (86.4) | 13 (68.4) |
| Aspirin | 32 (50.8) | 18 (40.9) | 14 (73.7) |
| Anti-vitamin-K | 4 (6.3) | 2 (4.5) | 2 (10.5) |
| DOACS | 19 (30.2) | 23 (52.3) | 4 (21.1) |
| Diuretics | 21 (33.3) | 14 (31.8) | 7 (36.8) |
| ACE inhibitors/ARB | 24 (38.1) | 19 (43.2) | 5 (26.3) |
| Aldosterone antagonist | 16 (25.4) | 14 (31.8) | 2 (10.5) |
| Statins | 44 (69.8) | 34 (77.3) | 10 (52.6) |
| Procedural characteristics | | | |
| Clinical VT cycle length, ms | 371.7 (71.5) | 376.5 (76.7) | 360.0 (57.6) |
| Inducible at the start of procedure | 59 (93.6) | 42 (95.5) | 17 (89.5) |
| Reinduce at the end | 55 (87.3) | 44 (100) | 11 (57.9) |

## P017

### Sex-specific time trends in ventricular arrhythmias and outcomes among ICD recipients: a 15-year cohort study

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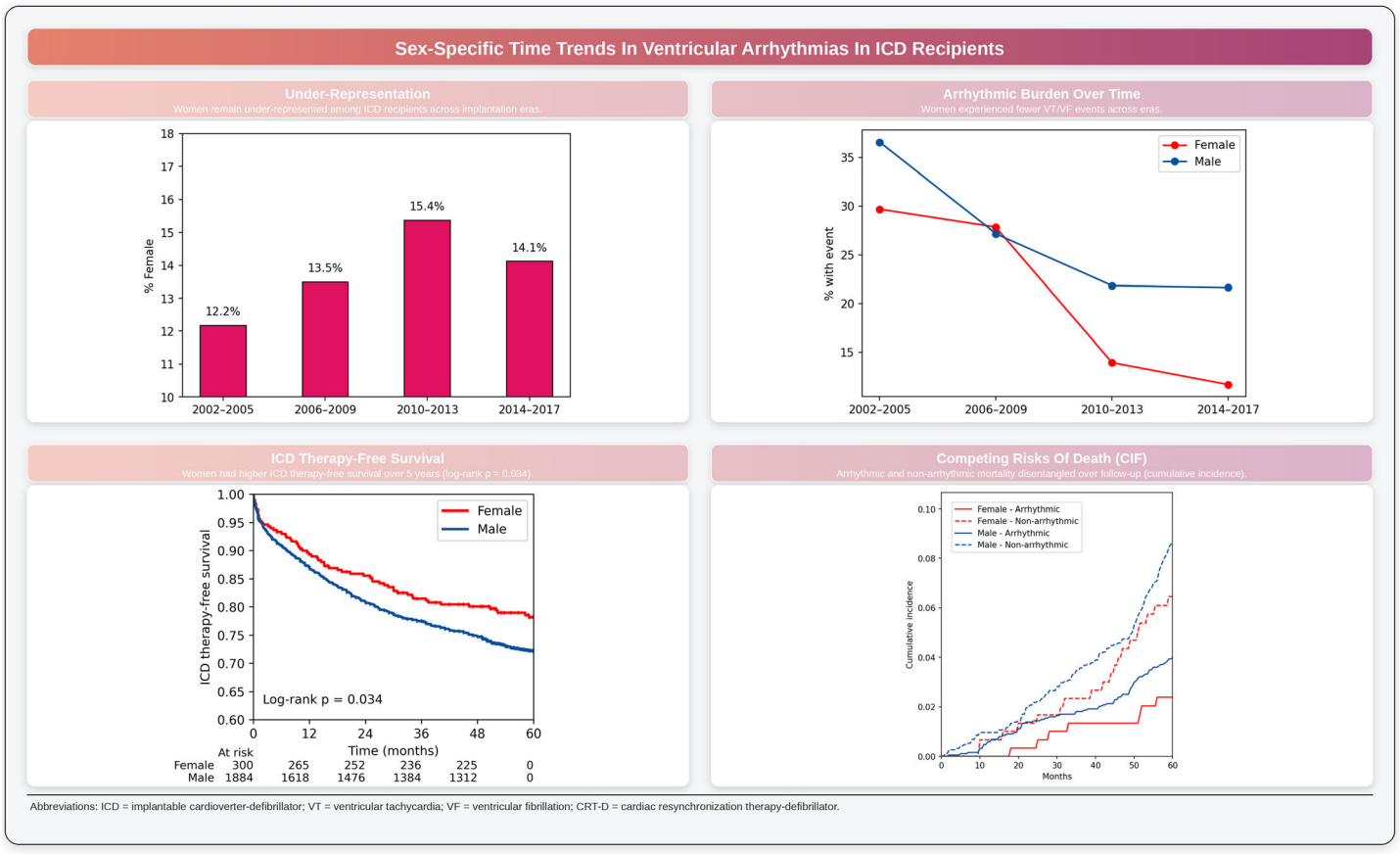
**Introduction:** Women remain under-represented among implantable cardioverter-defibrillator (ICD) recipients, and whether sex-related differences in arrhythmic burden and survival have changed over time is uncertain.

**Material & Methods:** We retrospectively analyzed all de novo ICD implantations at Erasmus MC Rotterdam and University Hospital Basel from 2002 to 2017, dividing the cohort into four implantation eras and following patients for 60 months. Primary outcomes were time to first appropriate ICD therapy and all-cause mortality; secondary outcomes included sustained ventricular tachycardia (VT), ventricular fibrillation (VF), arrhythmic and non-arrhythmic death, and a composite of appropriate therapy, heart transplantation, or death. Kaplan–Meier and logistic regression analyses adjusted for clinical covariates and device type were used.

**Results:** Among 2,184 ICD recipients, 14% were women. At 60 months, women had fewer appropriate ICD therapies than men (21.3% vs 27.2%; p = 0.039). All-cause and arrhythmic mortality were numerically lower in women (8.7% vs 12.4% and 2.3% vs 3.9%, respectively) but not statistically significant. VT occurred less frequently in women than men (22.0% vs 30.4%; p = 0.004), and VT incidence declined significantly over eras in both sexes (p <0.001 in men, p = 0.019 in women). In a multivariable logistic model, sex was not independently associated with appropriate ICD therapy (adjusted odds ratio for male sex 1.24; 95% CI 0.69–2.21; p = 0.47), and there was no evidence that the effect of sex on ICD therapy was modified by time group or CRT status.

**Conclusion:** In this 15-year cohort, women remained under-represented among ICD recipients yet experienced fewer ventricular arrhythmias and appropriate ICD therapies and at least comparable survival compared with men. These sex-related differences in arrhythmic burden persisted across implantation eras and device types, supporting current guideline indications for ICD therapy in women and underscoring the need to address the persistent sex gap in ICD utilization

**COI:** No



P018

## Incidence of atrial fibrillation after haematopoietic stem cell transplantation: the COAST-AF substudy

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**Introduction:** Haematopoietic stem cell transplantation (HSCT) induces a strong systemic inflammatory response that may increase the risk of atrial fibrillation (AF). However, data on the incidence and long-term impact of AF secondary to HSCT are scarce.

**Material & Methods:** 599 HSCT survivors were enrolled into the monocentric Cardiovascular Outcome in Allogeneic Stem cell Transplantation (COAST) study. New-onset AF was defined as secondary when occurring within 30 days post-HSCT without a prior AF diagnosis. Demographic and clinical information were extracted from existing electronic records. Vital parameters, patient outcomes, adverse cardiovascular (CV) events and AF-related treatments were captured during the annual follow-up assessments.

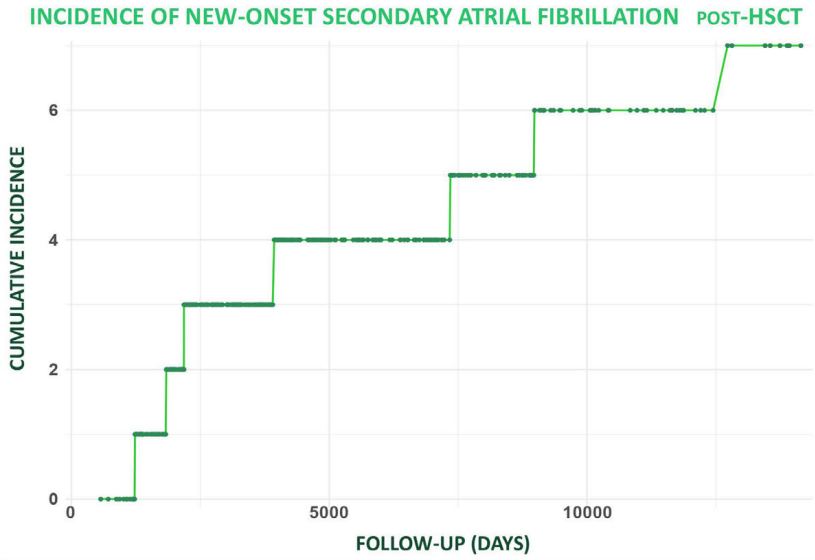
**Results:** Overall, 235 (39.2%) patients were female; mean age was 59±13.96 years, with a mean follow-up of 13.9 years. 19 (3.2%) patients had AF prior to HSCT. Within 30 days post-HSCT, 7 (1.2%, 6 paroxysmal and 1 persistent) patients developed new-onset secondary AF. Among all patients with AF (4.4%), all experienced recurrence, irrespective of whether their AF was pre-existing or secondary. All patients with secondary AF received anticoagulation. During the follow-up period, 8 (1.3%) AF patients underwent an electrical cardioversion for their AF, 2 (0.3%%) of whom later underwent a pulmonary vein isolation due to further AF recurrence. 33 (5.5%) patients experienced a stroke or transient ischemic attack (2.9% ischemic, 1.3% haemorrhagic, 1.3% transient ischemic attack). 16 (2.7%) patients suffered a myocardial infarct, 18 (3.0%) were hospitalised due to heart failure and 67 (11.2%) patients died (6.3% non-CV, 1.5% CV, 4.7% unknown).

**Conclusion:** New-onset secondary AF occurred in a small proportion of HSCT survivors, but all affected individuals experienced AF recurrence, which suggests a persistent arrhythmic burden. Besides AF, these patients experienced a high rate of CV events during long-term follow-up, highlighting the need for prospective examination of AF within this patient population in future studies.

**COI:** No


### PATIENT CHARACTERISTICS

| | |
|---|---|
| **AF pre-HSCT (%)** | |
| No | 506 (84.5) |
| Yes | 19 (3.2) |
| Missing | 74 (12.3) |
| **AF pre-HSCT (type (%))** | |
| Paroxysmal | 17 (89.5) |
| Persistent | 2 (10.5) |
| **LVEF (mean (SD))** | 60 % (6) |
| **LA dia (mean (SD))** | 33.43 mm (5.95) |
| **LAV (mean (SD))** | 49.20 ml (15.48) |
| **LAVI (mean (SD))** | 26.49 ml/m² (8.27) |
| **ECG rhythm at HSCT (%)** | |
| SR | 484 (80.8) |
| AF | 2 (0.3) |
| Other | 9 (1.5) |
| Missing | 104 (17.4) |
| **New AF post-HSCT (%)** | |
| No | 400 (66.8) |
| Yes | 7 (1.2) |
| Missing | 192 (32.0) |
| **New AF post-HSCT (type (%))** | |
| Paroxysmal | 6 (1.0) |
| Persistent | 1 (0.2) |
| **Stroke (%)** | |
| Ischemic | 17 (2.9) |
| Haemorrhagic | 8 (1.3) |
| **Transient Ischemic Attack (%)** | 8 (1.3) |
| **MI (%)** | 16 (2.7) |
| **HF Hospitalisation (%)** | 18 (3.0) |
| **Death (%)** | 67 (11.2) |
| Non-CV | 38 (6.3) |
| CV | 1 (0.2) |
| Missing | 28 (4.7) |





AF = atrial fibrillation, COAST = Cardiovascular Outcome in Allogenic Stem Cell Transplantation, CV = cardiovascular, ECG = electrocardiogram, FU = follow-up, HF = heart failure, HSCT = haematopoietic stem cell transplantation, LA dia = left atrial diameter, LAV = left atrial volume, LAVI = left atrial volume index, LVEF = left ventricular ejection fraction, MI = myocardial infarct, SD = standard deviation, SR = sinus rhythm

P019

## Complication rates in leadless versus lead-based pacemaker therapy for sick sinus syndrome

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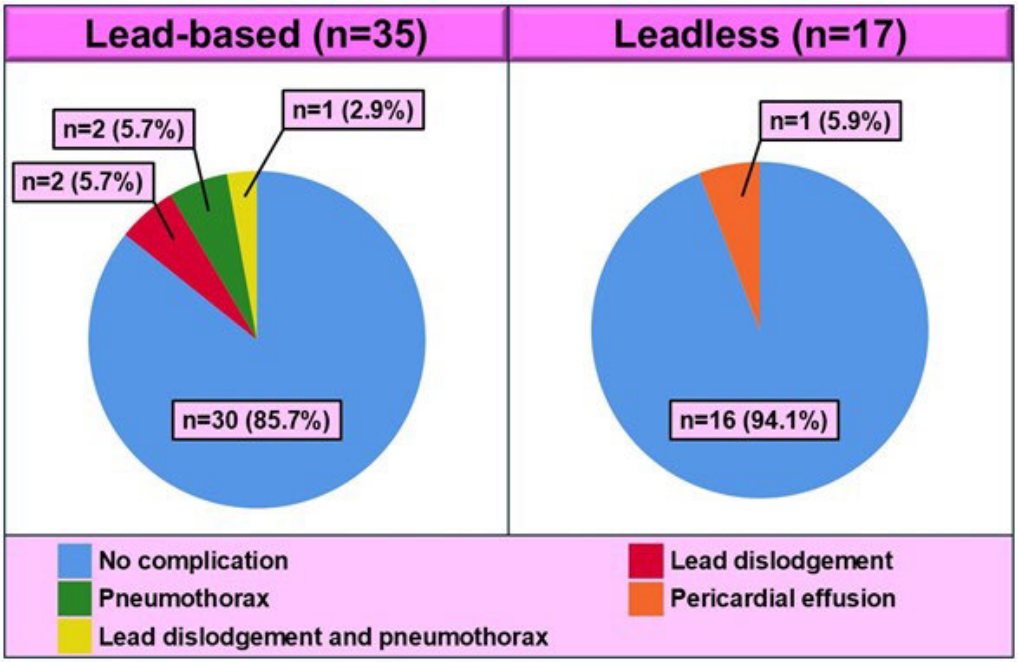
**Introduction:** According to current guidelines, patients with sick sinus syndrome should be implanted with a conventional dual-chamber pacemaker. Lead-based pacemakers are however associated with significant short- and longterm complication rates up to 30% within the battery lifetime. In 2024 an atrial leadless pacemaker was approved for use in Europe, offering leadless AAI pacing with an option for upgrade to a dual chamber leadless pacemaker in case of progressive conduction system disease. The aim of our study was to compare periprocedural complication and reintervention rates between leadless atrial single-chamber pacemakers and lead-based dual-chamber pacemakers in patients with sick sinus syndrome.

**Material & Methods:** This retrospective single-center analysis included patients with sinus node disease who received a pacemaker between 07/2024 and 05/2025. Complication and reintervention rates within 90 days after implantation were assessed and compared between the leadless and conventional lead-based pacemaker groups.

**Results:** 52 patients (mean age 75 ± 11 years, 56% male) were included, of whom 35 (67.3%) received a lead-based dual-chamber pacemaker, and 17 (32.7%) a single-chamber leadless pacemaker. The mean procedure duration was significantly shorter in the leadless group (27 ± 12 min vs. 72 ± 19 min; p <0.001). Complication rates were overall lower in the leadless device group (5.9% vs. 14.3%), and no revisions were required within 90 days, compared with three revisions (8.6%) in the lead-based group; however, these differences were not statistically significant. The complication distribution amongst the two groups is illustrated in the figure below.

**Conclusion:** In patients with sick sinus syndrome, leadless pacemakers were associated with numerically lower complication and reintervention rates, compared with lead-based systems, although statistical significance was not achieved. Larger studies are required to validate these results and assess long-term outcomes.

**COI:** Dr Breitenstein reports consultant and/or speaker fees from Abbott, Bayer Healthcare, Biosense Webster, Biotronik, Boston Scientific,Bristol-Myers Squibb, Cook Medical, Daiichi Sankyo, Medtronic, Pfizer, Zoll, and Spectranetics/Philipps. Dr Mueller reports fellowship and training support from Biotronik, Boston Scientific, Medtronic, Abbott, and Biosense Webster; speaker fees from Biosense Webster, Medtronic, Abbott, AstraZeneca, Daiichi Sankyo, Biotronik, MicroPort, Novartis, Zoll, Bristol-Myers Squibb; and consultant honoraria from Biosense Webster, Medtronic, Abbott, and Biotronik. Dr Wiederkehr reports educational grants from Abbott and Biosense Webster. Dr Jeger reports grants to the Institution from Abbott, Amgen, AstraZeneca, Bayer, Biosense Webster, B. Braun Melsungen AG, Biotronik, Boston Scientific, Bristol-Myers Squibb, Cardionovum, Cordis, Daiichi Sankyo, Edwards Lifesciences, GE Medical Systems,MCM Medsys, Medtronic, Novartis, Pfizer, Terumo, and Vascular Medical GmbH. Dr Hofer reports educational grants, consultant or speaker fees, and fellowship support from Abbott, Medtronic, Biotronik, Boston Scientific, Biosense Webster, Novartis, Bayer, Pfizer, and Spectranetics.



## P020

### Real-world experience with leadless pacemaker upgrades: Comparison of a modular approach to primary dual-chamber leadless pacemaker implantation

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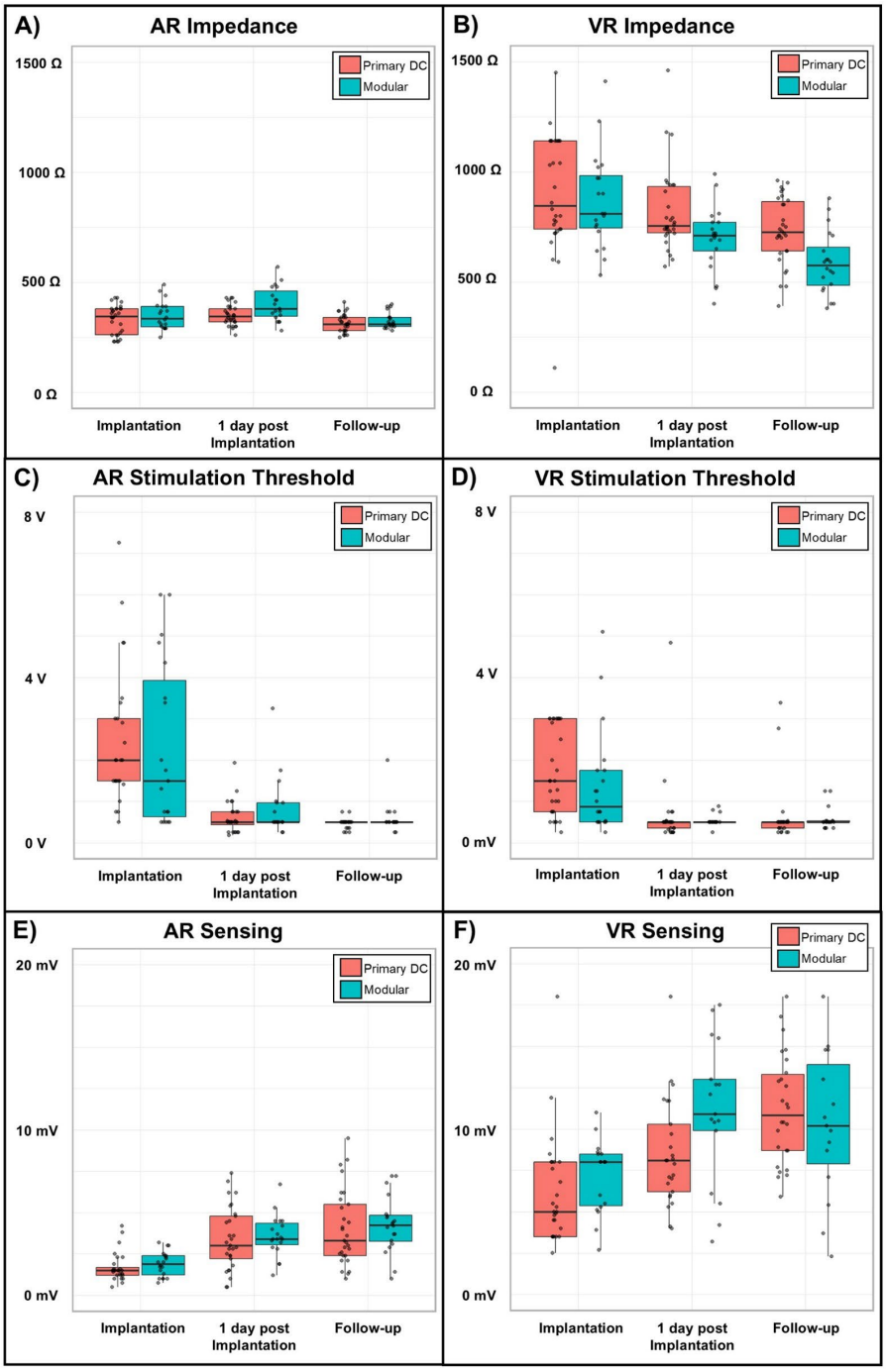
**Introduction:** The recently introduced concept of modular leadless pacing contrasts with the previously established practice of choosing a dual-chamber (DC) pacemaker as the primary approach for sinus node disease and atrioventricular block. However, only scarce data exist on implantation durations, complication rates, and outcomes regarding upgrades from single-chamber (SC) to DC leadless pacemaker (LP) systems compared to primary DC LP implantation.

**Material & Methods:** For this prospective, single-center analysis, we included consecutive patients undergoing implantation of a DC LP system, either as a primary implantation or via a modular approach (initial SC LP implantation followed by a subsequent upgrade), between July 2024 and October 2025. Implantation characteristics and device performance at the first ambulatory follow-up visit were compared between the two groups. Additionally, we conducted a follow-up using our electronic hospital record system to identify any complications occurring after the initial follow-up visit.

**Figure 1**

Device performance. *The values given are median and interquartile range in brackets.*
*AR = Atrial LP*
*VR = Ventricular LP*



**Results:** Of the 50 included patients, 30 (60%) underwent primary DC LP implantation, while 20 (40%) underwent a modular approach. The median procedure duration in the primary group was significantly shorter than the cumulative implantation duration of the modular group (35min vs. 53min, p <0.001). The impedance, pacing threshold, and sensing of the atrial and ventricular LP are presented in Figure 1. Over a median follow-up of 5.5 months (IQR 1-10), the device-related complication rate was 5% (n = 1, pericardial effusion) in the modular group and 6.7% (n = 2, pericardial effusion and pulmonary embolism) in the primary DC group (p = 1). All complications occurred early (within 30 days) after implantation (Figure 2).

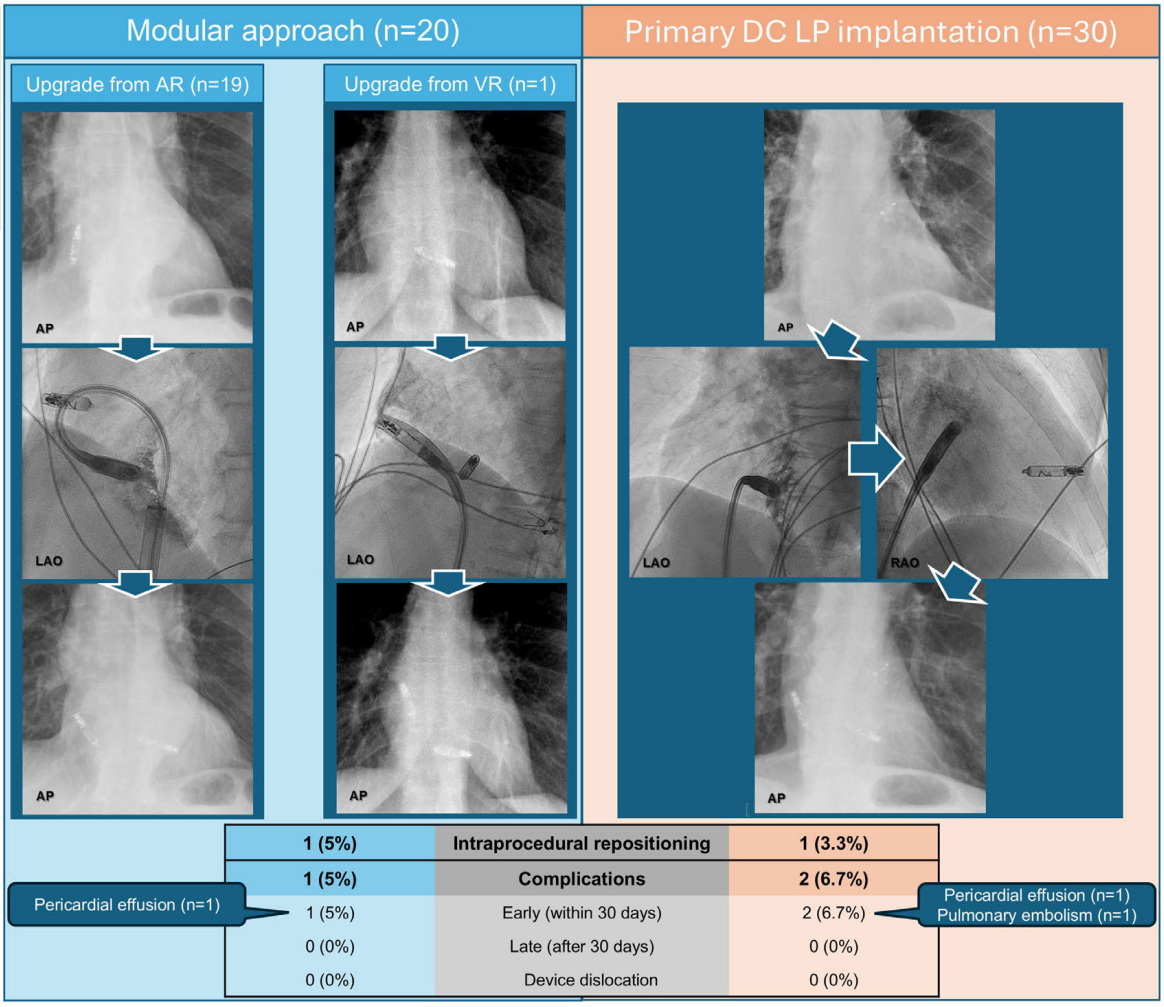
**Conclusion:** Based on our initial experience, a modular approach to LP therapy with secondary upgrades of SC LP is feasible and safe. The complication rate was comparable to that of primary DC LP implantation. This finding stands in contrast to the higher risk profile typically associated with upgrades of conventional lead-based pacemakers.

**COI:** No

| | | Impedance (Ohms) | | | Sensing (mV) | | | Threshold (V) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Group | Implantation | 1 Day post | Follow-Up | Implantation | 1 Day post | Follow-Up | Implantation | 1 Day post | Follow-Up |
| AR | Primary DC | 345 (263-380) | 345 (320-380) | 310 (280-340) | 1.5 (1.2-1.7) | 3.0 (2.2-4.8) | 3.3 (2.4-5.5) | 2.0 (1.5-3.0) | 0.5 (0.4-0.8) | 0.5 (0.5-0.5) |
| | Modular | 335 (298-390) | 380 (345-460) | 310 (300-340) | 1.9 (1.2-2.4) | 3.4 (3.1-4.4) | 4.3 (3.3-4.8) | 1.5 (0.6-3.9) | 0.5 (0.5-1.0) | 0.5 (0.5-0.5) |
| | All | 340 (290-380) | 360 (320-410) | 310 (300-340) | 1.5 (1.2-2.3) | 3.4 (2.4-4.5) | 4.0 (2.6-5.3) | 1.9 (0.9-3.4) | 0.5 (0.5-0.8) | 0.5 (0.5-0.5) |
| | | | | | | | | | | |
| VR | Primary DC | 845 (740-1140) | 755 (723-933) | 725 (640-865) | 5.0 (3.5-8.0) | 8.1 (6.2-10.3) | 10.9 (8.7-13.3) | 1.5 (0.8-3.0) | 0.5 (0.4-0.5) | 0.5 (0.4-0.5) |
| | Modular | 810 (745-983) | 710 (640-770) | 575 (485-658) | 8.0 (5.4-8.5) | 10.9 (9.9-13.0) | 10.2 (7.9-13.9) | 0.9 (0.5-1.8) | 0.5 (0.5-0.5) | 0.5 (0.5-0.5) |
| | All | 820 (740-1048) | 740 (693-808) | 700 (550-780) | 5.8 (4.5-8.0) | 9.3 (6.3-12.0) | 10.4 (8.7-13.4) | 1.3 (0.6-2.8) | 0.5 (0.5-0.5) | 0.5 (0.4-0.5) |

**Figure 2**

Illustration of the implantation procedures and corresponding complication rates.
*AR = Atrial LP*
*VR = Ventricular LP*



## P021

### The impact of mitral valve prolapse surgery on major arrhythmic events

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**Introduction:** Mitral valve prolapse (MVP) affects up to 2% of the population and is usually benign. However, an arrhythmic MVP (AMVP) phenotype has been recognized, characterized by ventricular arrhythmias (VA) that may occur independently of mitral regurgitation (MR) severity. Clinical manifestations range from frequent premature ventricular complexes (PVCs) or nonsustained ventricular tachycardia (NSVT) to life-threatening VA. The impact of MVP surgery on major arrhythmic event (MAE) defined as sustained monomorphic VT or aborted sudden cardiac arrest (SCA) remains unclear.

**Material & Methods:** We conducted a retrospective, single-center cohort study reviewing all consecutive patients undergoing MV surgery for MVP with moderate or severe MV regurgitation between 2015 and 2025. AMVP was defined as MVP with either i) ≥2% PVC burden or NSVT ≥120 bpm lasting <30 s, ii) sustained monomorphic VT and/or iii) aborted SCA. Baseline clinical, imaging, and arrhythmic characteristics were collected. Postoperative arrhythmic outcomes were assessed using ICD interrogations and clinical follow-up. Primary outcomes consisted of postoperative sustained monomorphic VT or SCA.

**Results:** Preoperative MAE were observed in 7 patients: sustained monomorphic VT in 4 (14%) and aborted SCA in 6 (21%) (median age 57 years, 54% female). 2 of these patients also exhibited frequent PVCs or NSVT. Mitral valve repair was performed in 6 of these patients, 5 of them presented severe MR. During follow-up, two of these patients presented sustained monomorphic VT recurrence and two additional patients experienced a MAE: one postoperative aborted SCA and one monomorphic sustained VT. Five patients remained free from MAE.

**Conclusion:** MV surgery in patients with AMVP is associated with heterogeneous postoperative arrhythmic outcomes, with persistence of malignant VA in a subset of patients. These findings highlight the complexity and heterogeneity of arrhythmogenesis in AMVP and support the need for continued arrhythmic surveillance after surgery.

**COI:** No

Table 1. Baseline characteristics

| Characteristics | Total cohort (n=28) n (%) or median [IQR] |
|---|---|
| **Age (years)** | 57 [48–70] |
| **Female sex** | 15 (53.6%) |
| **Symptoms** | |
| - Palpitations | 18 (64.3%) |
| - Syncope | 4 (14.4%) |
| - Dyspnea | 15 (53.6%) |
| **Echocardiography findings** | |
| - Severe MR | 21 (75%) |
| - Bileaflet prolapse | 20 (71.4%) |
| **Type of mitral surgery** | |
| - Mitral valve repair | 23 (82.1%) |
| - Mitral valve replacement | 5 (17.9%) |
| **Inferobasal left ventricular and/or papillary muscle fibrosis on CMR (LGE)** | 22 (78.6%) |
| **ECG findings** | |
| - inferior–lateral T-wave inversion | 7 (25%) |
| - PVCs on baseline ECG | 8 (28.6%) |
| **Preoperative ICD implantation** | 9 (32.1%) |
| **Medical therapy** | |
| - Beta-blocker | 23 (82.1%) |
| - Class Ic/III antiarrhythmic | 5 (17.9%) |
| **Ventricular arrhythmia characterizing AMVP** | |
| - Aborted cardiac arrest (VT/VF) | 6 (21.4%) |
| - Sustained monomorphic VT | 4 (14.2%) |
| - ≥2% PVC burden or NSVT (≥3 consecutive ventricular beats ≥120 bpm lasting <30 s) | 24 (85.7%) |
| **Preoperative VT/PVC ablation** | 3 (10.7%) |
| **Age at sentinel ventricular arrhythmia, years** | 54 [45–64] |

Table 2. Pre- and post-operative evolution of major arrhythmic events

| *Pre-operative arrhythmic status, n = 9* | *Post-operative aborted SCA* | *Post-operative sustained VT* | *No post-operative arrhythmic event* | *Follow-up, months (mean±SD)* |
|---|---|---|---|---|
| *Aborted SCA (PMVT/VF), n=6* | - | 2 | 4 | 8.67± 5.65 |
| *Sustained monomorphic VT, n=4* | - | 2 | 2 | 18.5±12.8 |
| *No aborted CA / no sustained VT, n=2* | 1 | 1 | - | 66±25.5 |

*SCA= sudden cardiac arrest, PMVT/VF = polymorphic ventricular tachycardia/ventricular fibrillation*

## POSTER WALK: CARDIOVASCULAR BASIC SCIENCE

### P022

### At the edge of heart: the paracardial fat tissue (pCF) in heart failure with preserved ejection fraction (HFpEF)

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**Introduction:** cardiometabolic HFpEF (cHFpEF) is a complex, multisystem syndrome in which pathological biological signals converge to drive adverse cardiac remodeling, chronic inflammation, and high mortality. The paracardial fat (pCF) – the largest adipose depot surrounding the heart – has recently emerged as a metabolically active tissue.

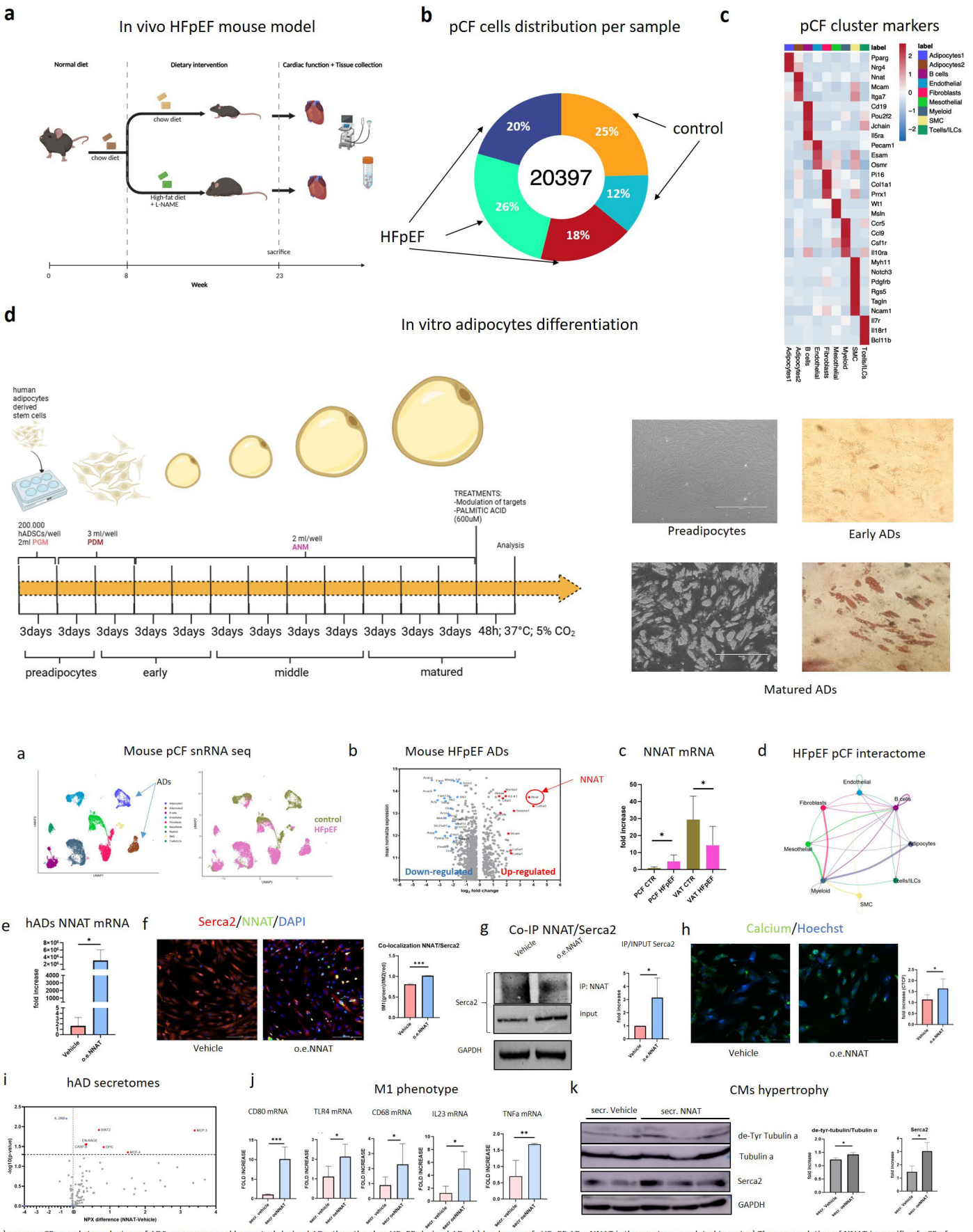
**Material & Methods:** Mouse specimens of control and cHFpEF pCF underwent snRNAseq. Human adipocytes (hADs) were used to investigate the top dysregulated targets observed in vivo. hADs were treated to induce the up or down-regulation via lipotransfection methods (gene-carry plasmids and siRNA) of targets. qPCR RealTime and westernblot were used to investigate the levels of interleukins, mitochondrial and endoplasmic stress;cellular staining was used to localize the target molecule;while colorimetric assays to assest lipid peroxidation. The secretome of AD underwent to proximity extension assay and it was used for indirect co-culture with human monocytes cell line and human immortalized cardiomyocytes.

**Results:** The analysis revealed two different adipocyte groups (controls and cHFpEF adipocytes). The cHFpEF ADs showed a significant dysregulation of several genes on top of them neuronatin (*NNAT, up-regulated*). Pathway analysis confirmed the activation immuno-metabolic signaling and inflammation in pCF cHFpEF. Interactome analysis unveiled a strong link between adipocytes and immune cell activation. To better understand the role of NNAT, this target was modulated in vitro. NNAT was shown to binds Serca2 increasing the intracytosolic level of Calcium that triggers the mitochondrial impairment, inflammation and senescence. The secretome of overexpressing NNAT ADs, was found enriched of pro-chemotactic proteins. The effect of these secretomes on THP1 triggers the switching of M0 machrophage to pro-inflammatory phenotype. In parallel, the secretome of overexpressin NNAT adipocytes is able to upregulate hypertrophic and oxidative stress markers in cardiomyocytes.

**Conclusion:** In cHFpEF, pCF undergoes pathological remodeling that transforms it into a dysfunctional adipose depot with a pro-inflammatory secretory profile that may promote myocardial inflammation and hypertophy

**COI:** No




a) mouse pCF reveals two clusters of ADS: one composed by control-derived ADs, the other by cHFpEF-derived ADs. b) landscape of cHFpEF ADs. NNAT is the most up-regulated target. c) The up-regulation of NNAT is specific of pCF of cHFpEF (qPCR real time). d) in cHFpEF the ADs comunicate with myeloid cell line (purple arrow). e) In vitro, human ADs were treated to over-express NNAT. f and g) IF reveals the co-localization of NNAT and Serca2 confirmed by co-IP. h) Calcium staining shows the increasing of calcium in NNAT overexpressing ADs. i) Proximity extension assay of AD secretomes. The NNAT increases the secretion of chemotatik protein. j) the secretome of treated ADs modulates the macrophages. The secretome derived from o.e.NNAT AD is ablo to up-regulate the pro-inflammatory markers of macrophages. k) cardiomyocytes (CMs) treated with o.eNNAT secretomes up-regulate the marker of hypertrophy.

## P023

### Cardioprotective remodelling: The role of age and sex

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**Introduction:** While ageing is an independent risk factor for heart failure, exercise serves as a cardioprotective intervention. Sex differences influence both ageing- and exercise-induced remodelling of the heart, yet the precise molecular mechanisms remain poorly defined. In this study, we sought to reveal relevant sex-dependent pathways mediated by exercise in the ageing heart.

**Material & Methods:** Eight-week-old female (F) and male (M) C57BL/6J mice were randomly assigned to voluntary wheel-running (run) or sedentary (sed) conditions for 18 months (n = 10 each group). Cardiac function was assessed by echocardiography at 6, 12, and 18 months. After 18 months, the hearts were harvested, gravimetric and histological analyses, as well as single-nucleus RNA sequencing, were carried out.

**Results:** Over the course of the study, female mice ran more than males (3.7 vs. 2.7 km per day on average, p <0.04), yet exercise proved to enhance global longitudinal myocardial function in both sexes. Males showed a stronger hypertrophic response to exercise, as indicated by cross-sectional area of cardiomyocytes. In females, exercise significantly reduced fibrotic area and attenuated cardiac inflammation, as demonstrated by fewer CD45-positive cells per square millimetre. Single-nucleus RNA sequencing revealed that exercise shifted cardiomyocytes' gene expression away from pathological remodelling and towards physiological hypertrophy in a sex-specific manner. We also found distinct sex-differences in pro-fibrotic and inflammatory gene sets.

**Conclusion:** Exercise induces distinct sex-dependent remodelling mechanisms in the aged heart underscoring the importance of sex as a biological variable when considering (therapeutic) strategies to harness the cardioprotective benefits of exercise.

**COI:** No

## P024

### Distinct homeostatic and inflammatory circuits define immune cell activity and interaction in the acutely inflamed human myocardium

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**Introduction:** Myocarditis is an inflammatory disease of the myocardium that can lead to arrhythmias, heart failure, and sudden cardiac death. Acute myocarditis is primarily driven by cardiopathogenic CD4 T cells, which determine the extent of myocardial damage and fibrotic remodeling. However, the molecular pathways that govern immune cell composition and activity in immune cell niches of the myocardium remain largely elusive. The aim of this project is to delineate the cellular and molecular pathways that regulate immune cell activity and interactions in the human myocardium.

**Material & Methods:** Endomyocardial biopsies (EMBs) from patients with acute myocarditis and heart tissue from non-matched transplant donors were analyzed using single-nucleus RNA sequencing (snRNA-seq). Transcriptomic data is currently being integrated with clinical and high-dimensional immunological parameters, including HLA sequencing, immunohistochemistry and flow cytometry-based characterization as well as single-cell RNA sequencing (scRNA-seq) of EMB-matched peripheral blood mononuclear cells (PBMCs).

**Results:** Since-nucleus transcriptomic analysis indicates that the inflamed cardiac microenvironment in acute myocarditis is characterized by an inflammatory triad that is shaped by distinct molecular interactions between T cells, inflammatory macrophages and fibroblasts. Heart-infiltrating CD4+ Th1 and Th17 helper cells control the activity of inflammatory macrophages and fibroblasts via type II interferon-mediated and IL-17A signaling pathways in distinct microenvironmental niches. Molecular interaction analysis indicates that T cell-induced changes to the cardiac microenvironment are driven by altered cytokine and chemokine gradients, including the dysregulation of CXCL9, CXCL10 and IL-6. Histopathological in situ analysis confirmed that the extent of immune cell infiltration was associated with the presence of fibroblast activation markers, such as smooth muscle actin and extra cellular matrix proteins such as COL1A1.

**Conclusion:** High-dimensional molecular phenotyping of patients based on snRNA-seq-based EMB analysis in combination with validation of distinct molecular pathways in PBMCs is suitable to identify critical cellular and molecular circuits operating in the inflamed myocardium.

**COI:** No

## P025

### MiR-519e-3p Drives Human Cardiomyocyte Proliferation and Coordinated Cardiac Repair by Targeting Cell-Cycle Repressors After Myocardial Infarction

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**Introduction:** Myocardial infarction (MI) causes irreversible cardiomyocyte (CM) loss due to the limited regenerative capacity. MicroRNAs (miRs) modulate gene networks and represent promising candidates for cardiac regeneration. An unbiased functional screening of 2,019 miRNAs in human-induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs) identified miR-519e-3p (miR519e) as a potent activator of CM cell-cycle activity. This study evaluated the cardiac repair potential of miR519e.

**Material & Methods:** MiR519e mimics or miR-Scrambled (miR-Scr) were transfected into hiPSC-CMs, human aortic endothelial cells (HAECs), and human cardiac fibroblasts (cFBs). hiPSC-CM cell-cycle activity and viability were assessed by immunostaining (IF), western blot (WB) and qPCR for proliferative

 

markers. Tube formation assay was performed for angiogenesis and EdU and α-SMA expression for fibrosis. MI was induced in adult mice followed by intramyocardial injection of miR519e or miR-Scr. Direct targets were identified by Argonaute2 immunoprecipitation (Ago2-IP) followed by RNA-sequencing.

**Results:** In hiPSC-CMs, miR519e significantly increased EdU-incorporation ($p < 0.001$), positive hiPSC-CMs for H3P and Aurora B ($p < 0.01$), and expression of Cyclin A2 and Aurora B, while suppressing p21 ($p < 0.01$), indicating successful progression from cell-cycle re-entry through cytokinesis. In addition, miR519e preserved hiPSC-CM viability under doxorubicin-induced stress ($p < 0.05$). Furthermore, miR519e enhanced angiogenesis by increasing mesh formation and tube length ($p < 0.05$) with unaltered fibrotic activation ($p$ = ns for Edu-incorporation and α-SMA-expression). MiR519e significantly enhanced expression of Cyclin-A2 and suppressed cell-cycle inhibitor p21 ($p < 0.05$) after MI in mice, with an increase of Aurora B-positive CM at the infarct border zone ($p < 0.05$), suggesting that a single administration of miR519e induces cardiomyocyte proliferation. Death was reduced in miR519e-treated mice. Ago2-IP-RNA-Seq identified cell-cycle suppressors p21 and p57 as direct targets.

**Conclusion:** MiR519e promotes cardiac repair by inducing human CM division, enhancing angiogenesis, and preserving CM viability without fibrotic activation, thereby conferring therapeutic benefit after MI in vivo. Collectively, these findings identify miR519e as a candidate for regenerative therapy following MI.

**COI:** Philipp Jakob and Ulf Landmesser are listed as co-inventors on a pending patent held by Charité for microRNAs in cardiac repair.

## P026

### A Novel Long Non-Coding RNA, Scarlet, drives quizartinib toxicity in infarcted hearts

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**Introduction:** Cardiotoxicity has emerged as a major complication of cancer therapies including tyrosine kinase inhibitors (TKIs). Quizartinib, a FLT3 targeting TKI, leads to adverse cardiovascular events in patients; however, the mechanisms underlying this cardiotoxicity remain elusive. Long non-coding RNAs (lncRNA) are critical regulators of gene programs in the heart under stress. Here, we identified a novel lncRNA, which we named *Scarlet* (Stress-activated CARdiac LncRNA Evoked by Toxicity) and investigated its role in quizartinib-induced cardiac dysfunction.

**Material & Methods:** A murine myocardial infarction (MI) model was used to represent a disease-sensitized myocardium reflective of cancer patients with underlying cardiovascular comorbidities. Mice treated with quizartinib or vehicle were subjected to MI surgery and cardiac function was assessed by echocardiography up to four weeks post-MI. To identify regulatory non-coding transcripts associated with quizartinib-induced cardiac dysfunction, bulk RNA sequencing was performed on cardiac tissue one week post-MI. To functionally assess the effects of our candidate lncRNA *Scarlet*, a targeted Gapmer was designed to knockdown *Scarlet* and transfected in cardiac fibroblasts *in vitro* and via systemic delivery *in vivo*.

**Results:** Quizartinib treatment exacerbated cardiac dysfunction post-MI, as indicated by reduced ejection fraction and increased fibrosis. Transcriptomic profiling identified *Scarlet*, which was differentially upregulated in quizartinib-treated hearts, showed conservation in humans, and was enriched in cardiac fibroblasts. *In vitro*, quizartinib increased *Scarlet* and collagen gene expression in primary cardiac fibroblasts, whereas *Scarlet* knockdown reduced extracellular matrix-associated transcripts and attenuated collagen gel contraction. *In vivo*, *Scarlet* expression peaked one week post-MI, coinciding with the onset of cardiac remodelling. Gapmer-mediated silencing of *Scarlet* preserved post-MI cardiac function and improved survival in quizartinib-treated mice.

**Conclusion:** These findings identify *Scarlet* as a key regulator of quizartinib-induced cardiotoxicity and demonstrate that targeting this lncRNA mitigates cardiotoxicity in a cardiovascular disease model. This highlights the potential of lncRNAs to be used as novel molecular targets for cardioprotective strategies.

**COI:** No

## P027

### Epigenetic Modulation of Autophagy in Heart Failure with Preserved Ejection Fraction: Role of BET Protein Inhibitors

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**Introduction:** Cardiometabolic heart failure with preserved ejection fraction (cHFpEF) is a highly prevalent condition with incompletely understood molecular mechanisms. Autophagy plays a critical role in maintaining cardiac homeostasis and appears to be dysregulated in HFpEF. Epigenetic regulators, including bromodomain and extraterminal domain (BET) proteins, link environmental stressors to transcriptional responses by recognizing acetylated histones. However, the role of BET proteins in the regulation of cardiac autophagy in HFpEF remains largely unexplored. We hypothesized that BET proteins modulate autophagy in cHFpEF and that their pharmacological inhibition restores autophagic flux and improves cardiac function.

**Material & Methods:** An established mouse model of cHFpEF combining metabolic and hemodynamic stress for 15 weeks was used. Autophagy-related transcriptional programs were investigated by single-nucleus RNA sequencing (snRNA-seq). Epigenomic regulation was assessed by chromatin immunoprecipitation sequencing (ChIP-seq) for histone modifications, and pathway enrichment was analyzed using Reactome gene sets. Subsequently, cHFpEF and control mice were treated with vehicle or the selective BET inhibitor RVX-208 (Apabetalone) for 21 days. Cardiac function was evaluated by echocardiography, and autophagy-related gene expression was assessed using a custom real-time PCR array and immunoblotting.

**Results:** snRNA-seq revealed a significant downregulation of autophagy-related genes in cHFpEF hearts, particularly within a subset of ventricular cardiomyocytes characterized by activation of mTOR and calcineurin signaling. This maladaptive profile was associated with oxidative stress, altered mitochondrial dynamics, and increased susceptibility to apoptosis. ChIP-seq demonstrated enrichment of active chromatin marks, including H3K27ac, at autophagy-related gene loci, consistent with BET protein involvement. Pharmacological BET inhibition restored autophagy-related transcriptional programs and significantly improved diastolic function and exercise capacity in cHFpEF mice.

 

**Conclusion:** These findings identify a BET-dependent epigenetic mechanism regulating autophagy in cHFpEF and support BET inhibition as a potential therapeutic strategy to restore autophagic flux and improve cardiac function.

**COI:** No

## P028

### Doxorubicin induced Megakaryocyte Extracellular Vesicles mediate a Thromboinflammatory Response in Endothelial Cells

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**Introduction:** Cancer-associated thrombosis (CAT) is a major cause of morbidity and mortality in cancer patients. Anthracycline chemotherapy, such as doxorubicin, increases thrombotic risk through endothelial dysfunction, platelet activation, and inflammation. However, these mechanisms alone do not fully explain the persistent systemic pro-thrombotic state observed during and after treatment.

Beyond its vascular effects, doxorubicin impacts the bone marrow, where megakaryocytes, the precursor for platelets, represent a major source of circulating extracellular vesicles (EVs). EVs carry bioactive proteins, lipids, and RNAs and act as long-range mediators of vascular and immune signaling. We hypothesize that doxorubicin induces a stress- or senescence-associated phenotype in megakaryocytes, leading to altered EV cargo that promotes systemic pro-inflammatory and pro-thrombotic signaling and contributes to chemotherapy-associated thrombosis.

**Material & Methods:** Human MEG-01 megakaryocytic cells were treated with 0.2 µM doxorubicin for 3 days. Senescence was quantified by β-galactosidase staining and γH2AX foci. Markers of senescence/inflammation/thrombosis (p21, VCAM-1, MMP9, IL-6, TGFβ) were assessed by RT-qPCR. EVs were isolated by differential ultracentrifugation, characterized by nanoparticle tracking analysis (NTA), and analyzed for pro-thrombotic RNA cargo (IL-6, TGF-β1, IL-8, TNFα) by RT-qPCR. EV viability origin was confirmed by Annexin V/PI flow cytometry. Functional effects were tested on endothelial cells (preliminary TF expression).

**Results:** Doxorubicin induced robust senescence, with increases in β-galactosidase-positive cells and significant γH2AX foci ($p < 0.05$). Cellular RT-qPCR showed upregulation of p21, VCAM-1, IL-6 and MMP9 (1.5–11-fold). EVs from doxorubicin-treated cells exhibited trends toward increased IL-6 and TGF-β1 transcripts (3–15-fold). Preliminary endothelial assays suggest potential for TF modulation and EV-endothelial interactions.

**Conclusion:** Doxorubicin triggers megakaryocyte senescence and generates EVs with pro-thrombotic cargo signatures. These findings support a novel bone marrow-megakaryocyte axis in chemotherapy-associated thrombosis, with ongoing studies clarifying endothelial and platelet effects.

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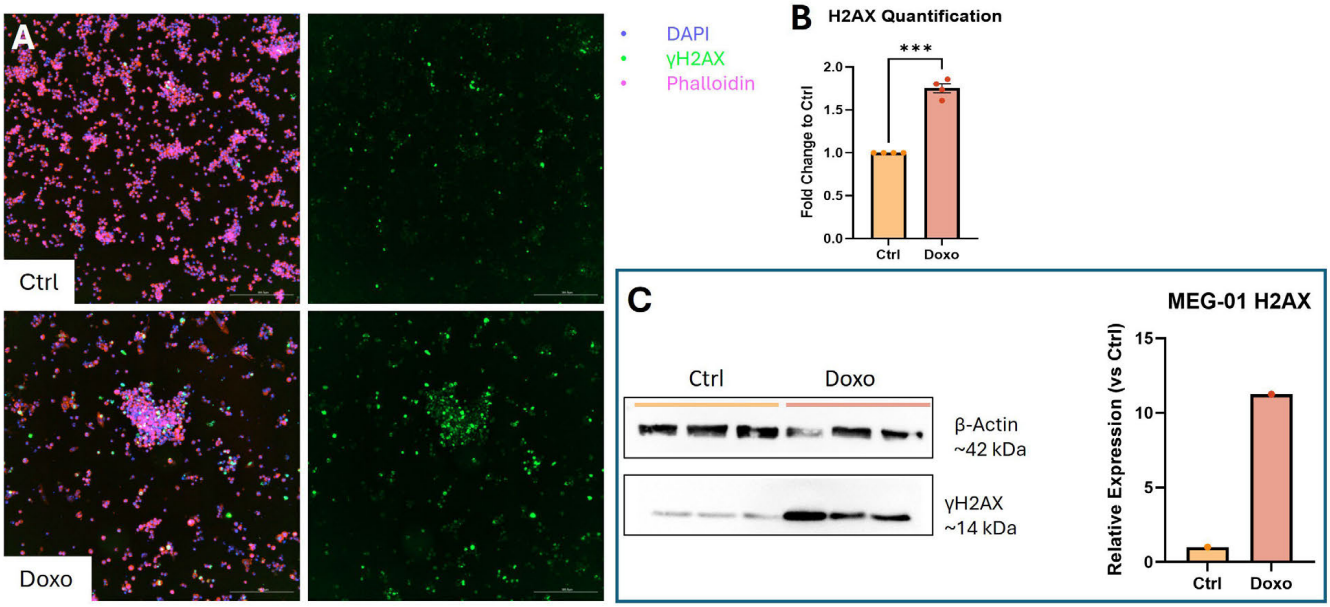


**Figure 1. Doxorubicin induces γH2AX foci formation in MEG-01 cells.**
**A**) Representative immunofluorescence images of MEG-01 cells left untreated (Ctrl) or exposed to 200 nM Doxo for 3 days. Cells were stained for γH2AX (green), F-actin (phalloidin, red), and nuclei (DAPI, blue). Increased γH2AX signal intensity in Doxo-treated cells indicates accumulation of DNA damage. Scale bars: 100 µm. **B**) Quantification of γH2AX fluorescence intensity in Ctrl vs Doxo-treated MEG-01 cells (normalized to Ctrl). Statistical significance was determined using unpaired two-tailed Student's *t*-tests; $p < 0.05$ (*), $p < 0.01$ (**), $p < 0.001$ (***), $p < 0.0001$ (****). **C**) Western blot showing increased γH2AX protein levels in Doxo-treated MEG-01 cells compared to control; β-actin serves as loading control.

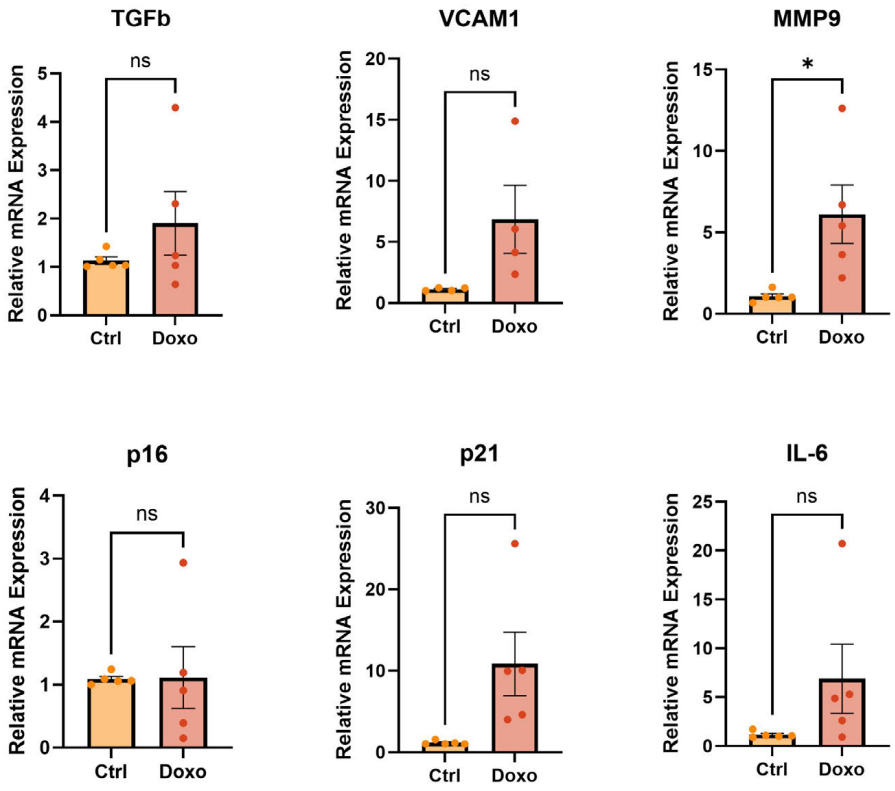


**Figure 2. Doxorubicin (Doxo) alters gene expression associated with senescence and inflammation in MEG-01 cells.**
MEG-01 cells were left untreated (Ctrl) or exposed to 200 nM Doxo for 3 days. mRNA expression of TGFB, VCAM1, p16, p21, IL6, and MMP9 was quantified by RT-qPCR and normalized to housekeeping genes (ACTB and HPRT1). Each dot represents one independent experiment. Bars show mean ± SEM. Statistical significance was determined using unpaired two-tailed Student's *t*-tests; $p < 0.05$ (*), $p < 0.01$ (**), $p < 0.001$ (***), $p < 0.0001$ (****), ns = not significant.

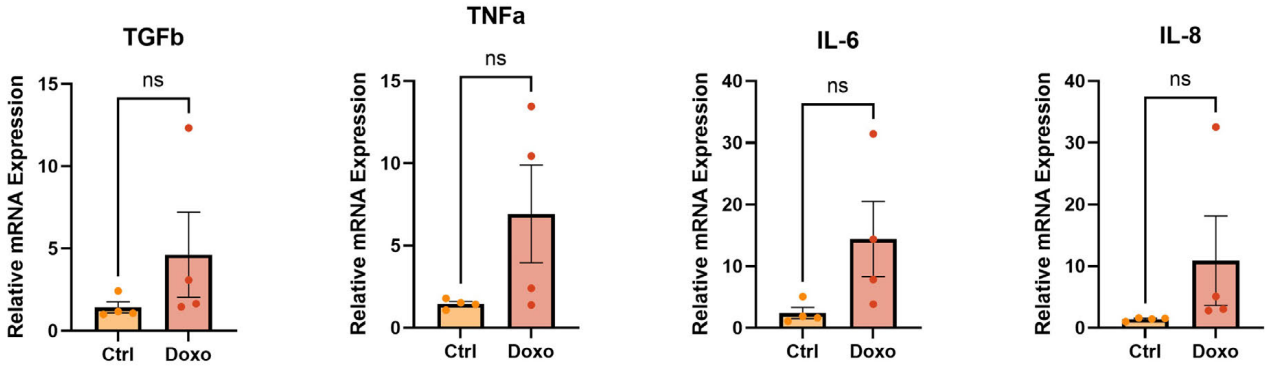


**Figure 3. Doxorubicin (Doxo) treatment modifies inflammatory gene expression in extracellular vesicles derived from MEG-01 cells.**
Extracellular vesicles (EVs) were isolated from MEG-01 cells left untreated (Ctrl) or exposed to 200 nM Doxo for 3 days. mRNA levels of TGFB1, IL6, and TNFA were quantified by RT-qPCR and normalized to housekeeping genes (ACTB). Each dot represents EVs collected from one well; data were obtained from two independent experiments (three wells per experiment). Bars indicate mean ± SEM. Statistical significance was determined using Welch's unpaired two-tailed *t*-test; $p < 0.01$ (**), ns = not significant.

## P029

### A novel murine model of stress-induced cardiomyopathy achieved by chemogenetic stimulation of the locus coeruleus-norepinephrine system

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**Introduction:** Takotsubo syndrome (TTS) is an acute stress-induced cardiomyopathy characterized by transient left ventricular (LV) systolic dysfunction in the absence of obstructive coronary artery disease. The condition is frequently underdiagnosed and inadequately treated, affecting predominantly middle-aged women. Although LV function typically normalizes within weeks, patients with TTS exhibit an increased risk of adverse cardiovascular outcomes compared with healthy individuals. The pathophysiological mechanisms underlying TTS remain incompletely elucidated.

Existing preclinical models fail to truly recapitulate the full clinical phenotype of TTS observed in humans and are limited by substantial shortcomings, including high mortality rates and insufficient integration of central nervous system contributions. Consequently, the absence of robust and translationally relevant experimental models has significantly impeded progress in understanding TTS pathophysiology.

**Material & Methods:** Female Cre-dependent DREADD mice aged 11–13 weeks were genetically engineered to express a codon-optimized Cre recombinase under the control of the dopamine beta-hydroxylase (DBH) promoter. An excitatory designer receptor exclusively activated by designer drugs or a control vector was stereotactically delivered to the locus coeruleus (LC) via adenoviral transfection. Selective expression in DBH-positive noradrenergic neurons of the LC was confirmed using pupillometry. Activation of LC-norepinephrine (LC-NE) signaling was achieved through intraperitoneal administration of low-dose clozapine (0.03 mg/kg/day). Serial assessments of cardiac structure and function were conducted at baseline, after stress induction, and after 10-day and 3-month recovery periods, using echocardiography and cardiac magnetic resonance imaging.

**Results:** Targeted chemogenetic activation of the LC-NE system induced apical LV wall motion abnormalities in 70–83% of mice. These abnormalities are fully resolved following the recovery phase.

**Conclusion:** Chemogenetic stimulation of the LC-NE axis in mice induces reversible LV wall-motion abnormalities that closely resemble those observed in patients with TTS, supporting its utility as a novel, translationally relevant preclinical model for investigating the pathophysiology of TTS.

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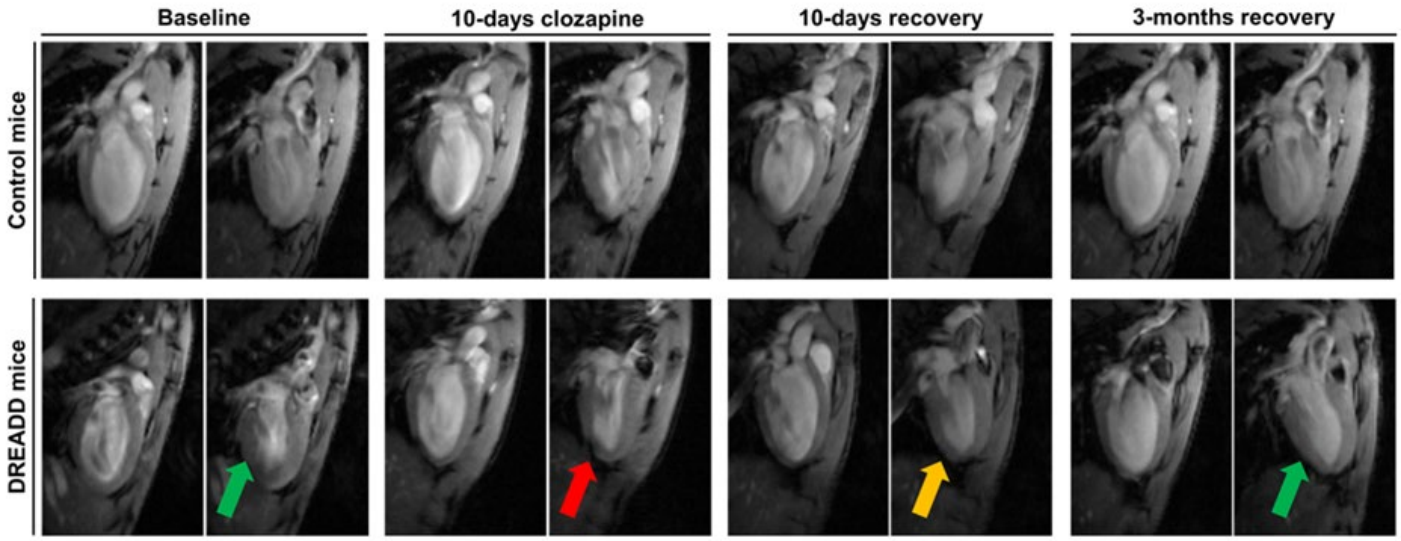

## P030

### GLUCAGON-LIKE PEPTIDE-1/GLUCOSE-DEPENDENT INSULINOTROPIC POLYPEPTIDE (GLP-1/GIP) AXIS EXHIBITS PROTECTIVE PLEIOTROPIC EFFECTS AGAINST ENDOTHELIAL DYSFUNCTION

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**Introduction:** Glucagon-like peptide-1 (GLP-1) and glucose-dependent insulinotropic polypeptide (GIP), collectively termed incretins, are gut hormones that enhance insulin secretion and suppress glucagon signalling. Randomized trials show that GLP-1 receptor agonists (GLP-1RAs) reduce major adverse cardiovascular events (MACE) in patients with type 2 diabetes mellitus and with moderate-to-severe overweight. Tirzepatide, a dual GLP-1/GIP agonist, achieves greater glycaemic control and weight loss than single GLP-1RAs. We hypothesized that incretin mimetics exert pleiotropic vascular effects beyond weight and glycaemia, including modulation of endothelial inflammation and thrombosis-related pathways.

**Material & Methods:** Primary human aortic endothelial cells (HAECs) were incubated with semaglutide (10-1000 nM) or tirzepatide (0.15-15 µg/mL) for 1 h, then challenged with tumor necrosis factor-α (TNF-α, 10 ng/mL) for 5 h. Tissue factor (TF), plasminogen activator inhibitor-1 (PAI-1), TF pathway inhibitor (TFPI), vascular cell adhesion molecule-1 (VCAM-1), p16, p21 were quantified by Western blot (glyceraldehyde-3-phosphate dehydrogenase (GAPDH)-normalised). TF activity and lactate dehydrogenase (LDH) release were measured using commercial assays. Statistics: one-way ANOVA with Dunnett's post hoc test.

**Results:** TNF-α robustly increased VCAM-1, TF, and PAI-1 in HAECs; TFPI ratio was unchanged. Both semaglutide and tirzepatide reduced the expression of VCAM-1 compared to TNF-α alone, with a stronger effect size with tirzepatide. None of the investigated agonists significantly altered TF, PAI-1 or TFPI within this acute window. Among senescence/cell-cycle markers, the highest tirzepatide concentration reduced p21, whereas p16 was unchanged.

**Conclusion:** Incretin agonism attenuates cytokine-driven endothelial activation in HAECs: both agents suppress VCAM-1 at sufficient doses, and tirzepatide additionally lowers p21 at its top dose. These preliminary data suggest beneficial pleiotropic vascular effects of incretin mimetics, beyond glycaemic control and body weight reduction. In more detail, these agents could mitigate endothelial inflammation and protect endothelial cells from senescence.

**COI:** No

## P031

### Preserved corpus luteum function attenuate assisted reproductive technologies-induced vascular dysfunction in children

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**Introduction:** In Switzerland, approximately one in forty children is conceived using assisted reproductive technologies (ART). Emerging evidence suggests that ART induces premature vascular ageing in offspring. The underlying mechanisms remain unclear but may involve hormonal alterations during early pregnancy due to ovarian hyperstimulation or epigenetic modifications related to gamete manipulation and embryo culture. Our objective was to investigate the impact of gonadotropin stimulation on vascular function in children conceived by ART. We aim to compare offspring conceived through (1) conventional polyfollicular *stimulated IVF/ICSI cycles (cIVF)* with those conceived through (2) *monofollicular natural IVF/ICSI cycles (IVF-NC, a technique without gonadotroping stimulation and preserved corpus luteum (CL) function)*.

**Material & Methods:** We assessed systemic vascular function (flow-mediated dilation (FMD) of the brachial artery, pulse-wave velocity (PWV), and carotid intima-media thickness (IMT)) and measured blood pressure (BP, office and ambulatory BP monitoring (ABPM)) in healthy children conceived either by c*IVF* (mean age: 9.6 y; n = 9) or *IVF*-NC (mean age: 10.9 y; n = 27). For FMD, data from IVF-NC were compared to our previous results in ART and control children.

**Results:** FMD (7.3 ± 2.1% versus 7.4 ± 2.1%; P = 0.87), carotid-femoral PWV (6.0±1.0 m/s versus 5.7 ± 0.8 m/s, P = 0.46) and carotid IMT (P = 0.33) were similar in IVF and IVF-NC children. Office systolic BP was lower in IVF compared to IVF-NC children (P <0.01), whereas office diastolic and mean systolic and diastolic BP from ABPM were similar in both groups. IVF-NC children showed a trend toward improved FMD (P = 0.08) compared to ART and lower FMD compared to control children (P <0.01).

**Conclusion:** Seemingly healthy children conceived by ART exhibit systemic vascular dysfunction. Preservation of the CL function may, at least in part, mitigate ART-associated vascular impairment. Our study may lead to new recommendations for IVF treatment with a broad impact on prevention of long-term cardiovascular diseases in ART population.

**COI:** No

## POSTER WALK: INTERVENTIONAL CARDIOLOGY & CARDIAC SURGERY

### P032

### Angioplasty with Wing Seal Technology of Paclitaxel-Coated-Ballon in Complex Coronary Disease

Firat Erdogan[1], Isabella Schmal[1], Matthias Bossard[1,2], Dominik Paugsch[1], Alessandro Spirito[1,2], Tobias Göldi[1], Leoni Knobel[1], Lena Künzli[1], Adrian Attinger-Toller[1], Florim Cuculi[1,2]

*[1]Luzerner Kantonsspital, Herzzentrum, Universität, Luzern, Switzerland, [2]University of Lucerne, Faculty of Health Sciences and Medicine, Luzern, Switzerland*

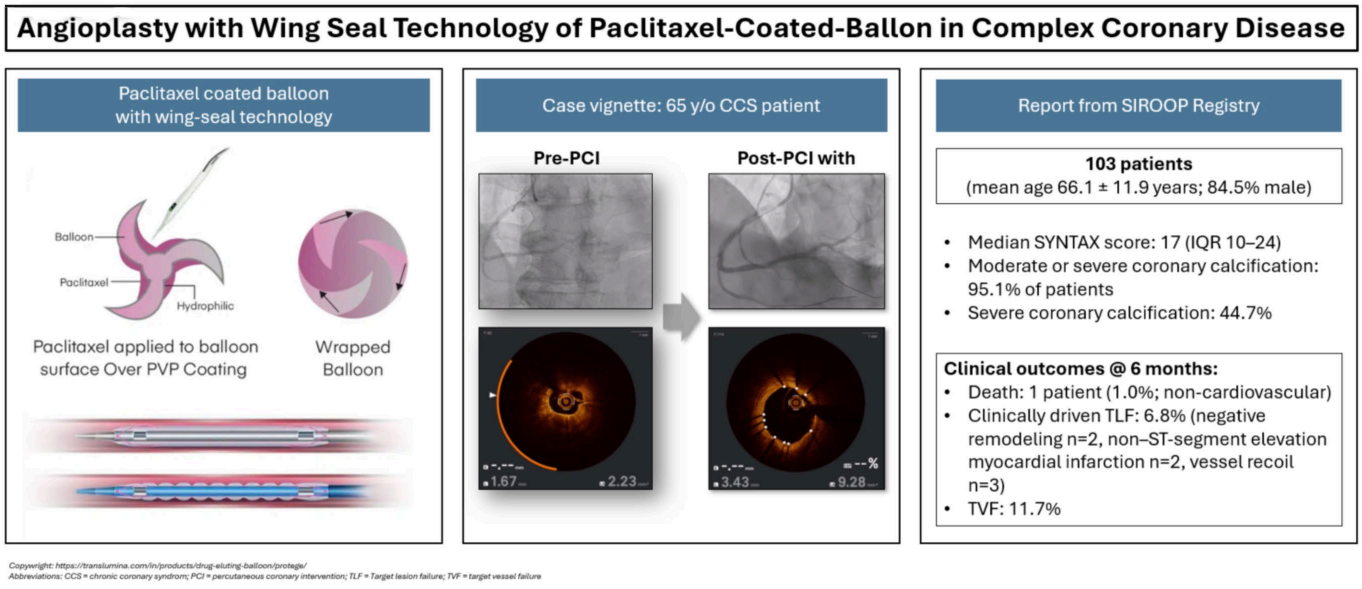
**Introduction:** Drug-coated balloons (DCB) were initially adopted for small-vessel disease and in-stent restenosis, but their use is expanding to long, calcified, and complex coronary anatomies, where effective drug delivery may be challenging. Antiproliferative drug delivery varies across DCB platforms, and drug loss during balloon advancement may occur, particularly in complex lesions. A paclitaxel-coated balloon (PCB) incorporating wing-seal technology is designed to minimize drug loss and enhance transmission during PCI. However, its performance in complex coronary lesions has not been systematically reported. We aimed to assess clinical outcomes of PCI using this technology in complex coronary lesions.

**Material & Methods:** Consecutive patients undergoing PCI for long and/or complex coronary lesions using a paclitaxel-coated balloon with wing-seal technology were analyzed from the prospective SIROOP Registry (NCT04988685). Clinical endpoints included all-cause mortality, clinically driven target lesion failure (TLF), and target vessel failure (TVF). Angiographic data and clinical outcomes were independently adjudicated. Clinical follow-up was performed at 6 months.

**Results:** A total of 103 patients underwent PCI (mean age 66.1 ± 11.9 years; 84.5% male). The cohort demonstrated complex coronary artery disease, with a median SYNTAX score of 17 (IQR 10–24). Moderate or severe coronary calcification was present in 95.1% of patients, including severe calcification in 44.7%. At 6 months, one non-cardiovascular death occurred (1.0%). Clinically driven TLF occurred in 6.8% of patients (negative remodeling n = 2, non–ST-segment elevation myocardial infarction n = 2, vessel recoil n = 3). Target vessel failure was observed in 11.7% of patients.

**Conclusion:** This interim analysis represents the first evaluation of this DCB platform in complex coronary lesions. PCI using this technology was associated with favorable mid-term clinical outcomes in a high-risk population. Patient enrollment and follow-up in the SIROOP Registry are ongoing.

**COI:** No




### P033

### Two-year Experience with the Asyrus Medical Dissection Stent in Acute type A Aortic Dissection: A Retrospective Cohort Analysis in a Regional Reference Centre

Can Keskinaslan[1], Mirko Muretti[2], Thomas Theologou[3], Tiziano Torre[4], Stefanos Demertzis[4]

*[1]University Hospital Zurich, Zurich, Switzerland, [2]Istituto Cardiocentro Ticino – EOC Ente Ospedaliero, lugano, Switzerland, [3]A' Heart Department of Hygeia Hospital Athens Greece, Athens, Greece, [4]Istituto Cardiocentro Ticino – EOC Ente Ospedaliero, Lugano, Switzerland*

**Introduction:** The AMDS was introduced to serve as an option beside Hemiarch and Total arch repair in acute type A dissections (ATAAD). The sealing of the distal anastomosis is meant to prevent antegrade flow through the false lumen and promote false lumen thrombosis while preserving flow to branch vessels. The objective of this study is to evaluate the feasibility, perioperative safety, and mid-term effectiveness of the AMDS for ATAAD.

**Material & Methods:** Retrospective single-centre cohort of 10 ATAAD patients (2020-2025) treated with hemiarch repair plus AMDS implantation. Primary endpoints were freedom from distal aortic reintervention and mortality. Secondary endpoints included aortic growth rates on CT, technical success, and neurological outcomes. Kaplan-Meier and regression (LOESS) were used for time-to-event and imaging trend analyses.

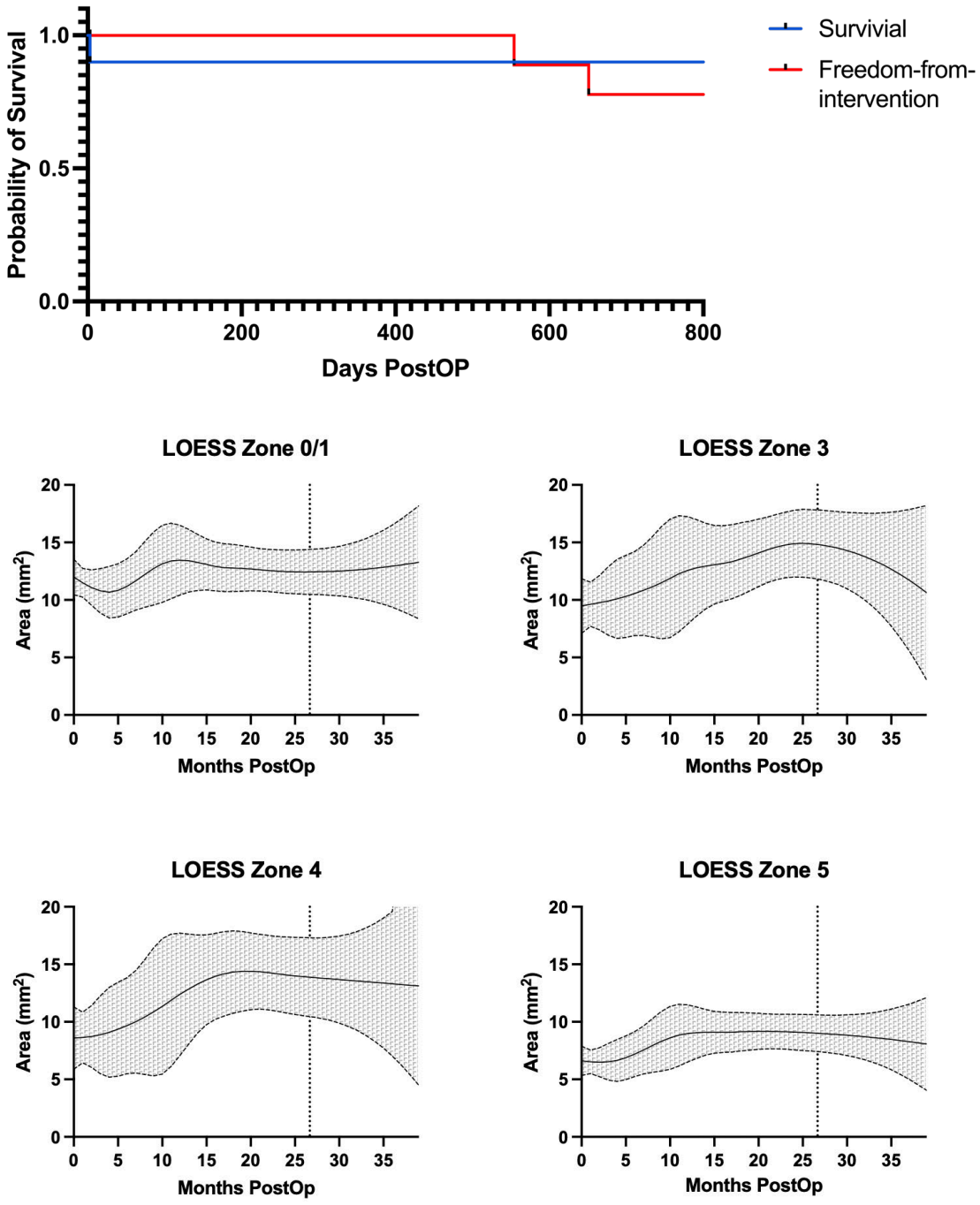
**Results:** Device deployment succeeded in all 10 patients with no intraoperative device-related complications; postoperative imaging identified an anastomotic kink with stent deformation in 1/10. Early mortality was 1/10 (10%). Permanent neurological deficits occurred in 3/10 (30%), transient deficits in 3/10 (30%).

Estimated survival at 2 years was 90% (9/10 alive). Two patients (2/10) required distal reintervention at 554 and 651 days; Kaplan–Meier freedom from reintervention at 2 years was 77.8%. Aortic dimensions across measured segments over the total observation period: +0.44 mm² aortic landing zone (ALZ 1); +5.32 mm² ALZ 2; +5.26 mm² ALZ 4; +2.38 mm² ALZ 5.

**Conclusion:** In a regional setting, AMDS implantation during emergent ATAAD repair was feasible and safe, yielding acceptable mid-term remodelling, survival and reintervention rates. The observed neurological complication burden (6/10) highlights the need for meticulous cerebral protection and patient selection. We note that the aortic growth rate is probably attributable to the AMDS not preventing distal-anastomotic-new-entries (DANEs) as originally designed. Larger prospective comparative studies are warranted to define indications and long-term durability.

**COI:** No

## Figure 10: Kaplan-Meier Survival and Freedom-from-Intervention



## P034

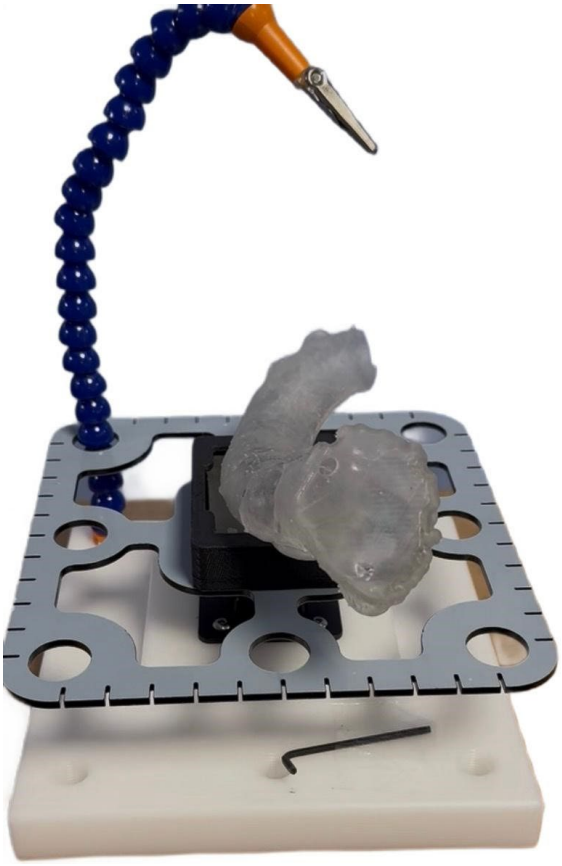
### A Modular High-Fidelity Aortic Surgery Simulator for Training in Complex Open Cardiac and Aortic Procedures

Patrick Cannon[1 1], Nicolas Ribeiro[2 2], Zahid Mahmood[3], Kasra Shaikhrezai[3], George Gradinariu[3], David Varghese[3]

*[1]Glasgow Medical School, Glasgow, United Kingdom, [2]University of Glasgow, Glasgow, United Kingdom, [3]Golden Jubilee National University Hospital, Glasgow, United Kingdom*

**Introduction:** Complex aortic operations, including aortic valve replacement, aortic root replacement (including valve-sparing techniques), ascending aortic replacement, aortic arch reconstruction, and acute type A dissection repair, require advanced technical skill and detailed anatomical understanding. Training exposure to these cases is often limited by low case volume, patient acuity, and increasing procedural complexity. High-fidelity simulation offers a safe means to develop competence and confidence outside the operating theatre. To develop a modular, anatomically accurate aortic simulator that supports realistic training across a spectrum of open cardiac and aortic procedures, including aortic valve replacement, Bentall procedures, valve-sparing root replacement (David technique), ascending aortic grafting, hemi-arch and total arch replacement, and acute type A dissection management.

**Material & Methods:** A synthetic aorta incorporating the root, sinuses of Valsalva, coronary ostia, ascending aorta, and arch vessels was created using flexible silicone and 3D-printed CT-derived components to replicate tissue handling and suture-holding characteristics. Interchangeable pathology modules (calcified annulus, dissected aortic layers) and replaceable segments allow repeated practice of valve implantation, root enlargement, graft anastomosis, and dissection repair. Optional cannulation ports and a pulsatile flow system enable haemodynamic simulation and leak testing. Model development was informed by consultant surgeons and senior trainees



**Results:** The model demonstrated realistic anatomy and tactile feedback, enabling effective rehearsal of root, valve, ascending, and arch procedures without structural degradation. Expert feedback supported strong educational value and relevance to current training needs

**Conclusion:** This modular aortic simulator offers a durable, realistic platform for developing skills in complex cardiac and aortic surgery, supporting safer progression to operative practice

**COI:** i am designer and maker of simulator

## P035

### Efficacy of Lesion Preparation With Plaque Modification Knob Balloon for DCB PCI-An OCT Study From the SIROOP Registry

Firat Erdogan[1], Matthias Bossard[1 2], Tobias Göldi[1], Lena Künzli[1], Ladina Giulietta Largiadèr[1], Dominik Paugsch[1], Adrian Attinger-Toller[1], Florim Cuculi[1 2]

*[1]Luzerner Kantonsspital, Herzzentrum, Universität, Luzern, Switzerland, [2]University of Lucerne, Faculty of Health Sciences and Medicine, Luzern, Switzerland*

**Introduction:** Optimal lesion preparation for DCB PCI in mildly calcified, lipid-rich, or fibrotic coronary lesions remains debated. Standard balloon angioplasty may cause flow-limiting complications, necessitating bailout stenting. The Plaque Modification Knob Balloon (PMKB) has been proposed to improve lesion modification before DCB delivery. This study evaluated angiographic and OCT outcomes of PMKB-based lesion preparation followed by DCB treatment.

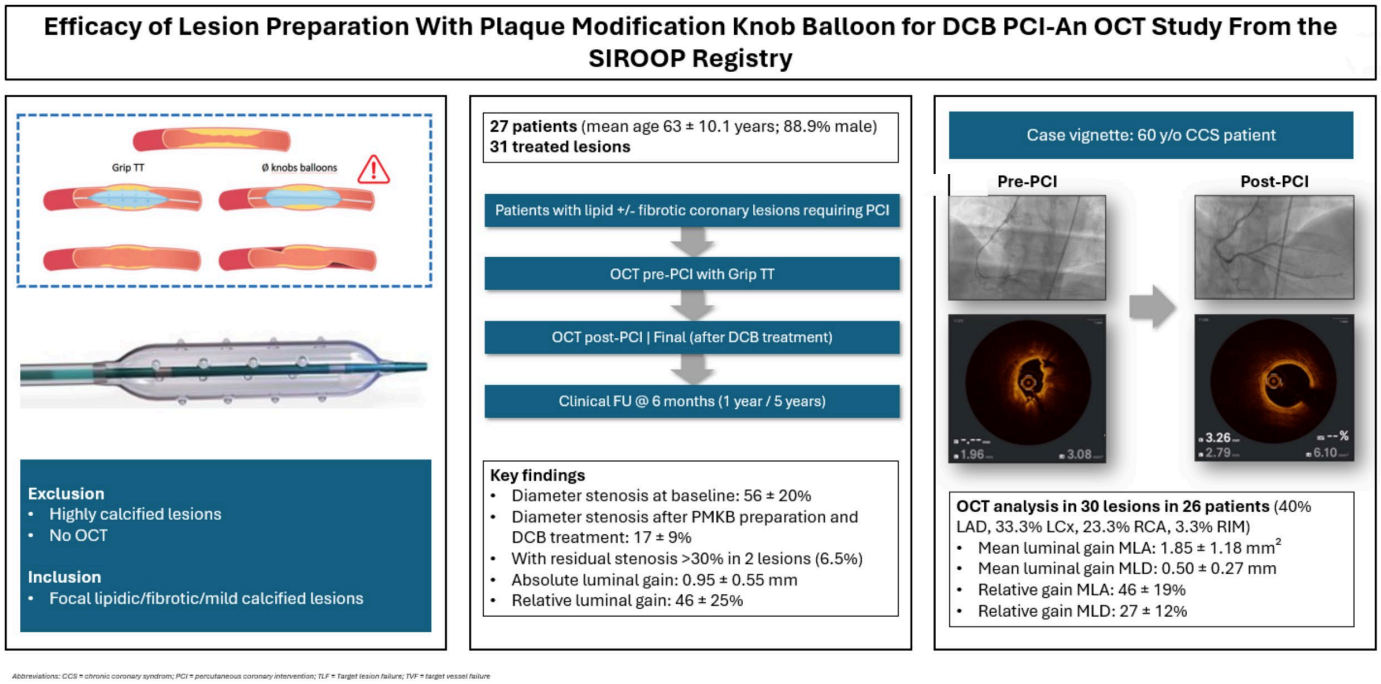
**Material & Methods:** From the ongoing prospective SIROOP Registry (NCT04988685), consecutive patients undergoing DCB PCI with lesion preparation using PMKB for lipid-rich and/or fibrotic lesions were included. Angiographic and OCT data were analyzed by an independent core laboratory. OCT imaging was performed at baseline, after PMKB lesion preparation, and following DCB treatment. Endpoints included angiographic and OCT-derived lumen gain, minimum lumen diameter (MLD), minimum lumen area (MLA), residual stenosis, and procedural safety.

**Results:** To date, 27 patients (mean age 63 ± 10.1 years; 88.9% male) with 31 lesions have been analyzed angiographically. Diameter stenosis was reduced from 56 ± 20% at baseline to 17 ± 9% after PMKB preparation and DCB treatment, with residual stenosis >30% in 2 lesions (6.5%). Absolute luminal gain was 0.95 ± 0.55 mm, corresponding to a relative luminal gain of 46 ± 25%.

OCT analysis was available for 30 lesions in 26 patients (40% LAD, 33.3% LCx, 23.3% RCA, 3.3% RIM). Following intervention, mean luminal gain was 1.85 ± 1.18 mm² for MLA and 0.50 ± 0.27 mm for MLD, with relative gains of 46 ± 19% and 27 ± 12%. No acute vessel closure or flow-limiting complications occurred. All patients undergo structured clinical follow-up at 6 and 12 months.

**Conclusion:** Lesion preparation with PMKB prior to DCB PCI appears safe in mildly calcified, lipid-rich, or fibrotic coronary lesions, providing substantial angiographic and OCT-derived lumen gain. Ongoing enrollment and follow-up will confirm these findings in a larger cohort.

**COI:** No




Abbreviations: CCS = chronic coronary syndrom; PCI = percutaneous coronary intervention; TLF = Target lesion failure; TVF = target vessel failure

## P036

### Mortality trends in acute myocardial infarction patients with and without a history of hypertension

Fabienne Foster-Witassek[1], Hans Rickli[2], Marco Roffi[3], Giovanni Pedrazzini[4], Andreas Schoenenberger[5], Dragana Radovanovic[1]

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**Introduction:** Previous findings are conflicting regarding short-term outcomes in patients with acute myocardial infarction (AMI) with/without hypertension. We therefore aimed to analyze mortality trends according to hypertension.

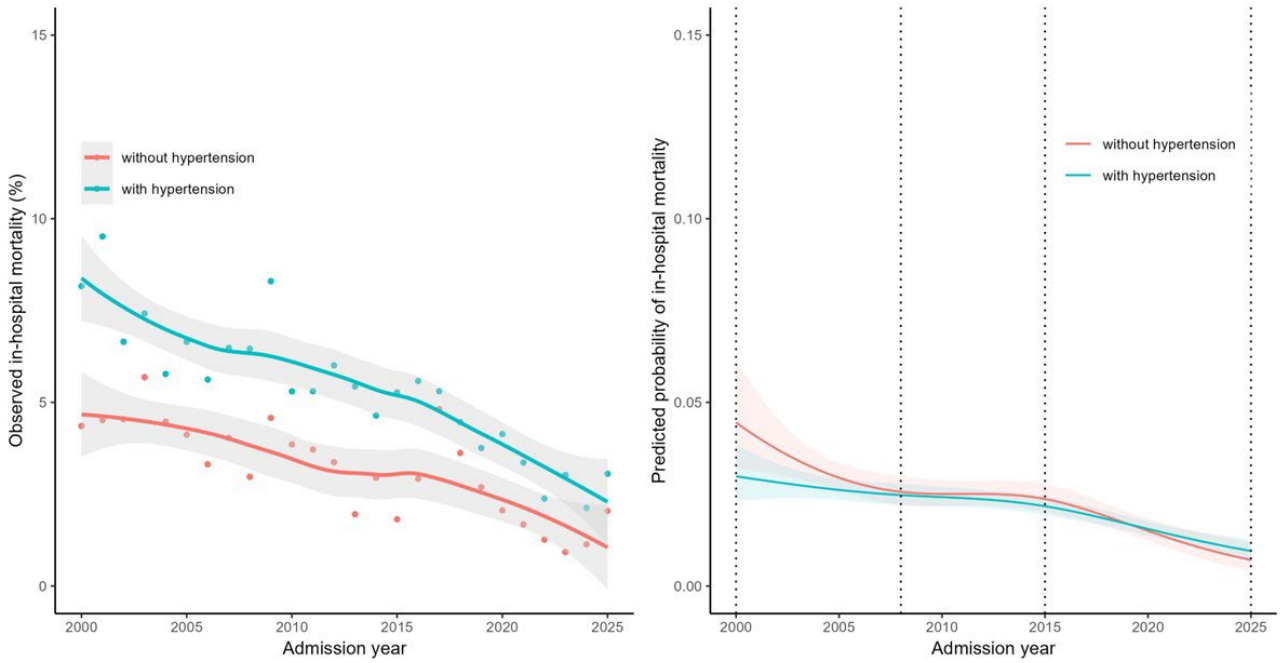
**Material & Methods:** We included all AMI patients enrolled in the Swiss AMI (AMIS) Plus registry from 2000-2025 with/without data on a history of hypertension. Observed mortality rates per admission year were plotted according to hypertension including smoothed trend lines. The adjusted plot was modelled with a multivariable logistic regression. In a subgroup of patients with 1-year-follow-up, we analyzed the impact of hypertension on 1-year-mortality.

**Results:** Patients with hypertension (n = 36,679,62.7%) were older (median (IQR) 70.1y (60.3,78.6) vs. 60.4y (51.9,70.8)), more often women (29.4% vs. 21.0%), had more often NSTEMI (46.3% vs. 35.0%), higher rates of Killip class >2 at admission (7.7% vs. 5.1%), a higher rate of a Charlson Comorbidity Index (CCI) >1 (30.1% vs. 11.2%) and higher crude in-hospital mortality (5.5% vs. 3.4%). Unadjusted analysis revealed a decreasing trend for mortality in both groups (p for both <0.001) and the mortality gap between the groups narrowed from 3.8% in 2000 to 1.1% in 2025. After adjustment for age, sex, STEMI/NSTEMI, Killip class >2 and CCI >1 we observed a paradoxically lower mortality for patients with hypertension in the first years of the observation period but a similar mortality afterwards. The average in-hospital mortality from 2000-2025 showed no significant difference between patients with/without hypertension after adjustment (OR 0.92, 95%CI 0.83-1.02, p = 0.099).

In a subanalysis of patients with available 1-year-follow-up (n = 13,874), we found a higher crude 1-year-mortality for patients with hypertension (4.1% vs. 2.1%). However, after adjustment, the difference was no longer significant (OR 0.93, 95%CI 0.73-1.17, p = 0.521).

**Conclusion:** Our data suggests that nowadays, short-term- and 1-year mortality for AMI patients with/ without hypertension are similar after adjustment for differences in characteristics.

**COI:** No




## P037

### The Impact of the Obesity Paradox on the Occurrence of Major Adverse Cardiovascular Events in Patients Following Percutaneous Coronary Intervention for Acute Coronary Syndrome in Fribourg

Lisa Simioni[1], Giacomo Maria Cioffi[1], Julius Jelisejevas[1], Puricel Serban[1], Pascal Meier[1], Peter Wenaweser[1], Mario Togni[1], Stéphane Cook[1], Ioannis Skalidis[1]

*[1]HFR Fribourg – Hôpital cantonal, Fribourg, Switzerland*

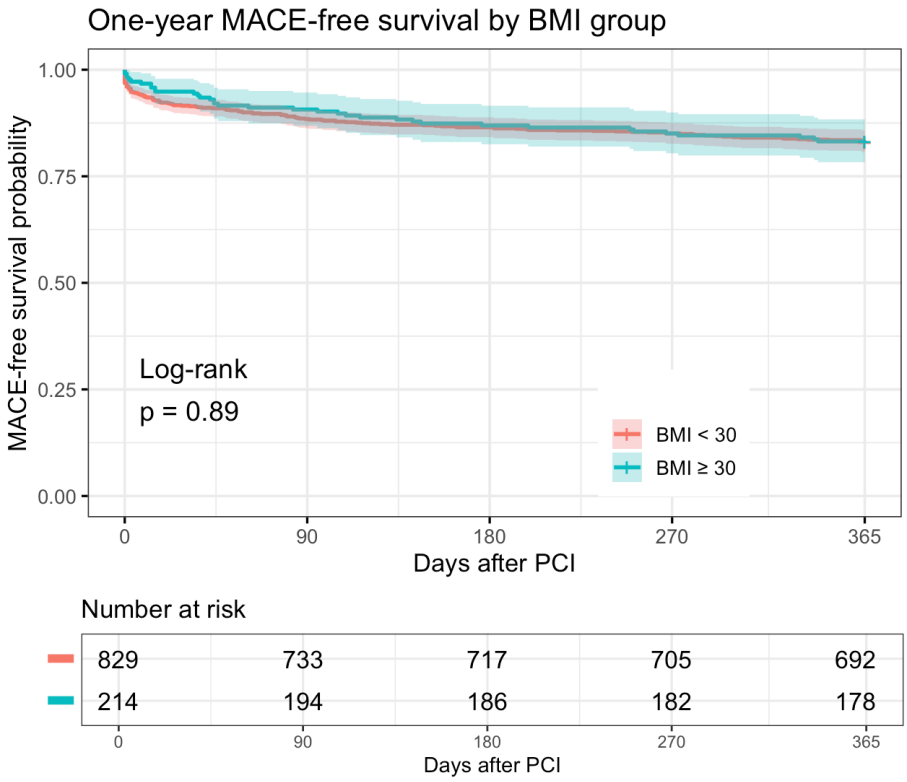
**Introduction:** Obesity is increasing in all regions of Switzerland. Multiple studies have described the "obesity paradox," suggesting a protective effect of obesity on the occurrence of major adverse cardiovascular events (MACE) after ST-segment elevation myocardial infarction (STEMI) treated with percutaneous coronary intervention (PCI). This study aimed to assess the impact of obesity on MACE in acute coronary syndrome (ACS) patients undergoing PCI.

**Material & Methods:** We analyzed data from the Fribourg STEMI Fast-Track prospective registry in a retrospective, single-center cohort study. Adult patients were classified as obese (BMI ≥ 30 kg/m²) or non-obese (BMI <30 kg/m²) and followed for 12 months. The primary endpoint was a composite MACE including all-cause death, recurrent acute coronary syndrome, stroke, stent thrombosis, unscheduled revascularization, and major bleeding (BARC 3–5). A survival analysis was performed using Kaplan–Meier curves to compare MACE-free survival between the two groups, with comparison by log-rank test.

**Results:** In a total of 1'043 patients who underwent PCI for STEMI between June 2008 and October 2025, 214 patients (21%) were obese (BMI ≥ 30 kg/m²) and 829 patients (79%) were non-obese (BMI <30 kg/m²). The mean age was 62.6 ± [12.74] years in obese patients and 60.4 ± [11.35] years in non-obese patients. The proportion of women was 21% in the obese group and 25% in the non-obese group (p = 0.26). The mean BMI was 33 ± [3.55] kg/m² in obese patients versus 25 ± [2.64] kg/m² in non-obese patients (p <0.001). MACE-free survival at 12 months was similar, with no significant difference on Kaplan–Meier analysis (log-rank test, p = [0.89]) (figure 1).

**Conclusion:** The results of our study in the Fribourg cohort do not support the obesity paradox hypothesis, in contrast to the latest available literature.

**COI:** No




## P038

### Prognostic values of glycated hemoglobin on future coronary events in post-acute coronary syndrom patients

Maximilien Szreter[1], Louise Artels[2], Cédric Follonier[3], Stephanie Baggio[1 4], David Carballo[3], David Nanchen[2], Tinh-Hai Collet[5], Christian M. Matter[6], Lorenz Räber[7], Olivier Muller[2], Nicolas Rodondi[4], François MacH[3], Baris Gencer[2]

*[1]University of Lausanne, Lausanne, Switzerland, [2]Department of Cardiology, Lausanne University Hospitals, Lausanne, Switzerland, [3]Department of Cardiology, Geneva University Hospitals, Geneva, Switzerland, [4]Institute of Primary Health Care (BIHAM), University of Bern, Institute of Psychology, University of Lausanne, Bern, Switzerland, [5]Department of Endocrinology, Diabetology and Metabolism, Geneva University Hospitals, Geneva, Switzerland, [6]Department of Cardiology, University Heart Center, University of Zurich, Zurich, Switzerland, [7]Department of Cardiology, Inselspital, Bern University Hospital, Bern, Switzerland*

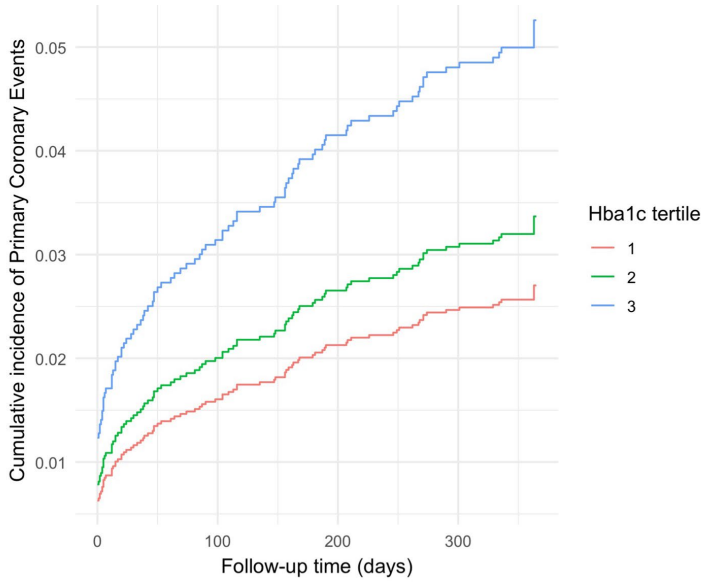
**Introduction:** Glycemic dysregulation plays a key role in the development and progression of atherosclerosis. While glycated hemoglobin (HbA1c) is a well-established marker of chronic glycemic control, limited data are available regarding its association with recurrent coronary events after an acute coronary syndrome (ACS).

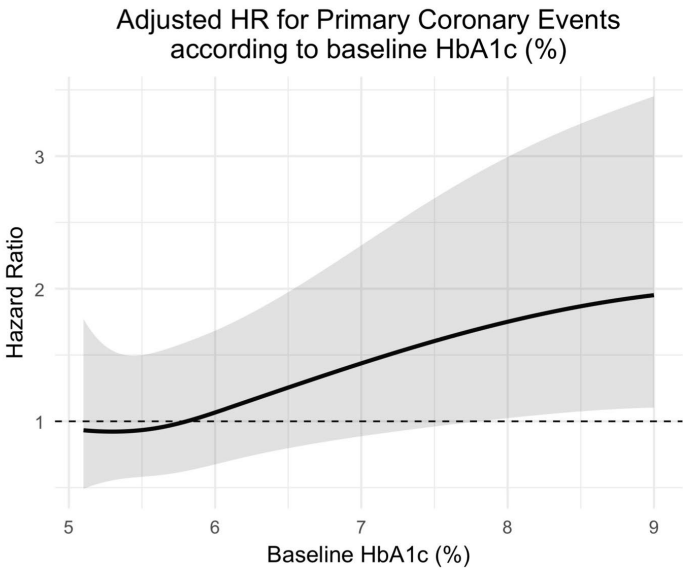
**Material & Methods:** We analyzed data from the Swiss SPUM-ACS cohort participants with available baseline HbA1c measurements. The primary endpoint was the occurrence of coronary events at 1 year, defined as cardiovascular death or myocardial infarction. The secondary endpoint added coronary revascularization. HbA1c was categorized in tertiles, and Cox models were adjusted for age, sex, smoking status, hypertension, and total cholesterol at baseline. Subgroup analysis was based on preexisting diabetes status.

**Results:** 2,689 patients had HbA1c measured at the time of ACS. The mean age was 63 years, 20% were female and 26% had preexisting diabetes. The lowest tertile was defined as HbA1c levels below 5.6%, the middle tertile between 5.6% and 6.1%, and the highest tertile as values above 6.1%. The risk of the primary and secondary endpoints were 2.6% and 5.2% in the lowest HbA1c tertile, 4.0% and 6.4% in the middle tertile, 7.7% and 10.4% in the highest tertile, respectively. In adjusted Cox models, participants in the highest HbA1c tertile had a higher risk of both the primary endpoint (Hazard Ratio 1.97, 95% confidence interval was 1.20–3.25) and the secondary endpoint (HR 1.45, 95%CI 1.01–2.10). The hazard ratio per 1% HbA1c increase for the primary endpoint was 1.17 (95%CI 1.04–1.33). The association was not modified by preexisting diabetes (P for interaction was 0.59 and 0.24, for primary and secondary endpoints respectively).

**Conclusion:** Elevated HbA1c is associated with an increased risk of recurrent coronary event at 1 year following ACS. These findings highlight the potential role of HbA1c as a key prognostic marker in post-ACS patients.

**COI:** No




## P039

### Should We Be Routinely Checking the Preoperative Blood Glucose Levels of All Patients Undergoing Isolated Coronary Artery Bypass Grafting?

Himadri Kar[1], Hari Doshi[1], Philip Curry[1], Sadia Aftab[1], David Varghese[1]

*[1]Golden Jubilee National University Hospital, Glasgow, United Kingdom*

**Introduction:** Hyperglycaemia is a known risk factor for adverse outcomes in cardiac surgery. While the prevalence of elevated preoperative blood glucose in patients undergoing isolated coronary artery bypass grafting (CABG) ranges from 5% to 12%, routine screening remains uncommon. Many patients may have undiagnosed diabetes or impaired glucose tolerance, posing potential risks. This study aimed to evaluate the prevalence of unrecognised hyperglycaemia in non-diabetic patients undergoing isolated CABG.

**Material & Methods:** We conducted a retrospective review of all patients who underwent isolated CABG in 2024. Among them, 204 had no known history of diabetes mellitus and available preoperative glucose data. A cutoff of 5.9 mmol/L was used to define elevated glucose levels

**Results:** Of the 204 patients, 74 (36%) had raised blood glucose despite no prior diabetes diagnosis. The average age in this group was 65 ± 8 years, with a strong male predominance 70/74 (95%). Compared to those with normal glucose levels, patients with elevated glucose had a significantly higher incidence of occult renal impairment, defined as an estimated glomerular filtration rate (eGFR) <85 mL/min (p <0.005).

**Conclusion:** Undiagnosed hyperglycaemia is common in patients undergoing CABG and is associated with increased renal risk. Routine preoperative glucose testing is simple, low-cost, and could facilitate early intervention, improving perioperative outcomes. Incorporating glucose screening into standard preoperative assessment may enhance risk stratification and allow for better perioperative glycaemic management, even in patients without known diabetes

**COI:** No

## P040

### Cardiac myosin-binding protein C for diagnosis of myocardial infarction in patients with prior coronary artery bypass grafting

Rebekka Odermatt[1], Luca Koechlin[1,2], Pedro Lopez Ayala[1], Emel Kaplan[1], Oscar Miro[3], Michael Christ[4], Dagmar Keller[5], Felix Mahfoud[1], Héctor Rodríguez Cetina Biefer[2], Omer Dzemali[2], Jasper Boeddinghaus[1], Ivo Strebel[1], Christian Müller[1]

*[1]Cardiovascular Research Institute Basel (CRIB), Basel, Switzerland, [2]Allianz Herzchirurgie Zurich, Zurich, Switzerland, [3]Emergency Department, Hospital Clínic, IDIBAPS, University of Barcelona, Barcelona, Catalonia, Spain., Barcelona, Spain, [4]LUKS, Luzern, Switzerland, [5]KLINIK GUT AG, St. Moritz, Switzerland*

**Introduction:** Diagnosing myocardial infarction (MI) in patients with prior coronary artery bypass grafting (CABG) remains challenging, primarily due to the lower diagnostic accuracy of high-sensitivity cardiac troponin (hs-cTn). Cardiac myosin-binding protein C (cMyC), owing to its faster release kinetics and greater abundance, may offer improved diagnostic performance in this population.

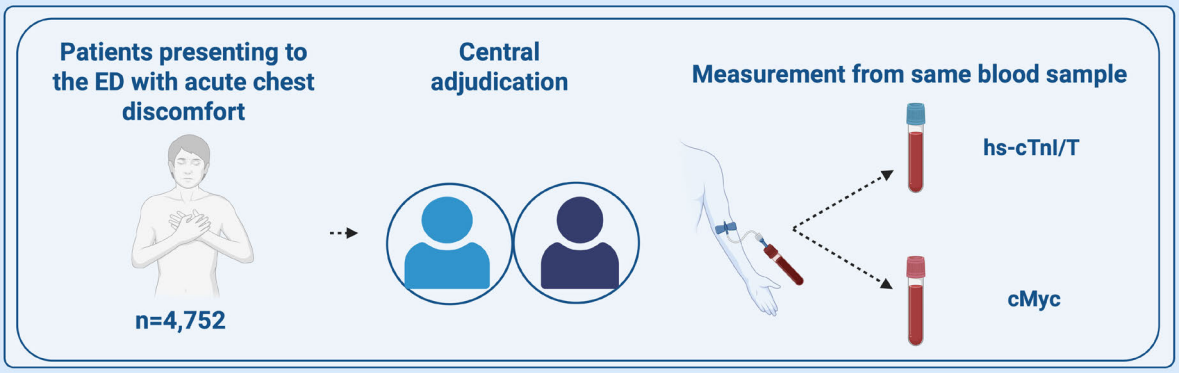
**Material & Methods:** The diagnostic accuracy of cMyC was directly compared with that of hs-cTnT and hs-cTnI in a prospective, international, multicenter, diagnostic study enrolling adult patients presenting to the Emergency Department (ED) with acute chest discomfort. The final diagnoses were centrally adjudicated by two independent cardiologists using all available clinical and study-specific data, including imaging and serial hs-cTnT measurements. Patients were stratified according to the presence or absence of prior CABG.

**Results:** Among 4,752 patients, 387 (8%) had undergone prior CABG (median age, 75 years; 86% men). The incidence of MI was significantly higher in patients with prior CABG than in those without (38% versus 16%; P <0.001). In the CABG group, the diagnostic accuracy of cMyC as quantified by the area under the curve (AUC) was 0.88 [95% CI 0.85-0.92], which was comparable but not superior to that of hs-cTnT (0.89 [95% CI 0.86-0.92]) and hs-cTnI (0.88 [95% CI 0.84-0.91]). These findings were consistent across alternative high-sensitivity cMyC-assays.

**Conclusion:** In patients with prior CABG, cMyC demonstrated high diagnostic accuracy for MI but was not superior to the established hs-cTnT and hs-cTnI assays.

**COI:** No

# Cardiac myosin-binding protein C for the early diagnosis of myocardial infarction in patients with prior coronary artery bypass grafting



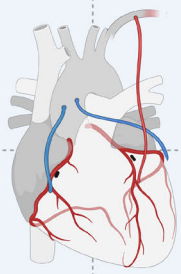

## Patients with prior CABG

### cMyC concentration

Higher baseline cMyC concentrations in patients with prior CABG.

### Diagnostic accuracy for NSTEMI

Comparable diagnostic diagnostic discrimination of cMyC and hs-cTnT/I, but lower compared to patients without prior CABG.



### Risk stratification

cMyC demonstrated prognostic accuracy comparable to hs-cTnT/I for predicting 1-year risk of AMI or CV death

### Secondary validation analysis

Secondary analysis using a second assay confirmed the findings.

**cMyC demonstrates high diagnostic discrimination comparable but not superior to hs-cTnT/I in patients with prior CABG.**

cMyc – Cardiac Myosin binding Protein C; ED – Emergency department; CABG – Coronary artery bypass grafting ; NSTEMI – Non-ST-segment elevation myocardial infarction; hs-cTn – High sensitivity cardiac troponin; AMI – Acute myocardial infarction; CV death – Cardiovascular death

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## POSTER WALK: TAVI

### P041

### Epicardial adipose tissue in patients with severe aortic stenosis undergoing valve replacement: association with invasive hemodynamics and long-term mortality

Markus Werner[1], Lukas Weber[1], Johannes Rigger[1], Joannis Chronis[1], Philipp Haager[1], Marc Buser[1], Peter Ammann[1], Hans Rickli[1], Micha Maeder[1]

*[1]HOCH Health Ostschweiz, St. Gallen, Switzerland*

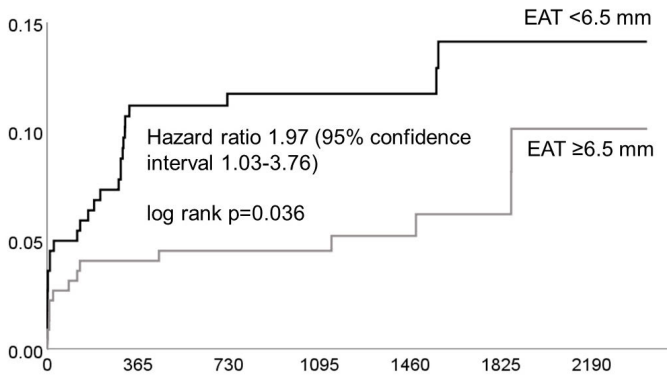
**Introduction:** Epicardial adipose tissue (EAT) is a novel risk marker in various clinical settings. In patients with aortic stenosis (AS), data on the prognostic value of EAT have been conflicting, and the association between EAT and invasive hemodynamics in AS patients is unknown. We assessed the association between EAT and invasive hemodynamics in a cohort of severe AS patients prior to aortic valve replacement (AVR) and the impact of EAT on long-term post-AVR mortality.

**Material & Methods:** In 460 patients (age 74±11 years, 42% females, indexed aortic valve area 0.43±0.13 $cm^2/m^2$) undergoing right heart catheterization prior to transcatheter or surgical AVR, EAT thickness was measured by transthoracic echocardiography (end-systole, average of three measurements). All-cause mortality after a median (interquartile range) post-AVR follow-up of 1326 (946-1870) days was assessed.

**Results:** In the entire population, the median EAT thickness was 6.5 (5.5-7.7) mm. Patients with supramedian EAT thickness (≥6.5 mm) had higher body mass index compared to those with inframedian EAT thickness (<6.5 mm; 28.6±5.2 versus 27.0±4.9 $kg/m^2$; p = 0.01), whereas age (74±10 versus 74±11 years), sex (40 versus 45% females), indexed aortic valve area (0.43±0.13 versus 0.42±0.12 $cm^2/m^2$), and left ventricular ejection fraction (58±12 versus 56±13%) did not differ between groups (p >0.05 for all). However, those with supramedian EAT thickness had lower mean pulmonary artery pressure (25±10 versus 27±11 mmHg; p = 0.045) and mean pulmonary artery wedge pressure (15±7 versus 17±8 mmHg; p = 0.01) and higher stroke volume index (39±9 versus 36±12 $ml/m^2$; p = 0.001) and pulmonary artery capacitance (3.6±2.0 versus 3.1±1.6 ml/mmHg; p = 0.003) compared to those with inframedian EAT thickness. Long-term post-AVR mortality was lower in patients with supramedian compared to those with inframedian EAT thickness (log-rank p = 0.036; Figure).

**Conclusion:** In patients with severe AS evaluated for AVR, higher (not lower) EAT thickness is associated with more favorable hemodynamics and lower long-term mortality after AVR.

**COI:** No




### P042

### Brain natriuretic peptide dynamics predicts long-term mortality in patients undergoing transcatheter aortic valve implantation

Florian A. Wenzl[1 2], Peizhi Wang[1 3 4], Panagiotis Savvoulidis[5], Qi Chen[6], Tamara Al-Och[5], Yakup Yakupoglu[5], Simon Davies[5], Miles Dalby[5], Tito Kabir[5], Vasileios Panoulas[5], Saeed Mirsadraed[5], Andreas P Kalogeropoulos[7], Felix C. Tanner[6], Stefan Blankenberg[8], Thomas F. Lüscher[1 5]

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**Introduction:** Current guidelines endorse the measurement of brain natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT-proBNP) after transcatheter aortic valve implantation (TAVI). However, the specific value of dynamic changes for predicting long-term survival and left ventricular functional recovery remains poorly defined. We aimed to evaluate the prognostic impact of baseline levels and dynamic changes of BNP/NT-proBNP on all-cause mortality and left ventricular ejection fraction (LVEF) recovery following TAVI.

**Material & Methods:** We analysed 1,373 patients from three European cohorts. BNP (UK cohort) and NT-proBNP (Swiss and German cohorts) were measured at baseline and during follow-up. Biomarker levels were analysed on a continuous (log-transformed) and a categorical (high vs. low) scale. Long-term mortality was assessed in the Swiss (median follow-up 3.7 years) and UK (median follow-up 5.1 years) cohorts using Cox models. In the German cohort, LVEF changes from 7 days to 1 year were analysed using linear regression.

**Results:** On multivariable-adjustment for clinical characteristics, baseline natriuretic peptide levels independently predicted mortality in the Swiss (hazard ratio [HR] per log2 increase 1.22, 95% confidence interval [CI] 1.13–1.31, P <0.001) and UK cohorts (HR 1.17, 95% CI 1.02–1.34, P = 0.023). Patients with persistently high levels (high/high vs. low/low) exhibited a significantly increased risk of long-term mortality in both the Swiss (HR 1.99, 95% CI 1.45–2.74, P <0.001) and UK cohorts (HR 2.18, 95% CI 1.14–4.17, P = 0.019). Furthermore, in the German cohort, both baseline levels (β 1.10, 95% CI 0.26–1.94, P = 0.011) and dynamic changes (β 4.41, 95% CI 0.90–7.92, P = 0.015) were independently associated with impaired LVEF recovery from 7 days to 1 year.

**Conclusion:** Monitoring BNP/NT-proBNP dynamics is essential for post-TAVI risk stratification. Persistent biomarker elevation is a powerful predictor of both increased mortality and poor functional recovery, aiding in personalized patient management.

**COI:** FAWs research is supported by research grants from the Research Fund for excellent research of the University of Zurich Foundation, the Swiss Heart Foundation, the Kurt and Senta Herrmann Foundation, Albrecht von Haller Young Investigator Award funds conferred by the Swiss Heart Foundation, the Theodor and Ida Herzog-Egli Foundation, and the Foundation for Cardiovascular Research – Zurich Heart House. FAW re-

 

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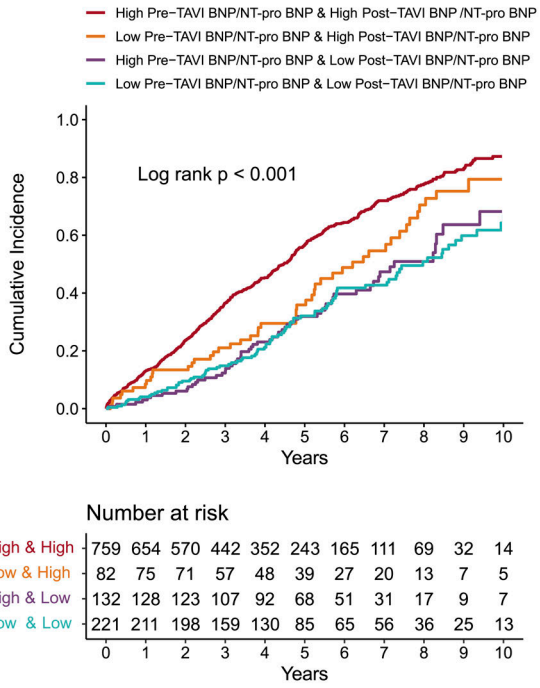





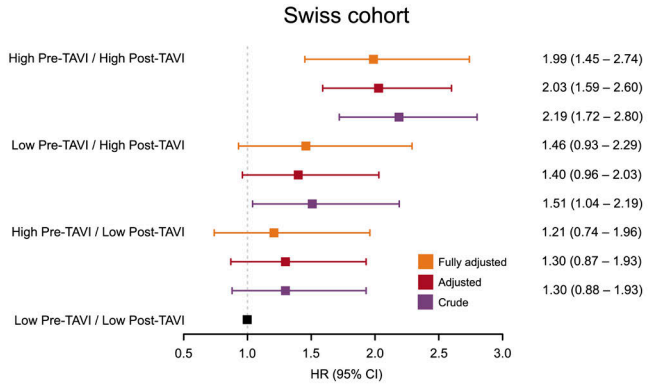


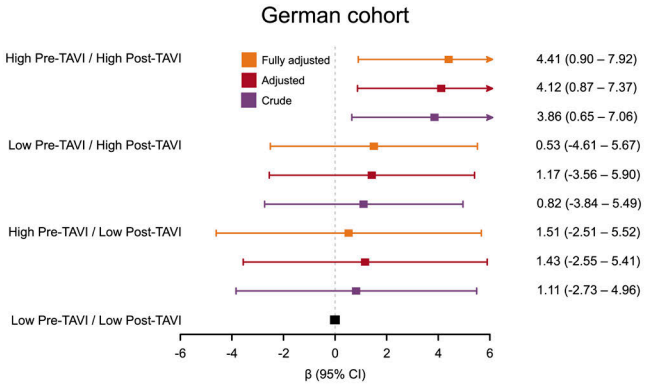


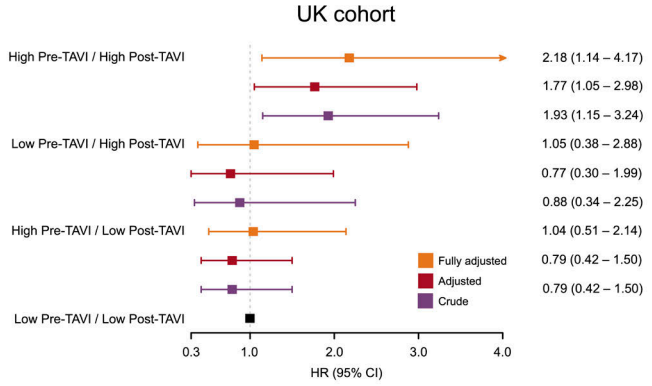

## P043

### Long-term outcomes after transcatheter aortic valve replacement

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**Introduction:** Little is known about long-term outcomes after transcatheter aortic valve replacement (TAVR). The aim of this study was to analyze long-term clinical and echocardiographic outcomes of patients undergoing TAVR with second-generation valves.

**Material & Methods:** We analyzed consecutive patients who underwent second-generation TAVR at the Heart Center Lucerne between February 2014 and November 2023. Endpoints included all-cause mortality, any stroke, stage ≥2 structural valve deterioration (SVD), and endocarditis.

**Results:** A total of 1041 patients underwent TAVR with second-generation valves. Mean age at the time of TAVR was 81 ± 6 years, 45% were women. Median follow-up was 2.7 years (IQR: 1.2-4.7). Five-year cumulative incidences of all-cause mortality, stroke, stage ≥2 SVD, and endocarditis were 46.5%, 12.1%, 2.3%, 3.6%, respectively. In multivariable analysis, independent predictors of mortality included higher age (HR: 1.03, 95% CI: 1.01-1.05, $p$ = 0.003), diabetes mellitus (DM) (HR: 1.64, 95% CI: 1.29-2.09, $p$ <0.001), lower GFR (HR: 0.99, 95% CI: 0.99-1.0, $p$ = 0.001), atrial fibrillation (HR: 1.28, 95% CI: 1.02-1.6, $p$ = 0.035), lower mean aortic valve gradient (HR: 0.99, 95% CI: 0.99-1.0, $p$ = 0.027) and NYHA functional class III/IV at baseline (HR: 1.38, 95% CI: 1.11-1.72, $p$ = 0.004). Predictors of stroke were DM (HR: 1.76, 95% CI: 1.09-2.84, $p$ = 0.021) and life-threatening/fatal bleeding (HR: 3.21, 95% CI: 1.29-7.97, $p$ = 0.012). Lower age (HR: 0.93 per year, 95% CI: 0.88-0.98, $p$ = 0.011) was independently associated with stage ≥2 SVD, whereas female sex (HR: 0.38, 95% CI: 0.14-0.98, $p$ = 0.045) was protective. Predictors of endocarditis included DM (HR: 3.37, 95% CI: 1.31-8.66, $p$ = 0.012) and atrial fibrillation (HR: 3.30, 95% CI: 1.26-8.62, $p$ = 0.015), while female sex (HR: 0.27, 95% CI: 0.07-0.98, $p$ = 0.046) was again protective.

**Conclusion:** Our real-world cohort of patients undergoing TAVR with second-generation valves demonstrated favorable 5-year valve durability with low rates of SVD and valve-related complications.

**COI:** ST has received honoraria from Medtronic, Boston Scientific, Biosensors, Hi-D Imaging, Abbott Vascular, Medira, Shockwave, Teleflex, atHeart Medical, Cardiac Dimensions, Polares Medical, Amarin, Sanofi, AstraZeneca, ReCor Medical, Daiichi Sankyo, has received institutional research grants from Edwards Lifesciences, Abbott Vascular, Boston Scientific, Fumedica, Novartis, Boehringer Ingelheim, Polares Medical, and holds equity in Hi-D Imaging.

## P044

### Role of isolated PR Prolongation in conduction defects after Transcatheter Aortic Valve Implantation

Teodor Serban[1], Marc Salis[1], Andrea Papa[1], Sven Knecht[1], Thomas Nestelberger[1], Christoph Kaiser[1], Gregor Leibundgut[1], Beat Schär[1], Philipp Krisai[1], Felix Mahfoud[1], Michael Kühne[1], Christian Sticherling[1], Patrick Badertscher[1]

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**Introduction:** Conduction system disorders are frequent complications following transcatheter aortic valve implantation (TAVI), with persistent conduction abnormalities often necessitating permanent pacemaker (PPM) implantation. This study aimed to evaluate the predictive value of isolated PR interval prolongation for PPM implantation within one year after TAVI.

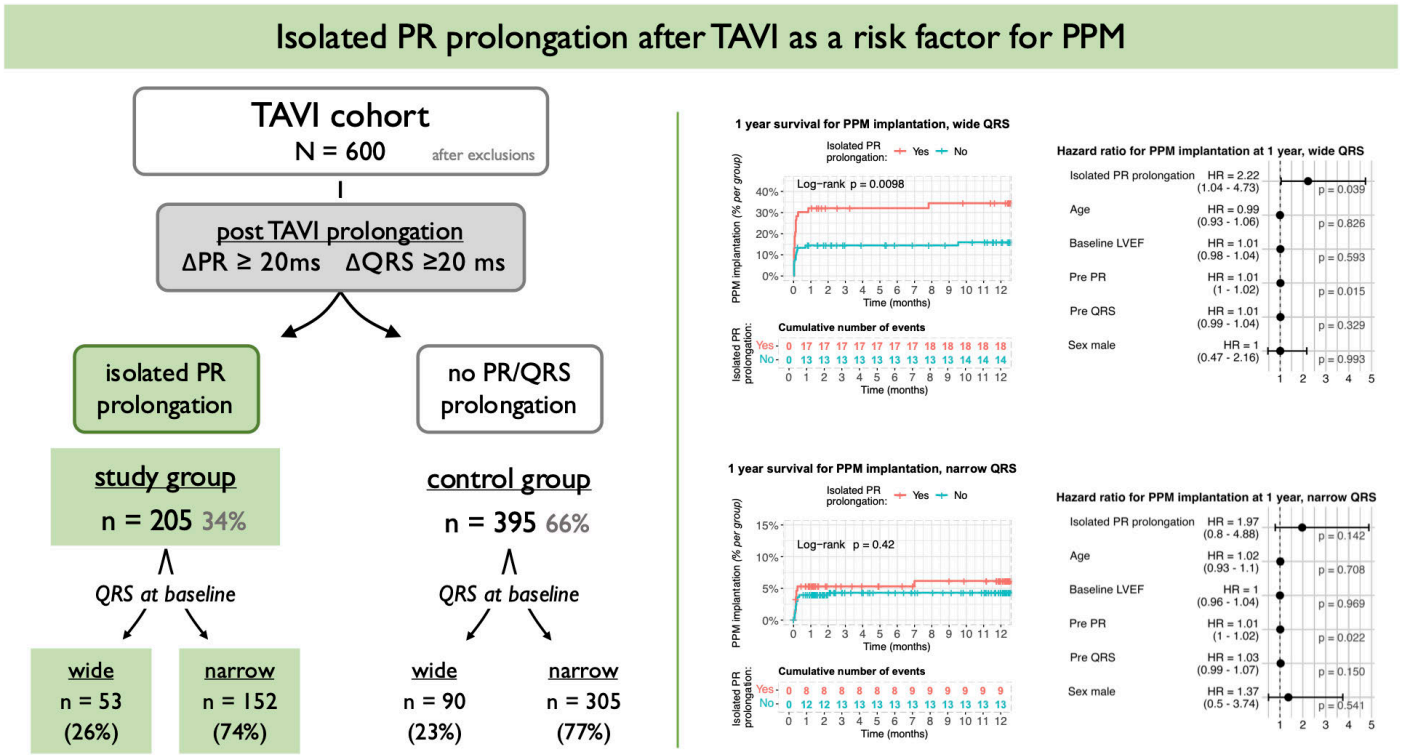
**Material & Methods:** We conducted a retrospective analysis of prospectively enrolled patients who underwent TAVI at a tertiary referral center between September 2011 and March 2024. Patients with prior PPM, previous TAVI, or missing ECG data were excluded. Baseline characteristics, procedural details, and serial ECGs were analyzed. The primary endpoint was PPM implantation within one year. Statistical analyses included logistic regression, Kaplan-Meier survival estimates, and Cox proportional hazards models.

**Results:** The final cohort included 600 patients, divided into a study group (isolated PR prolongation, n = 205) and a control group (no PR or QRS prolongation, n = 395). At one year, PPM implantation occurred more frequently in the study group (13%) compared to controls (6.8%, p = 0.01). Isolated PR prolongation was an independent predictor of PPM implantation (HR 2.22, 95% CI 1.25–3.93, p = 0.006), particularly in patients with wide baseline QRS complexes. Most patients reached maximum PR prolongation by day three post-TAVI.

**Conclusion:** Isolated PR prolongation after TAVI is a strong independent predictor of PPM implantation at one year, especially in patients with wide QRS complexes, highlighting the need for intensified monitoring in this subgroup.

**COI:** No




## P045

### Expansion of the TAVI prosthesis has an impact on PVL

Klaus Tiroch[1], Constanze Krösche[2], Marc Vorpahl[2]

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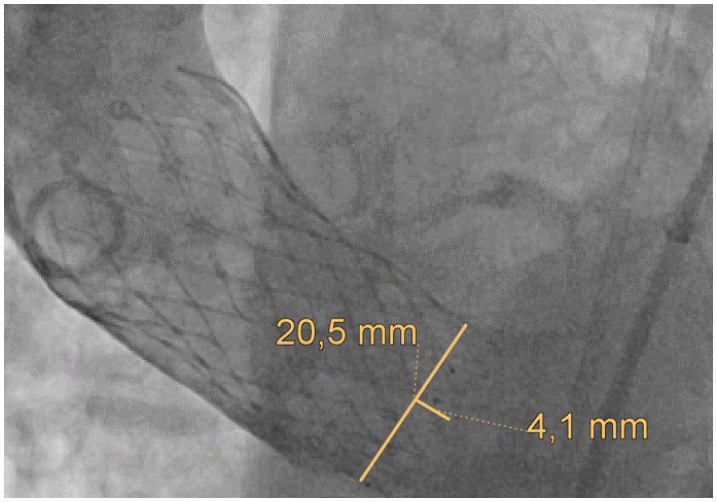
**Introduction:** Transcatheter aortic valve implantation (TAVI) is the preferred treatment for elderly patients. Paravalvular leak (PVL) is associated with worse outcome and remains one of the major limitations, especially with self-expanding valves due in heavily calcified valves.

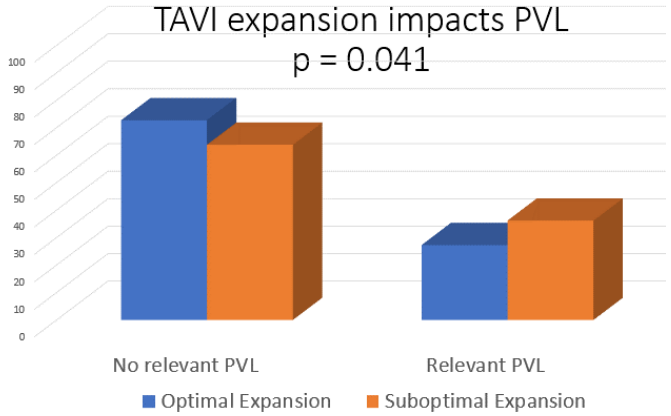
**Material & Methods:** In this retrospective analysis we evaluated 491 patients in a high-volume heart center regarding TAVI expansion and outcome including PVL according to the ARC criteria, patient characteristics, procedural characteristics including pre- and postdilation, depth of implantation, fluoro time, contrast usage, aortic regurgitation (AR)-index = [(DBP-LVEDP)/SBP] x 100, and optimal (>90%) vs. suboptimal (≤90%) expansion defined as diameter of inferior border to max. diameter of TAVI within 10 mm from the inferior border, see figure 1.

**Results:** All 491 patients were included in the final analysis. 256 patients (52.1%) showed no significant PVL, and 235 patients (47.9%) showed at least mild PVL. There were no significant differences comparing the patients characteristics regarding age and gender distribution, EuroScore II, preprocedural valve area, NYHA stage presentation, and presence of coronary artery disease, peripheral artery disease, previous stroke, lung disease, diabetes mellitus, chronic kidney disease, preprocedural pacemaker, and usage of oral anticoagulation (p >0.08 for all comparisons). There was also no significant difference regarding procedural characteristics including pre- and postdilation, depth of implantation, fluoro time, contrast usage, aortic regurgitation (AR)-index. Interestingly, patients with relevant PVL showed a higher degree of suboptimal TAVI expansion (see figure 2) despite higher usage of postdilatation 25.3% vs. 18.0% (p = 0.042).

**Conclusion:** In this large retrospective analysis evaluating 491 TAVI procedures, patients with PVL showed a higher degree of suboptimal TAVI expansion, mostly due to heavy nativ valve calcification. Identifying these patients upfront could lead to improved TAVI expansion und reduced PVL with better outcome.

**COI:** No






## P046

### Clinical outcomes of a new-generation self-expanding Navitor transcatheter heart valve: A single-center experience

Jan Bidovec[1], Nestoras Papadopoulos[1], Martin Schmiady[1], Philipp Haager[1], Héctor Rodríguez Cetina Biefer[1], Omer Dzemali[1]

[1]*Klinik für Herzchirurgie, Universitätsspital Zürich, Zürich, Switzerland*

**Introduction:** Transcatheter aortic valve implantation is an established therapy for patients with severe symptomatic aortic stenosis at increased operative risk. The Navitor transcatheter heart valve is a third-generation self-expanding device designed to reduce paravalvular leak and facilitate coronary access. This study reports early clinical and hemodynamic outcomes following implantation of this valve.

**Material & Methods:** This retrospective single-center study evaluated 100 consecutive patients who underwent TAVI with Navitor between June 2021–August 2023 at the University Hospital of Zurich. Primary endpoint of the study was device implantation success, defined as successful delivery and deployment of the prosthesis in the intended position without device malfunction or embolization. Secondary endpoints included all-cause mortality at 30 days, hemodynamic performance, paravalvular leak, conduction disturbances, procedural complications. Hemodynamic properties were assessed by transthoracic echocardiography on day 3 and day 30.

**Results:** Mean patient age was 80.9 years, and 51% were male. Device implantation success was achieved in 98% of cases. Valve embolization occurred in two patients, both requiring surgical conversion due to infeasible percutaneous bailout. Preoperative mean aortic valve area was 0.78 cm². Mean transvalvular gradient decreased from 41.9 mmHg preoperatively to 7.5 mmHg postoperatively and 7.4 mmHg at 30 days. Mean LVEF remained stable (54.5% preoperatively, 54.3% postoperatively, and 56.7% at 30 days). Angiographic paravalvular leak was observed in 13% of cases, with moderate or greater PVL in one patient. At 30 days, four patients had PVL grade 2. Bleeding complications occurred in six cases; other adverse events included leg ischemia, myocardial infarction, and acute kidney failure. Viabahn stents were used in 4% of procedures. Mean hospital stay was 6.6 days.

**Conclusion:** In this single-center experience, the Navitor transcatheter heart valve demonstrated high procedural success with a low rate of moderate or greater paravalvular leak and acceptable safety profile. Longer-term follow-up is required to confirm durability and clinical benefit.

**COI:** No

## P047

### Surgical solutions for aortic stenosis with small annuli in post-TAVI era

Dritan Useini[1], Brigitta Gahl[1], Oliver Reuthebuch[1], Ingo Kutschka[1], Hassina Baraki[1]

[1]*Department of Cardiac Surgery, University Hospital Basel, University of Basel, Basel, Switzerland, Basel, Switzerland*

**Introduction:** In recent years, after establishment of the transcatheter technique (TAVI), patient´s desire for minimal invasive surgery has grown. So, the complexity of the surgical aortic valve replacement (SAVR) has increased, especially in small aortic annuli. Moreover, there is a clear clinical evidence of pure outcomes if small valves implanted during SAVR and valve–in–valve TAVI procedures. We present outcomes after SAVR with aortic annular enlargement (AAE) for small aortic annuli in minimal invasive fashion.

**Material & Methods:** Between 2018–2025, 12 consecutive patients with symptomatic aortic stenosis and annuli size <21mm underwent SAVR with AAE (Nicks or Manougian procedure) in minimal invasive fashion through Ministernotomy. The primary end-point was a composite end-point of device success as defined by VARC-3 criteria. Second end-points were: a composite end-points of early safety at 30 days and clinical efficacy at one year as defined by VARC-3 criteria. The mean follow-up time was 3.5±1.9 years.

**Results:** The mean age was 59.1±10.3 years. The mean EuroScore II was 1.3±0.3%. There were used bovine and autologous pericardial patch. 6 (50%) biological and 6 (50%) mechanical valves were implanted. No patients died at 30-day, no redo or re-intervention and no access related cardiac complications were registered. The mean transvalvular gradient was 9.5±2.6 mmHg. One re-thoracotomy for bleeding (8.3%) and one patient experienced stroke without disability (8.3%). There were no kidney injury, no new pacemaker and no aortic regurgitation. Clinical efficacy at one-year was 100%, without mortality, stroke or hospitalization for procedure- or valve-related causes. Two events were observed over 40.7 patient-years (RMST 6.12 years, $\tau$ = 7.39 years). The incidence rate was 0.049 /PY (4.92 per 100 PY; 95% CI 0.0060–0.178 /PY, 0.60–17.77 per 100 PY).

**Conclusion:** SAVR with AAE in minimal invasive setting for small aortic annuli shows promising surgical concept in the post-TAVI era.

**COI:** No

## POSTER WALK: VALVES

### P048

### Impact of left ventricular pressure versus volume overload on pulmonary hemodynamics

Micha Maeder[1], Mark Güpfert[1], Johannes Rigger[1 1], Joannis Chronis[1], Philipp K. Haager[1], Marco Cederqvist[1], Marc Buser[1], Philipp Baier[1], Hans Rickli[1], Lukas Weber[1]

*[1]HOCH Health Ostschweiz, St. Gallen, Switzerland*

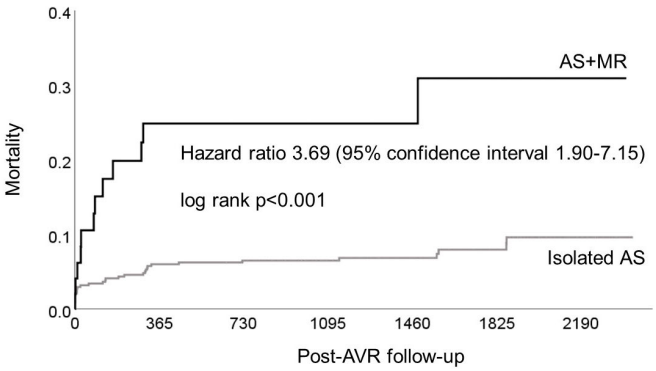
**Introduction:** Pressure or volume overload induces a different pattern of left ventricular (LV) wall stress and remodeling. This is evident by concentric versus eccentric LV remodeling in aortic stenosis (AS) versus mitral regurgitation (MR). We compared the impact of the type of LV overload on pulmonary hemodynamics.

**Material & Methods:** We studied 754 patients (age 72±11 years, 37% females) undergoing right heart catheterization prior to aortic valve replacement (AVR; surgical/transcatheter) or a mitral valve procedure (surgical repair/replacement or transcatheter repair): 453 with severe AS but without significant MR (less than moderate), 251 with isolated severe degenerative MR, and 50 with severe AS and at least moderate MR (degenerative/functional). For all AS patients, there was a median follow-up of 1348 days (no long-term follow-up for the isolated MR group).

**Results:** Patients with isolated MR had the largest and those with isolated AS had the smallest LV and left atrial (LA) dimensions, while LV/LA dimensions were intermediate in AS+MR. Key hemodynamic parameters did not significantly differ between patients with isolated AS and isolated MR but patients with AS+MR had the highest mean pulmonary artery pressure, mean pulmonary artery wedge pressure and pulmonary vascular resistance (PVR) and the lowest pulmonary artery capacitance (PAC) and stroke volume index (Table). Post-AVR mortality was significantly higher in AS+MR versus isolated AS (Figure; hazard ratio 3.69).

**Conclusion:** Despite different patterns of LV and LA remodeling in AS and MR the effect on pulmonary pressures, PVR and PAC is similar. In contrast, a combination of AS+MR, characterized by concentric LV remodeling and substantial LA dilatation, is associated markedly worse hemodynamics and a more than three-fold higher post AVR mortality than in isolated AS, which highlights the critical importance of mixed valve diseases and the need for novel management concepts for these patients.

**COI:** No




| | AS (n=453) | MR (n=251) | AS+MR (n=50) | P value |
|---|---|---|---|---|
| Age (years) | 74±10 | 67±11 | 79±6 | <0.001 |
| Left ventricular ejection fraction (%) | 58±11 | 62±8 | 50±15 | <0.001 |
| Indexed left ventricular end-diastolic diameter (mm/m²) | 25±4 | 30±4 | 28±5 | <0.001 |
| Left atrial volume index (ml/m²) | 41±15 | 65±23 | 60±23 | <0.001 |
| Mean pulmonary artery pressure (mmHg) | 24±9 | 22±9 | 34±13 | <0.001 |
| Mean pulmonary artery wedge pressure (mmHg) | 15±8 | 14±7 | 21±8 | <0.001 |
| Pulmonary vascular resistance (WU) | 2.0±1.1 | 1.9±1.3 | 3.5±3.1 | <0.001 |
| Pulmonary artery capacitance (ml/mmHg) | 3.5±1.8 | 4.1±2.4 | 2.0±1.0 | <0.001 |
| Cardiac index (l/min/m²) | 2.5±0.5 | 2.5±0.5 | 2.3±0.5 | 0.001 |
| Stroke volume index (ml/m²) | 38±9 | 37±11 | 31±10 | <0.001 |

## P049

### Impact of aortic stenosis versus mitral regurgitation on right ventricular to pulmonary artery coupling

Micha Maeder[1], Mark Güpfert[1], Philipp K. Haager[1], Johannes Rigger[1], Joannis Chronis[1], Marc Buser[1], Marco Cederqvist[1], Sebastian Kopp[1], Hans Rickli[1], Lukas Weber[1]

*[1]HOCH Health Ostschweiz, St. Gallen, Switzerland*

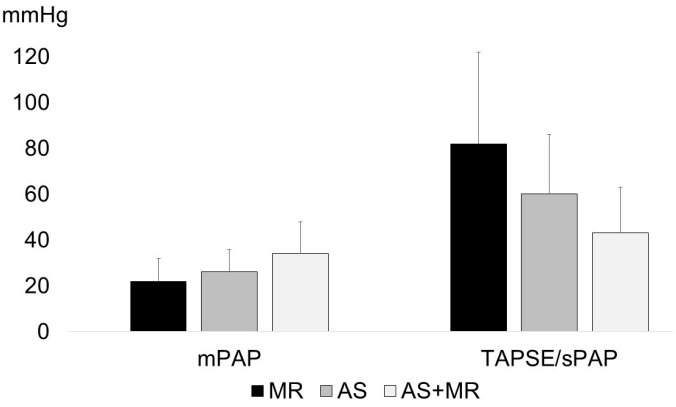
**Introduction:** The tricuspid annular plane systolic excursion (TAPSE) to the systolic pulmonary artery pressure (PAP) ratio as a non-invasive surrogate for right ventricular (RV) to pulmonary artery (PA) coupling is a strong prognostic predictor in aortic stenosis (AS) and mitral regurgitation (MR) patients undergoing valve procedures. However, prognostic cut-offs for the TAPSE/systolic PAP ratio differ substantially for AS und MR. It has been proposed that this is due to a more pronounced rise in pulmonary artery wedge pressure (PAWP)/PAP in MR. We compared the impact of AS versus MR on the TAPSE/systolic PAP ratio in an invasive study.

**Material & Methods:** We studied 358 patients (age 72±11 years, 34% females) undergoing right heart catheterization prior to surgical or transcatheter replacement/repair: 163 with severe AS but without significant MR (less than moderate), 169 with isolated severe degenerative MR, and 26 with severe AS and at least moderate MR (degenerative or functional). The TAPSE/systolic PAP ratio was calculated based on echocardiography and invasively assessed systolic PAP.

**Results:** Patients with isolated MR had the numerically lowest mean PAWP, mean PAP, and pulmonary vascular resistance (PVR) and the highest pulmonary artery capacitance (PAC) and the highest ("best") TAPSE/sPAP ratio, while those with isolated AS had intermediate hemodynamics (at least not "better" than in MR) and intermediate TAPSE/systolic PAP ratio. Patients with AS+MR had the highest mean PAWP, mean PAP, and PVR, and the lowest PAC, SVI and TAPSE/systolic PAP ratio (Table, Figure).

**Conclusion:** In contrast to the intuitive assumption (direct regurgitation of blood from ventricle into the trium) patients with isolated MR do not have higher PAWP/PAP and worse TAPSE/systolic PAP ratio than patients with isolated AS. However, a combination of AS+MR is associated with a poor hemodynamic constellation and poor RV to pulmonary artery coupling.

**COI:** No




| | MR (n=169) | AS (n=163) | AS+MR (n=26) | P value |
|---|---|---|---|---|
| Left ventricular ejection fraction (%) | 62±8 | 56±12* | 44±14#§ | <0.001 |
| Indexed left ventricular end-diastolic diameter (mm/m$^2$) | 29±4 | 25±4* | 28±5§ | <0.001 |
| Left atrial volume index (ml/m$^2$) | 65±22 | 42±14* | 58±13§ | <0.001 |
| Tricuspid annular plane systolic excursion (TAPSE; mm) | 23±5 | 21±5 | 19±5# | <0.001 |
| TAPSE/systolic pulmonary artery pressure ratio (mm/mmHg) | 0.82±0.40 | 0.60±0.26* | 0.43±0.20#§ | <0.001 |
| Mean right atrial pressure (mmHg) | 5±3 | 7±4* | 9±5# | <0.001 |
| Mean pulmonary artery pressure (mmHg) | 22±10 | 26±10* | 34±14#§ | <0.001 |
| Mean pulmonary artery wedge pressure (mmHg) | 14±7 | 17±8* | 21±9# | <0.001 |
| Pulmonary vascular resistance (WU) | 1.9±1.4 | 2.1±1.3 | 3.4±3.7#§ | <0.001 |
| Pulmonary artery capacitance (ml/mmHg) | 4.0±2.5 | 3.3±1.7* | 2.0±1.0#§ | <0.001 |
| Stroke volume index (ml/m$^2$) | 37±11 | 37±10 | 30±9#§ | 0.002 |

* p<0.05 for MR versus AS, # p<0.05 for MR versus AS+MR, § p<0.05 for AS versus AS+MR

P050

## Impact of a volume challenge on pulmonary hypertension diagnosis in patients with degenerative mitral regurgitation undergoing valve repair/replacement

Mark Güpfert[1], Lukas Weber[1], Philipp K. Haager[1], Philipp Baier[1], Sebastian Kopp[1], Johannes Rigger[1], Joannis Chronis[1], Marc Gerhardt[1], Hans Rickli[1], Micha Maeder[1]

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**Introduction:** In patients with degenerative mitral regurgitation (MR), pulmonary hypertension (PH) is a prognostic predictor. However, pulmonary pressures may be spuriously low during right heart catheterization (RHC) after diuretic therapy and/or fasting. Current PH guidelines highlight the role of provocative testing in such situations. We evaluated the impact of a volume challenge (VC) on PH diagnosis in this context.

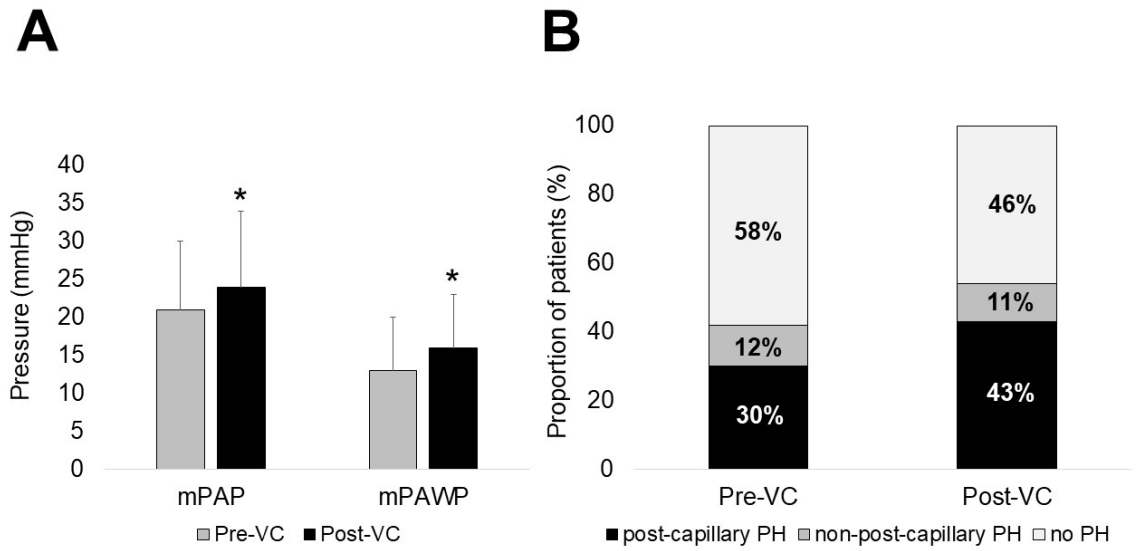
**Material & Methods:** We studied 173 patients (mean age 68±11 years, 25% females, left ventricular ejection fraction 62±8%) with at least moderate degenerative MR undergoing RHC followed by surgical (83%) or transcatheter (17%) valve repair/replacement. RHC was performed before and after VC (by radiocontrast administration for coronary angiography). In 88% of patients an echocardiogram with valid information to assess the probability of PH (based on peak tricuspid regurgitant velocity and indirect PH signs) was available after a median follow-up (FU) of 6 months. The value of the pre-VC and post-VC hemodynamic constellation to predict the FU PH status was assessed.

**Results:** The pre-VC mean pulmonary artery pressure (mPAP) and mean pulmonary artery wedge pressure (mPAWP) were 21±9 and 13±7 mmHg with a rise to 24±10 and 16±7 mmHg ($p < 0.001$ for both) after administration of 72±37 ml of radiocontrast (Figure, A). The pre-VC prevalence of any PH was 72/173 (42%): 51 with post-capillary and 21 with non-post-capillary PH (i.e., pre-capillary or unclassified). Post-VC, 93/173 patients (54%; +29%) had any PH: 74 post-capillary, 19 non-post-capillary PH (Figure, B). Both a pre-VC (odds ratio 3.10) and a post-VC (odds ratio 2.89) post-capillary PH were associated with an at least intermediate PH probability at FU.

**Conclusion:** In MR patients, VC (by radiocontrast) leads to significant rise in mPAP and mPAWP with an increase in PH cases by nearly 30%. The values of the pre-VC and post-VC PH constellations to predict the PH status at FU are similar however.

**COI:** No

**Figure legend.** Panel A: Mean pulmonary artery pressure (mPAP) and mean pulmonary artery wedge pressure (mPAWP) before (pre-VC) and after volume challenge (post-VC). *p<0.001 versus pre-VC. Panel B. Proportions of patients without PH (mPAP ≤20 mmHg), non-post-capillary PH (mPAP >20 mmHg, mPAWP ≤15 mmHg), and post-capillary PH (mPAP >20 mmHg, mPAWP >15 mmHg) pre-VC and post-VC.



## P051

### Short-Term Exposure to High Altitude in Patients with Asymptomatic Aortic Stenosis

Marius Bigler[1], Andreas Zimmermann[2], Daniel Berweger[2], Fabian Schwarz[2], Jonas Keller[3], Damian Hutter[1], Chrisoula Dernektsi[1], Matthias Wilhelm[2], Thomas Pilgrim[1]

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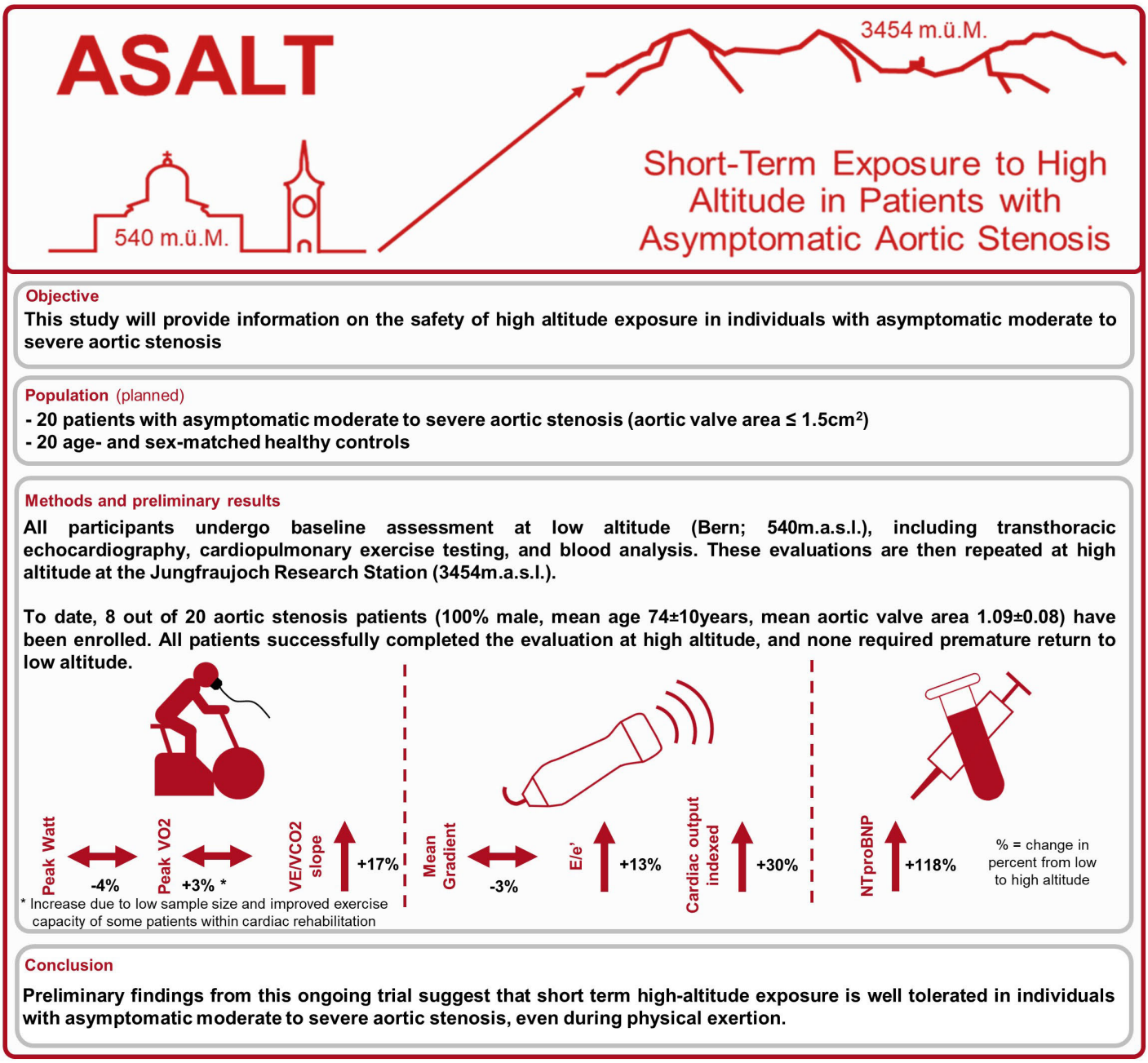
**Introduction:** Aortic stenosis is a common disease with increasing prevalence due to an aging population. High altitude exposure for leisure activities and tourism is popular; however, in the absence of robust evidence, pathophysiological considerations have led to an expert consensus advising patients with aortic stenosis to avoid such exposure owing to a presumed elevated risk for myocardial ischemia and arrhythmia. The aim of this study is to evaluate the safety of short-time high altitude exposure in individuals with asymptomatic moderate to severe aortic stenosis.

**Material & Methods:** This is an ongoing prospective, monocentric cohort study enrolling patients with asymptomatic moderate to severe aortic stenosis (n = 20) and age- and sex-matched controls (n = 20). All participants undergo baseline assessment at low altitude (Bern; 540m.a.s.l.), including transthoracic echocardiography, cardiopulmonary exercise testing, and blood analysis. These evaluations are then repeated at high altitude at the Jungfraujoch Research Station (3454m.a.s.l.).



**Results:** To date, 8 out of the planned 20 aortic stenosis patients (100% male, mean age 74±10 years, mean aortic valve area 1.09±0.08cm$^2$) have been enrolled. All patients successfully completed the evaluation at high altitude, and none required premature return to low altitude. High altitude exposure was associated with a modest reduction in exercise capacity (-5.5±15.7Watt, i.e. 4%) and an increase in the VE/$VCO_2$ slope (+5.4±3.7), whereas peak $VO_2$ remained largely stable (+0.8±2.6ml/min/kg). Echocardiographic assessment revealed increases in left ventricular filling pressure (E/e' +1.4±4.1) and indexed cardiac output at rest (+0.8±0.9l/min/kg), while the mean transvalvular pressure gradient remained stable (-0.7±5.3mmHg). NTproBNP levels increased by +285±502pg/ml, representing a 118% rise.

**Conclusion:** Preliminary findings from this ongoing trial suggest that short term high-altitude exposure is well tolerated in individuals with asymptomatic moderate to severe aortic stenosis, even during physical exertion.

**COI:** No

## P052

### Association of Continuous Baseline and Discharge Blood Pressure With Outcomes After Transcatheter Aortic Valve Implantation

Jakob Reichl[1], Thorald Stolte[1], Felix Götzinger[1], Max Wagener[1], Ketina Arslani[1], Anke von Peter[1], Christoph Kaiser[1], Michael Böhm[2], Lucas Lauder[1], Felix Mahfoud[1], Thomas Nestelberger[1]

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**Introduction:** Data on the relationship between blood pressure (BP) before and after transcatheter aortic valve implantation (TAVI) and subsequent cardiovascular outcomes are limited. This study aimed to evaluate the associations between pre- and post-TAVI BP, as well as BP changes over time, and cardiovascular outcomes.

**Material & Methods:** Consecutive patients undergoing TAVI at a tertiary university hospital between 2011 and 2025 with available office BP measurements before and after the procedure were included. The primary endpoint was the occurrence of major adverse cardiac events (MACE) within 1 year. Multivariable Cox proportional hazards models with restricted cubic splines for continuous variables were used for analysis.

**Results:** A total of 1138 patients were analyzed. Overall, BP values remained largely unchanged from baseline to 1-year follow-up. Discharge systolic BP and absolute changes in systolic BP from pre- to post-TAVI were both independently associated with 1-year MACE (P <0.001 for both), whereas baseline systolic BP was not. Both very low and very high discharge systolic BP levels were linked to an increased risk of MACE at 1 year. In contrast, a reduction in systolic BP of −5 to −25 mmHg was associated with a lower risk of MACE compared with no BP change.

**Conclusion:** Although BP is generally stable during the year following TAVI, extreme systolic BP values at discharge – both low and high – are independent predictors of 1-year MACE. Additionally, a moderate reduction in systolic BP from baseline to discharge appears to confer a protective effect. These results underscore the potential prognostic relevance of BP management during TAVI follow-up and support BP assessment as a clinically accessible, independent predictor of long-term outcomes after TAVI.

**COI:** No

# POSTER WALK: CAD & ACC

## P073

### Proteomic profiling identifies hepato-intestinal proteins as novel biomarkers for multi-organ damage and death risk in patients with acute myocardial infarction

Yu-Jen Wang[1], Michael A Matter[2], Patrick Westermann[3], Sarah Costantino[1 2], Francesco Paneni[1 2], Barbara Staehli[2], Dik Heg[4], Lorenz Räber[5], Stephan Windecker[5], François MacH[6], Baris Gencer[7], Nicolas Rodondi[8], David Nanchen[9], Frank Ruschitzka[1 2], Christoph B Messner[3], Christian Matter[1 2]

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**Introduction:** Acute myocardial infarction (AMI) triggers myocardial injury, systemic inflammation and potential fatal consequences. The ischaemia burden may be associated with dysfunction of peripheral organs such as liver and intestine. Circulating proteins released from these organs may improve patient risk stratification. Our purpose is to investigate the association of early circulating hepato-intestinal proteins with heart failure (HF) and the risk of 1y-mortality in AMI patients.

**Material & Methods:** From SPUM-ACS cohort, 77 AMI patients who died within 1y follow-up (66 cardiovascular deaths) were matched 1:1 to event-free controls by age, sex, AMI subtype, symptom onset time, and recruiting site. Heparin plasma (<24h after symptom onset) was analyzed by Olink proteomic panels and mass spectrometry. Differential expression was assessed by moderated linear models (*limma*). Conditional logistic regression and unsupervised clustering were applied to proteins significantly changed after adjustment.

**Results:** 24 proteins showed higher expression levels in patients who died (Fig.1A). STRING analyses clustered them into three groups: acute inflammatory response, histones, and metabolic enzymes mainly expressed in liver or intestine (Fig.1B). Pathway analysis revealed enrichment in growth factor signaling, cytokine regulation, and ethanol oxidation pathways (Fig.1C). After excluding the proteins with low detection rate (<50%), FABP6 (fatty-acid binding protein 6), HAO1 (hydroxyacid oxidase 1), and LDHA (lactate dehydrogenase A) were associated with risk of death after adjustment for renal function (eGFR, estimated glomerular filtration rate) (adjusted $p$ = 0.028; Fig.2A). Clustering using these hepato-intestinal proteins identified a subgroup with high expression of these proteins and Killip Class ≥2 ($p$ <0.001, Fig.2B), indicating a close association between hepato-intestinal markers in blood and clinical signs of acute HF in AMI patients.

 

**Conclusion:** We identified a novel group of soluble hepato-intestinal proteins associated with clinical signs of HF and 1-year mortality in AMI patients. These proteins may reveal novel aspect of risk stratification in AMI patients.

**COI:** No

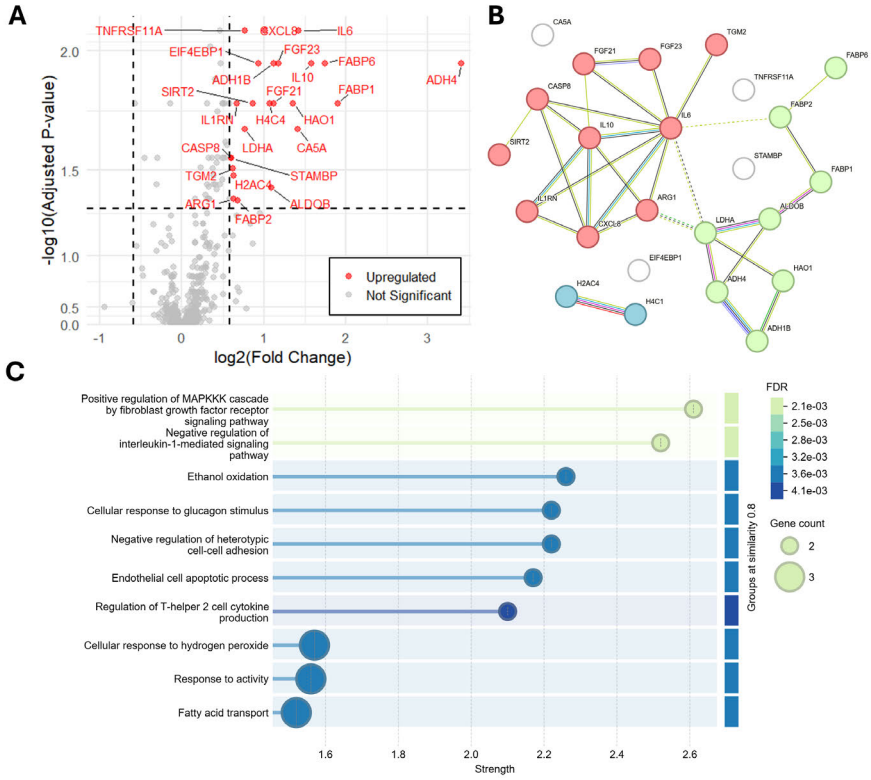


**Figure 1 Integrated proteomics identified three groups of proteins higher in AMI patients died within 1y follow-up. A**. Volcano plot of integrated results of Olink panels and MS-SPEC analysis. Proteins with adjusted p value < 0.05 (horizonal dotted line) and at least 1.5-fold of change (vertical dotted lines) were labeled. **B**. STRING analyses demonstrated the relations among these targets and identified 3 distinct clusters were identified: the acute inflammation related (red), histones (blue), and metabolism-related hepato-intestinal proteins (green). **C**. Pathway analysis showed that the most enriched pathways of identified proteins. AMI: acute myocardial infarction; MS-SPEC: mass spectrometry, FDR: false discovery rate

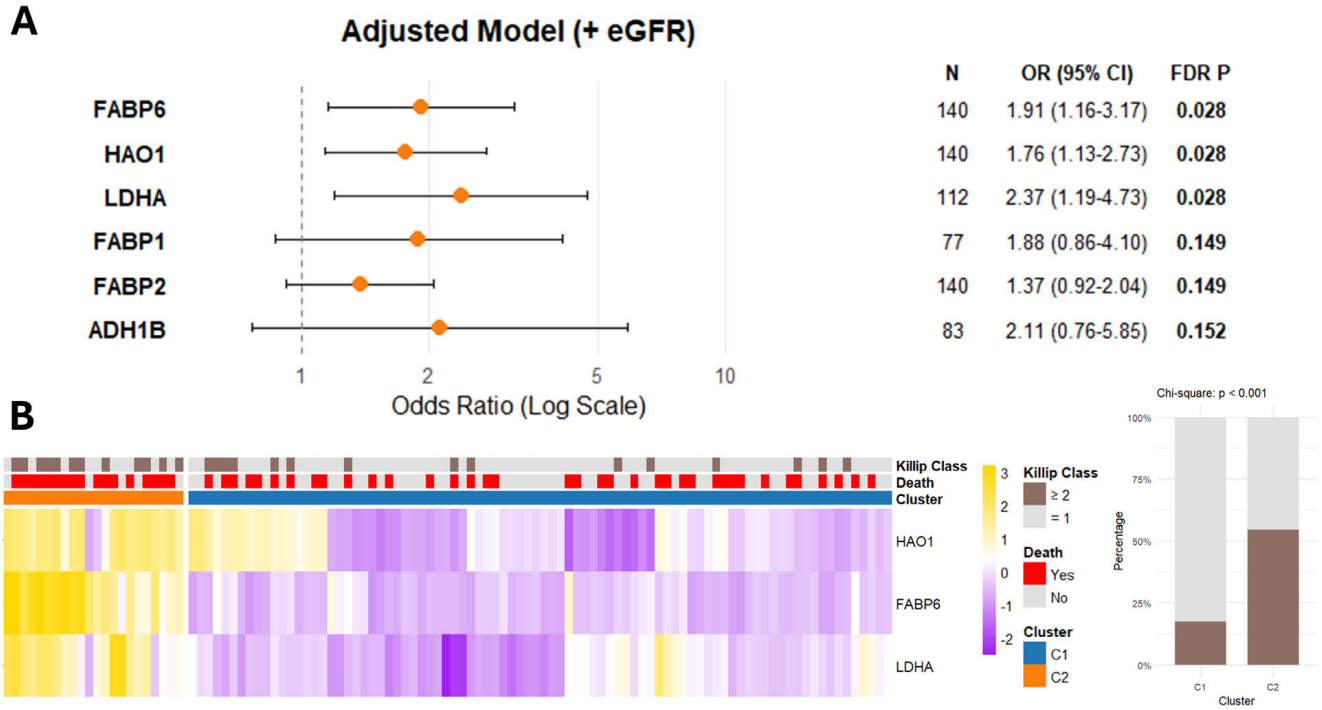


**Figure 2 Circulating hepato-intestinal proteins associated with the risk of death and symptoms of acute heart failure**

**A**. Hepato-intestinal proteins were tested by conditional logistic regression for their association with death, adjusted with eGFR. Proteins with detection rate <50% were excluded. **B**. Heatmap showing the expression levels of the three markers, clustered by FABP6, HAO1, and LDHA. eGFR: estimated glomerular filtration rate; FABP6: fatty acid binding protein 6; HAO1: hydroxyacid oxidase 1; LDHA: lactate dehydrogenase A; OR: odds ratio; FDR: false discovery rate.

## P074

### Angiography-derived radial wall strain to identify future acute coronary syndrome culprit lesions

Lisa Simioni[1], Giacomo Cioffi[1], Julius Jelisejevas[1], Pascal Meier[1], Peter Wenaweser[1], Puricel Serban[1], Mario Togni[1], Stéphane Cook[1], Ioannis Skalidis[1]

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**Introduction:** Radial wall strain (RWS) is an angiography-derived biomechanical index that reflects cyclic vessel deformation during the cardiac cycle and has been correlated in previous studies with the presence of high-risk plaque characteristics in Optical Coherence Tomography (OCT). Its ability to identify future acute coronary syndrome (ACS) culprit lesions have yet to be evaluated.

**Material & Methods:** We conducted a retrospective, single-center cohort study using data from the local PCI Fribourg Registry, screening all patients who had previously undergone percutaneous coronary intervention (PCI) in the context of ACS (including unstable angina, non–ST-segment elevation myocardial infarction (NSTEMI) and ST-segment elevation myocardial infarction (STEMI)). We included in our study patients who had a culprit lesion treated with PCI and a previous coronary angiogram within ≤ 5 years. Angiography-derived biomechanical stress analysis using RWS was performed on the prior angiogram at the same location of the future ACS culprit lesion. A threshold of RWS >14% was considered significantly elevated, in accordance to available literature.

**Results:** Among 2'880 screened patients, 55 fulfilled the inclusion criteria, and 43 patients were finally included in the study. The mean age was 70.7 years old (SD ± 11.24), and 16% of patients were women. RWS analysis identified features consistent with unstable atherosclerotic plaques in 95% of the analyzed lesions. Angiography-derived physiology by Murray law-based quantitative flow ratio (mFR), performed on the same system, was discordant with RWS findings in 90% of cases (figure 1).

**Conclusion:** ACS culprit segments on previous angiograms had consistently elevated RWS with a simultaneous negative physiological evaluation. These findings highlight the potential role of angiography-derived RWS in identifying high-risk plaques, supplementing physiological and angiographic evaluation.

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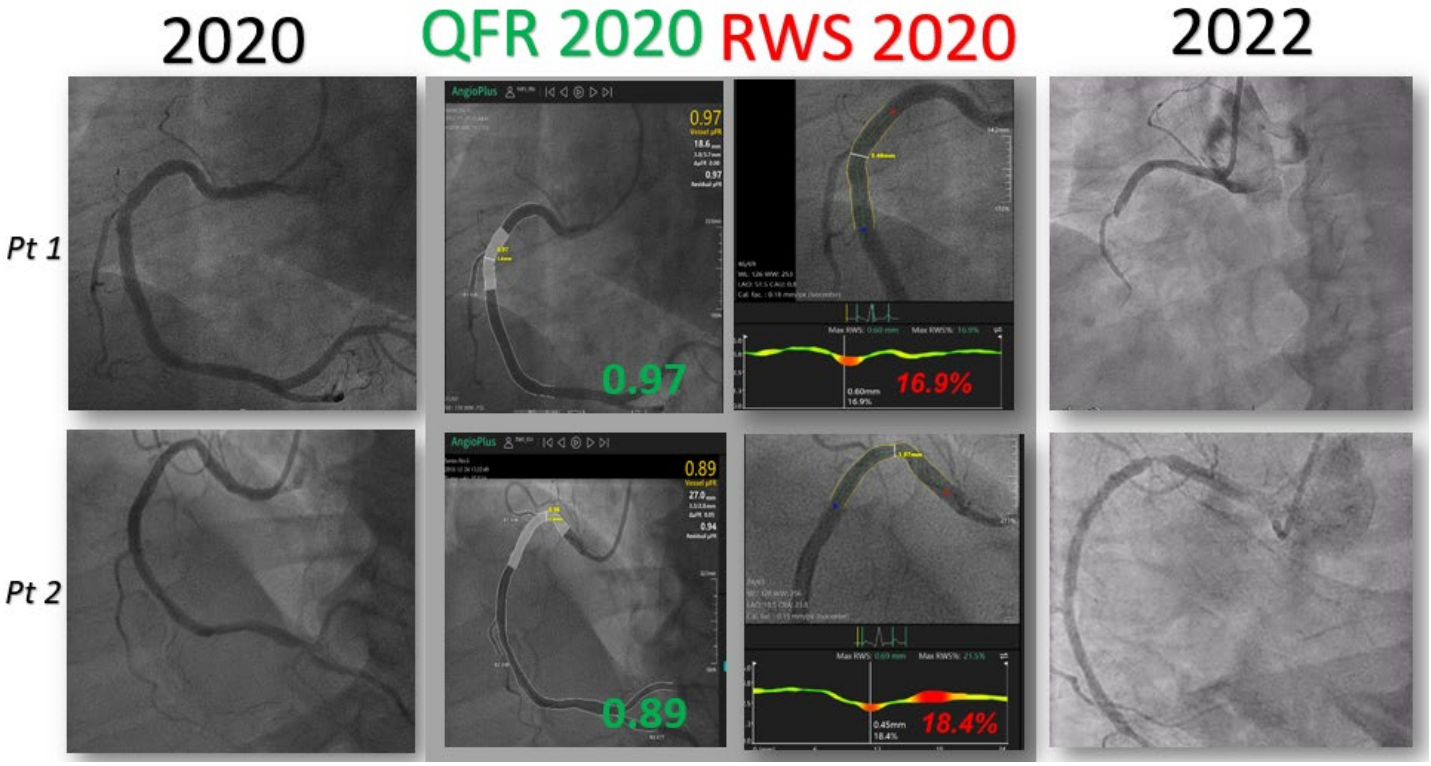


## P075

### Ostial Stent Protrusion: Evaluation of Management Strategies and Clinical Outcomes of the Side Flap Technique.

Marnix Tjeerdsma[1], Gregor Leibundgut[1], Jasper Boeddinghaus[1], Michael Kunz[1]

[1]*University Hospital Basel, Basel, Switzerland*

**Introduction:** Accurate stent positioning in aorto-ostial lesions remains challenging due to complex 3-dimensional anatomy, lack of optimal fluoroscopic projections, resulting in high rates of geographic miss. Excessive stent protrusion impairs guide catheter re-engagement and complicates future revascularization. Despite its frequency, no standardized approach exists for managing large protrusions. This study systematically evaluated management strategies for excessive aortoostial stent protrusion, integrating comprehensive bench testing with clinical case experience, and assessed the feasibility, mechanics, and outcomes of the Side Flap technique.

**Material & Methods:** Bench experiments assessed multiple corrective strategies in two scenarios, guidewire crossing through the central stent lumen and through a side cell, across contemporary DES platforms. Mechanical feasibility of several interventional techniques to correct the protruding stent segment was evaluated in bench tests using high-pressure ballooning, catheter-assisted maneuvers, and intracoronary imaging. A retrospective multicenter series provided complementary real-world clinical outcomes of the Side Flap technique.

**Results:** Longitudinal stent compression using guide catheters, large balloons, or telescoping maneuvers proved mechanically ineffective and frequently produced severe stent deformation or malapposition. In contrast, intentional side-cell recrossing with creation of a neo-lumen was consistently feasible, structurally stable, and reproducible. All DES platforms tolerated large-diameter side-cell expansion without strut fracture, yielding circular neolumens with excellent apposition on OCT. Clinically, the Side Flap technique achieved high procedural success with no technique-related adverse events during follow-up.

**Conclusion:** Longitudinal stent crush techniques are unreliable for managing excessive aorto-ostial protrusion. The Side Flap technique offers a controlled, durable, and safe solution and may provide a foundation for standardizing the management of aorto-ostial stent protrusion.

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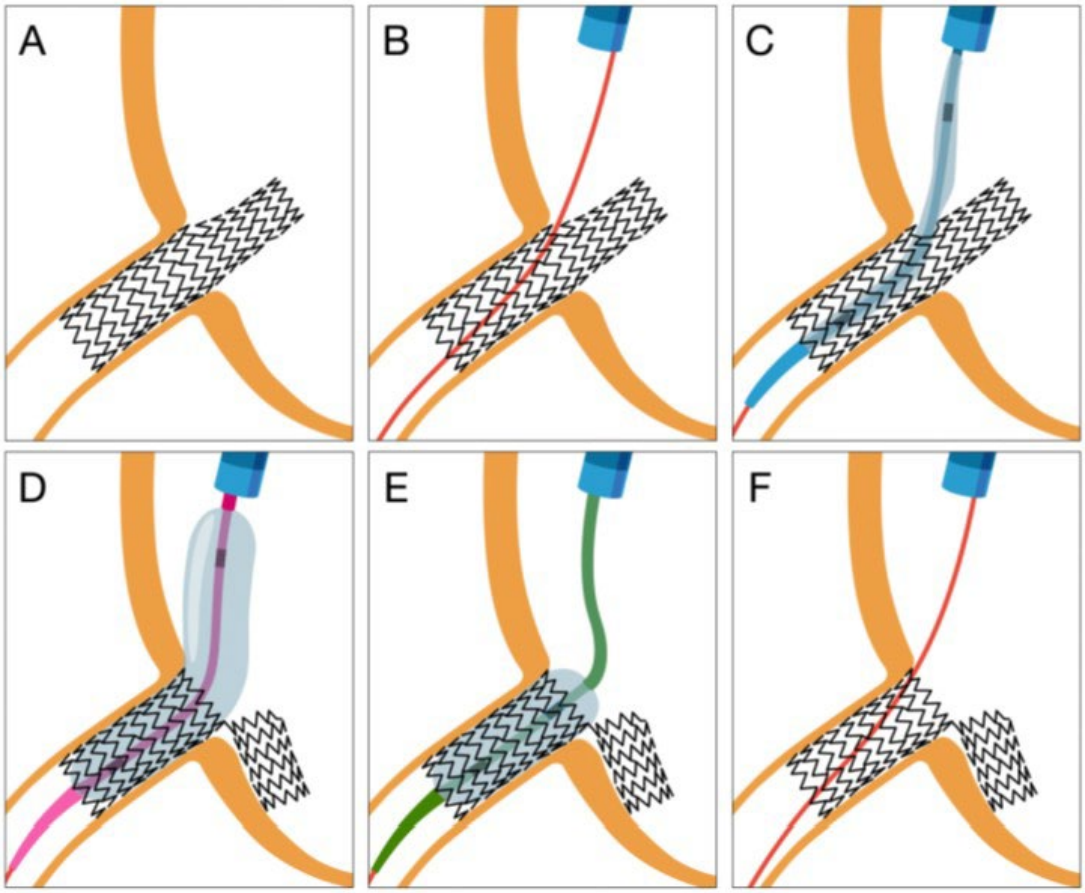


## P076

### Predictive Value of Lipoprotein(a) in Cardiac Imaging

Ann-Sophie Otto[1], Florian Geiser[1], Simon Frey[1], Igor Schneider[1], Philip Haaf[1], Damian Wild[1], Felix Mahfoud[1], Christian Müller[1], Michael Zellweger[1]

[1]*University Hospital Basel, University of Basel, Basel, Switzerland*

**Introduction:** Lipoprotein (a) (Lp(a)) is a risk factor for atherosclerotic events. Little is known if Lp(a) is a predictor of abnormal Positron Emission Tomography (PET) , coronary artery calcium score (CACS) = 0 and reduced myocardial flow reserve (MFR). Aim: To evaluate if Lp(a) per se and in combination with pre-test probability (PTP) of coronary artery disease predicts abnormal PET, CACS = 0, and reduced MFR.

**Material & Methods:** Consecutive patients undergoing Rb-82 myocardial PET with CACS and available Lp(a) were evaluated. PTP was calculated according to current ESC guidelines. The patient population was stratified into two groups based on Lp(a) levels: <125 nmol/L and ≥125 nmol/L. The predictive value was evaluated by ROC for PTP, Lp(a) and PTP incorporating Lp(a) with respect to abnormal PET (SSS≥4), CACS = 0, and reduced MFR (<2).

**Results:** Out of 1642 patients, 284 (17%) had a Lp(a) ≥ 125 nmol/l. Mean age of patients was 67±10 years, 42% were female. Abnormal PET, CACS = 0, reduced MFR were present in 22%, 21% and 19% of patients, respectively. Patients in the higher Lp(a) category were more frequently female, had a lower diastolic blood pressure, body mass index, more frequently had hypercholesterolemia, family history of CAD, peripheral arterial vascular disease, anti-platelet and lipid lowering therapy than patients in the lower Lp(a) category. PTP was a better predictor of abnormal PET than Lp(a), AUCs of 0.648 and 0.536, respectively. The same held true for CACS = 0 with AUCs of 0.725 and 0.531, respectively; and reduced MFR with AUCs of 0.563 and 0.492, respectively. Adding Lp(a) to PTP did not improve the predictive value. This also held true in a multi-variate analysis.

**Conclusion:** Despite its established prognostic role, Lp(a) showed no clinically relevant diagnostic value regarding abnormal PET, CACS = 0, and reduced MFR.

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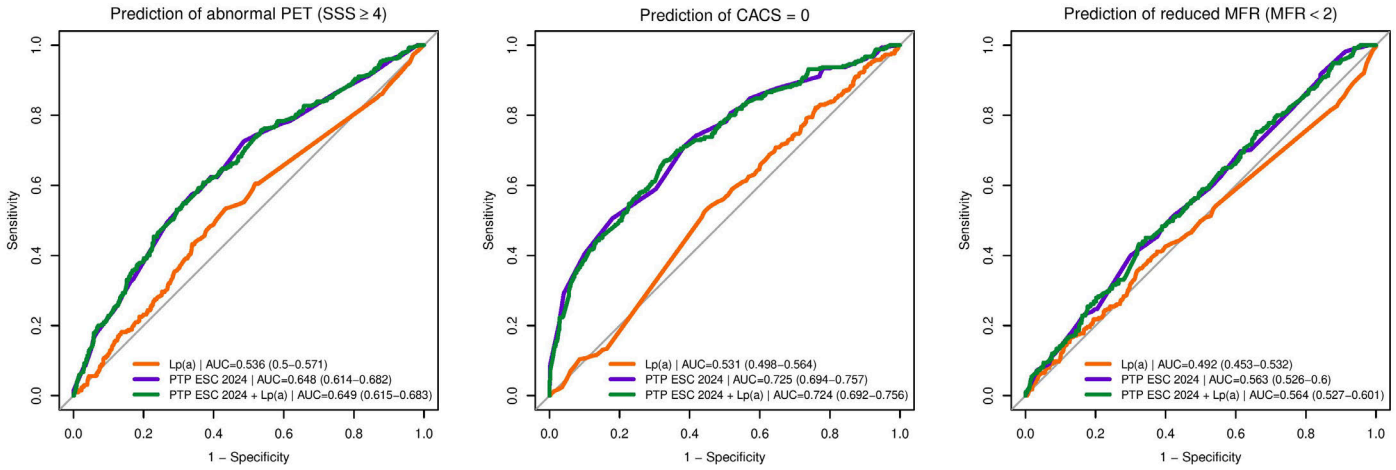


## P077

### OCT Guidance in Drug-Coated Balloon–Only PCI: A Real-World Lesion-Based Analysis

Firat Erdogan[1], Adrian Attinger-Toller[1], Lena Künzli[1], Leoni Knobel[1], Tobias Göldi[1], Yuan Zhi[1], Alessandro Spirito[1 2], Florim Cuculi[1 2], Matthias Bossard[1 2]

*[1]Luzerner Kantonsspital, Herzzentrum, Universität, Luzern, Switzerland, [2]University of Lucerne, Faculty of Health Sciences and Medicine, Luzern, Switzerland*

**Introduction:** Drug-coated balloon (DCB)–only percutaneous coronary intervention (PCI) is an established strategy for selected coronary lesions. Optical coherence tomography (OCT) may optimize procedural outcomes by improving lesion assessment and detection of complications. However, real-world data on OCT-guided DCB-only PCI with lesion-based clinical outcomes remain limited.

**Material & Methods:** Between January 2021 and December 2024, a total of 197 patients with 450 coronary lesions were treated with OCT-guided DCB-only PCI. The mean age was 66.9 ± 11 years, and 166 patients (84.3%) were male. Acute coronary syndrome (ACS) was present in 33 patients (16.8%). Procedural and in-hospital outcomes were assessed, and target lesion failure (TLF) was analyzed on a lesion-based level (n = 450). Follow-up was performed 1 year after PCI.

**Results:** Angiographic dissections occurred in 49/450 lesions (10.9%), while flow-limiting dissections (type C–E) were observed in only 9 lesions (2.0%). Acute vessel closure occurred in 1 lesion (0.2%), new angiographic thrombus formation in 4 lesions (0.9%), and no-reflow phenomenon in 6 lesions (1.3%). At one year follow-up, target lesion failure occurred in 29/450 lesions (6.4%). Target vessel revascularization (TVR) was necessary in 24 patients (12.2%).

**Conclusion:** In this real-world cohort, OCT-guided DCB-only PCI demonstrated low rates of flow-limiting dissections, acute vessel complications, and TLF. These findings support the safety and feasibility of OCT guidance in DCB-only strategies, even in a population including ACS patients.

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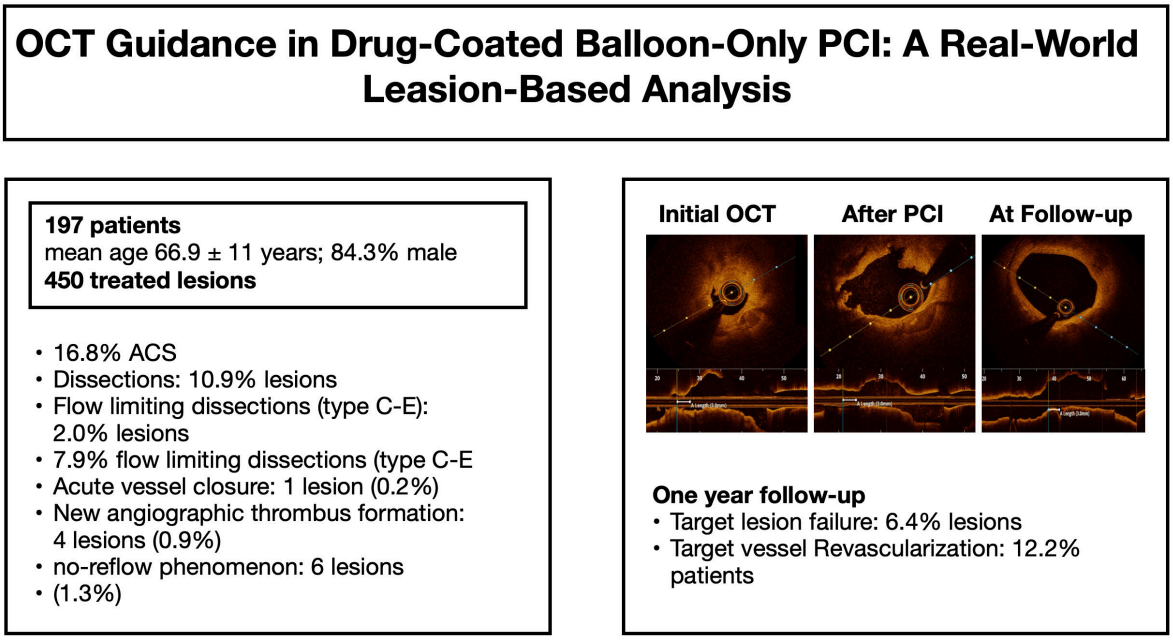


*Abbreviations: ACS = acute coronary syndrome; OCT = optical coherence tomography; PCI = percutanous coronary intervention*

 

## P078

### Validation of ESC criteria for perioperative myocardial infarction/injury with the new 6th generation high sensitivity cardiac troponin T assay

Koray Durak[1], Noemi Glarner[1], Katrin Burri[1], Gabrielle Huré[1], Emre Ergin[1], Emel Kaplan[1], Daniel Bolliger[2], Luzius Steiner[2], Edin Mujagic[3], Didier Lardinois[4], Stefan Schären[5], Andreas Müller[6], Felix Mahfoud[1], Danielle Menosi Gualandro[1], Christian Puelacher[1], Christian Müller[1]

*[1]Department of Cardiology and Cardiovascular Research Institute Basel (CRIB), University Hospital Basel, Basel, Switzerland, [2]Department of Anaesthesia, University Hospital Basel, Basel, Switzerland, [3]Department of Vascular Surgery, Basel, Switzerland, [4]Department of Thoracic Surgery, Basel, Switzerland, [5]Department of Spinal Surgery, Basel, Switzerland, [6]Department of Orthopedics and Trauma Surgery, Basel, Switzerland*

**Introduction:** Perioperative myocardial infarction/injury (PMI) is a major driver of postoperative mortality and often remains clinically silent, necessitating active surveillance with cardiac troponin (cTn) as recommended by ESC guidelines. The newly introduced high-sensitivity cTnT generation 6 assay (hs-cTnT-gen6) is expected to replace hs-cTnT-gen5, but it is unknown whether established ESC diagnostic criteria, the incidence and prognosis of PMI remain valid.

**Material & Methods:** In a prospective cohort of high-risk patients undergoing major non-cardiac surgery, hs-cTnT-gen6 was measured preoperatively and on postoperative days 1 and 2 in paired samples. PMI was centrally adjudicated and defined according to ESC criteria using an absolute hs-cTnT-gen6 increase ≥27 ng/L within 3 days after surgery. Diagnostic endpoints included the incidence and aetiologies of PMI, the prognostic endpoint was a hierarchical composite of major adverse cardiac events (MACE) and all-cause mortality at 90 days and 1 year, analysed using ordinal logistic regression with adjustment for prespecified confounders.

**Results:** Among 451 patients (median age 72 years; 26% women), PMI occurred in 67 (14.9%) patients, including 63 (94%) of cardiac and 4 (6%) of extracardiac. MACE occurred in 11.9% at 90 days and 23.9% at 1 year of patients with PMI versus 2.9% and 6% of patients without PMI, respectively. All-cause mortality was 11.9% at 90 days and 25.4% at 1 year of patients with PMI versus 2.1% and 6% of patients without PMI, respectively (see Figure). After multivariable adjustment, the cumulative odds ratio of PMI was 3.2 (95% confidence interval [CI], 1.3-7.7) at 90 days and 4.9 (95% CI, 2.6-9.4) at 1 year for MACE and all-cause mortality.

**Conclusion:** PMI defined by ESC criteria using hs-cTnT-gen6 was common and strongly associated with adverse short- and long-term outcomes (see Figure), supporting its use in active surveillance programs.

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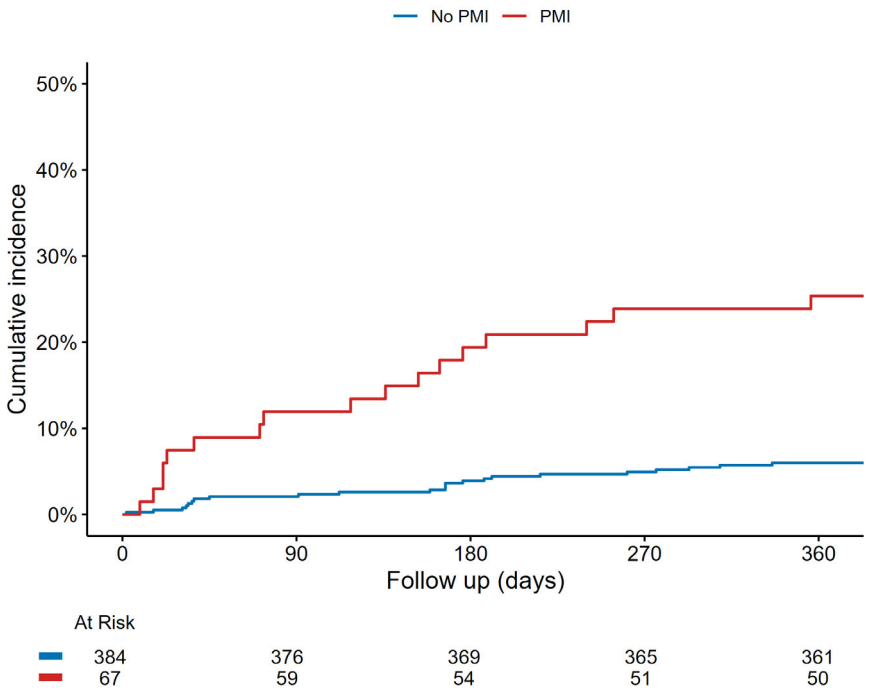

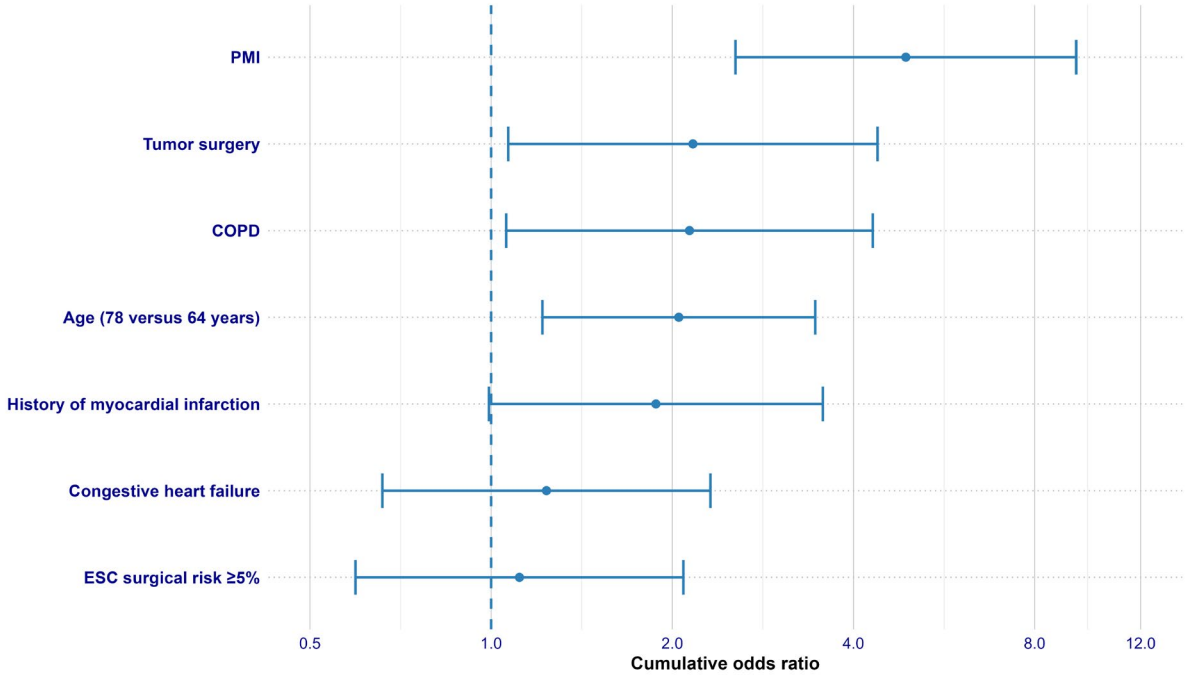


## P079

### Three-year fate of incomplete stent apposition after drug-eluting stent implantation in patents with ST-elevation myocardial infarction: Secondary Analysis of the CONNECT Trial

Marco Gamardella[1], Ryota Kakizaki[1], Jonas Häner[1], Yohei Ohno[2], Kazuyuki Yahagi[3], Yoshiharu Higuchi[4], Georgios Siontis[1], Kenji Ando[5], Nobuaki Suzuki[6], Naoki Watanabe[7], Jonas Lanz[1], Masami Sakurada[8], Konstantinos Koskinas[1], Sylvain Losdat[9], Masanori Taniwaki[3], Lorenz Räber[1]

*[1]Department of Cardiology, Bern University Hospital, Inselspital, University of Bern, Bern, Switzerland, [2]Department of Cardiology, Tokai University Hospital, Kanagawa, Japan, [3]Division of Cardiology, Mitsui Memorial Hospital, Tokyo, Japan, [4]Cardiovascular Division, Osaka Police Hospital, Osaka, Japan, [5]Department of Cardiology, Kokura Memorial Hospital, Fukuoka, Japan, [6]Division of Cardiology, Teikyo University Mizonokuchi Hospital, Kawasaki, Japan, [7]Department of Cardiology, Ogaki Municipal Hospital, Gifu, Japan, [8]Department of Cardiology, Tokorozawa Heart Center, Saitama, Japan, [9]Department of Clinical Research, University of Bern, Bern, Switzerland*

**Introduction:** Current-generation drug-eluting stents improved safety compared with first-generation platforms, yet stent-related adverse events persist. Incomplete stent apposition (ISA) has been linked to early and late events, but predictors of long-term persistence and incidence and mechanism of late-acquired ISA remain unclear.

**Material & Methods:** This is a secondary analysis of the CONNECT trial including patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention (PCI) with biodegradable-polymer or durable-polymer everolimus-eluting stents. Patient who underwent serial optical coherence tomography (OCT) of the culprit lesion after PCI and at 3-year follow-up were included. Cross-sectional OCT images within the stented segment were matched between post-PCI and 3-year follow-up. Acute ISA was defined as strut–lumen distance exceeding stent-specific thresholds. Persistent ISA was ISA present at both time points; late-acquired ISA was new ISA at follow-up in frames without acute ISA.

**Results:** Cross-section matching was feasible in 143 lesions, yielding 10,764 paired frames. Acute ISA was observed in 2,154 frames (20.0%), of which 160 (7.4%) showed persistent ISA at 3-year follow-up. At frame-level, independent predictors of persistent ISA were maximum strut–lumen distance (odds ratio [OR] 1.18 per 100 µm; 95% confidence interval [CI] 1.05–1.33), lipid-rich plaque (OR 2.93; 95% CI 1.69–5.06), and fibrocalcific plaque (OR 4.70; 95% CI 1.75–12.63). The optimal cutoff of maximum strut–lumen distance predicting persistence was 322 µm (area under the curve 0.70). Among 8,610 frames without acute ISA, 261 (3.0%) developed late-acquired ISA; late lumen enlargement was associated with higher odds of late-acquired ISA (OR 2.02 per 1 mm² increase; 95% CI 1.80–2.28).

**Conclusion:** Most acute ISA disappeared 3 years after primary PCI. Among the frames with persistent ISA, maximum ISA distance and underlying plaque type emerged as independent predictors. Late-acquired ISA occurred in 3.0% of frames with late lumen enlargement as driver.

**COI:** No

## P080

### Safety and Feasibility of Same-Day Discharge After Drug-Coated Balloon PCI

Leoni Knobel[1], Firat Erdogan[1], Adrian Attinger-Toller[1], Tobias Göldi[1], Alessandro Spirito[1], Leah Stutz[1], Yuan Zhi[1], Dominik Paugsch[1], Matthias Bossard[1 2], Florim Cuculi[1 2]

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**Introduction:** Evidence supporting same-day discharge after drug-coated balloon (DCB) percutaneous coronary intervention (PCI) remains limited. We evaluated the safety, feasibility, and short-term clinical outcomes of same-day discharge after DCB PCI using data from the institutional SIROOP Registry (NCT04988685).

**Material & Methods:** This retrospective, single-center analysis included consecutive patients treated with DCB PCI and prospectively enrolled in the SIROOP Registry between January 2021 and December 2024. Procedural characteristics, lesion

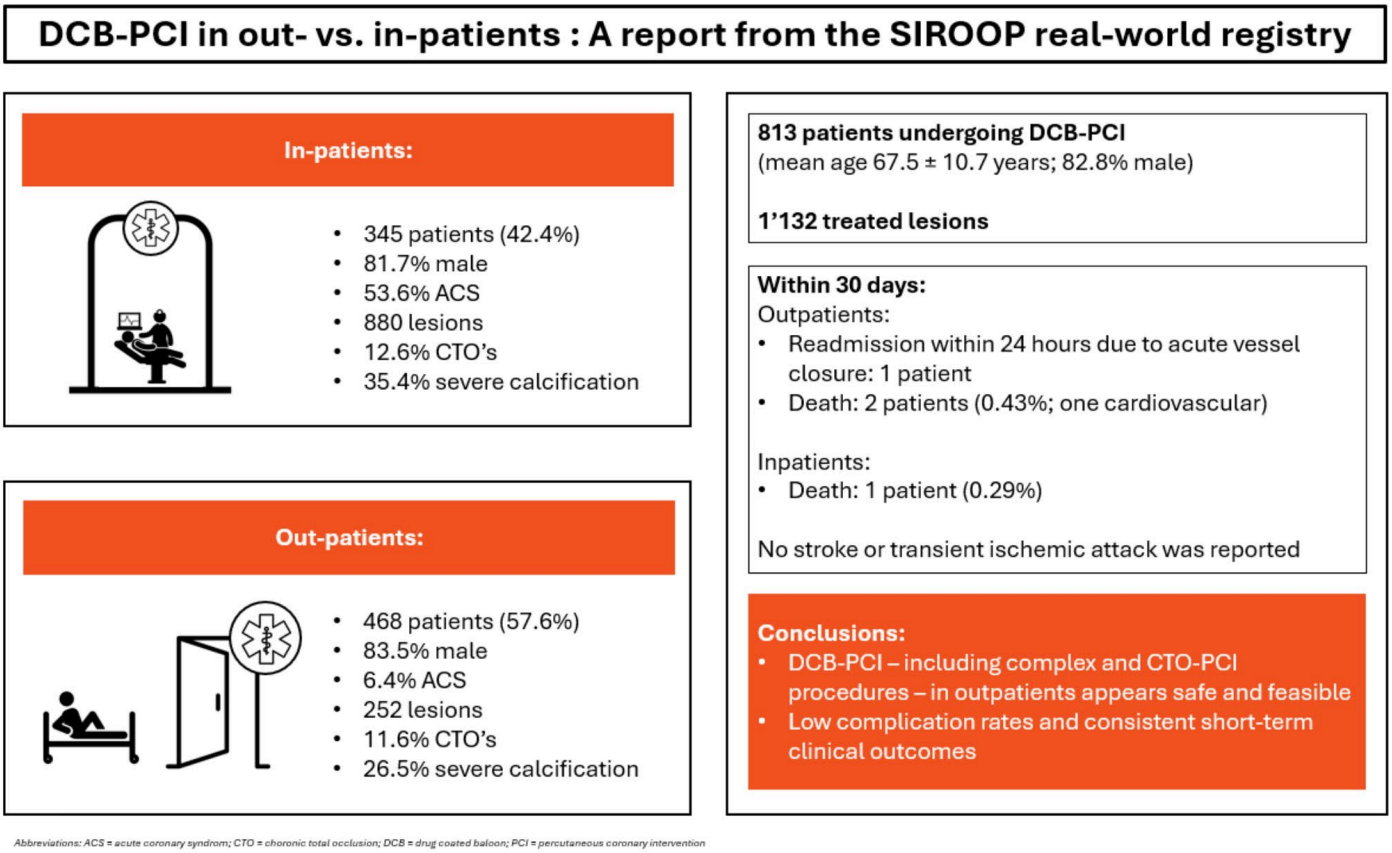
complexity, periprocedural complications, and 30-day clinical outcomes were assessed. Outcomes were compared between patients discharged on the same day and those requiring hospitalization. Patients lost to follow-up (n = 20) were excluded from outcome analyses.

**Results:** A total of 813 patients (mean age 67.5 ± 10.7 years; 82.8% male) were included. Same-day discharge was achieved in 468 patients (57.6%), accounting for 1,132 treated lesions, while 345 hospitalized patients accounted for 880 lesions. Chronic total occlusions were present in 12.6% of outpatients and 11.6% of inpatients. The left anterior descending artery was the most frequently treated vessel in both groups. Severe calcification was less common in outpatients than in inpatients (26.5% vs. 35.4%).

Periprocedural complications were numerically lower in outpatients, including acute vessel closure (0.6% vs. 1.3%), dissections (9.5% vs. 10.9%), coronary perforation (0.4% vs. 0.6%), angiographic thrombus (0.4% vs. 0.8%), and no-reflow (1.1% vs. 2.2%). Within 30 days, one outpatient required readmission due to acute vessel closure within 24 hours. Two deaths occurred in the outpatient group (0.43%; one cardiovascular), and one cardiovascular death occurred in the inpatient group (0.29%). No stroke or transient ischemic attack was reported.

**Conclusion:** In appropriately selected patients, same-day discharge after DCB PCI is safe and feasible, with low complication rates and consistent short-term clinical outcomes, supporting outpatient DCB PCI in routine practice.

**COI:** No




## P081

### Reasons of recommended therapies discontinuation five years after an acute coronary syndrome (ACS).

Hugo Mahi[1], Louise Artels[1], Cedric Follonier[2], David Carballo[2], David Nanchen[3], François Girardin[4], Christian M. Matter[5], Lorenz Räber[6], Olivier Muller[1], Nicolas Rodondi[7], François MacH[2], Baris Gencer[1]

*[1]Department of Cardiology, Lausanne University Hospitals, Lausanne, Switzerland, [2]Department of Cardiology, Geneva University Hospitals, Geneva, Switzerland, [3]Department of Ambulatory Care and Community Medicine, Lausanne University, Lausanne, Switzerland, [4]Service and Laboratory of Clinical Pharmacology, Department of Laboratory Medicine and Pathology, Lausanne University Hospitals, Lausanne, Switzerland, [5]Department of Cardiology, University Heart Center, University of Zurich, Zurich, Switzerland, [6]Department of Cardiology, Bern University Hospital, Bern, Switzerland, [7]Institute of Primary Health Care (BIHAM), University of Bern, Bern, Switzerland*

**Introduction:** Use of pharmacological therapies after acute coronary syndrome (ACS) is recommended by the guidelines, but the long-term adherence and the reasons for treatment discontinuation remain insufficiently documented.

**Material & Methods:** We used data from the SPUM-ACS cohort, to evaluate the use of aspirin, statins, beta-blockers and ACE inhibitors or ARBs at discharge and at the 5-year follow-up. The reasons for therapies discontinuation were collected according to the patient's option using predefined responses.

**Results:** A total of 2306 patients hospitalized for ACS in four Swiss university hospitals were included in the study. The mean age was 61,7 ± 11,4 and 18,9% were women. At discharge, 99.6% of patients were treated with aspirin, 98.5% with statins, 83.9% with beta-blockers, 90.8% with ACE inhibitors or ARBs. At five years, 52.3% of patient have discontinued at least one of those treatments; 35.0% have discontinued one medication, 13.1% two medications, 3,6% three medication and 0,6% four medications. Discontinuation rates were 9.3% for aspirin, 13.9% for statins, 34.3% for beta-blockers, 25.1% for ACE inhibitors/ARBs. Most common reported reasons by the patients for therapy discontinuation were the physicians' decision for

aspirin, beta-blockers and ACE inhibitors or ARBs (>70% for all the drugs). For statin a more balanced distribution was observed with 36% due to physicians' decision, 34% due to side effects and 18% due to the perception that the therapy was unnecessary (p-value <0,001 when comparing the reasons for statin discontinuation vs others).

**Conclusion:** More than half of ACS patients discontinue one of the recommended therapies five year after ACS. The beta-blockers remain the most discontinued class of therapies, mostly due to physicians 'decision. In contrast, the reasons for statins discontinuation were mostly attributed to side effects and negative perception of the therapy.

**COI:** No

Figure 2 - Medication discontinuation between discharge and 5 years. (N = 2429. p-value < 0.001)

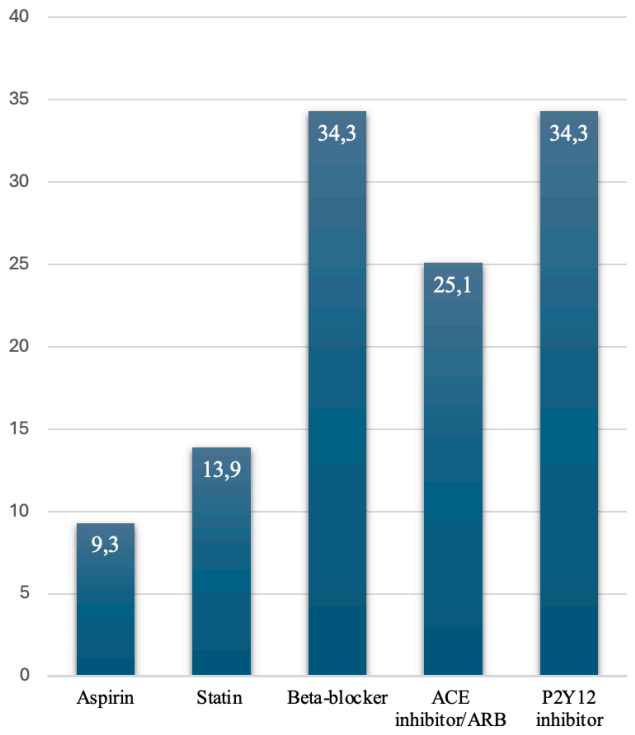
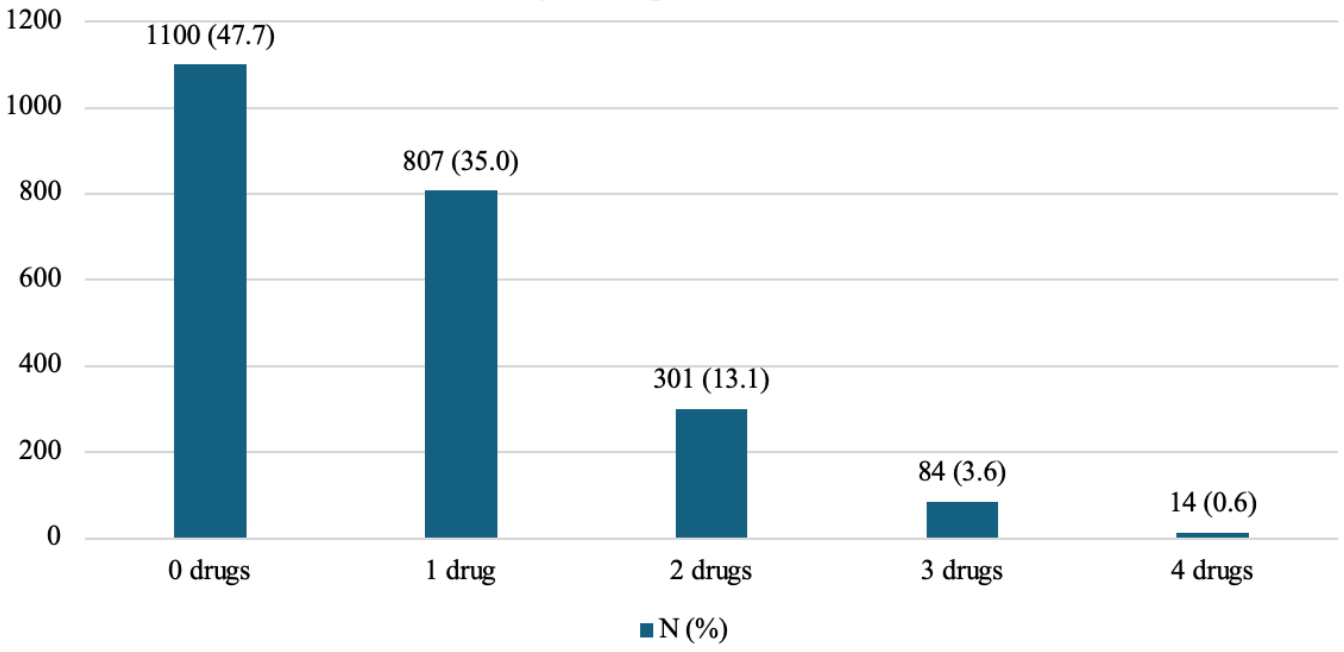



Figure 1 - Number of drugs discontinued between discharge and 5 years. p-value < 0.001



## P082

### Revascularization with drug-coated balloons alone in complex coronary artery disease: A systematic review and conceptual framework

Michael Kunz[1], Felix Götzinger[1], Marnix Tjeerdsma[1], Alana Korah[2], Bernardo Cortese[3], Tuomas Rissanen[4], Bruno Scheller[5], Andrew Chapman[6], Felix Mahfoud[1], Gregor Leibundgut[1], Jasper Boeddinghaus[1]

*[1]Clinic of Cardiology, University Heart Center Basel, University Hospital Basel, Basel, Switzerland, [2]University of Basel, Basel, Switzerland, [3]Harrington Heart & Vascular Institute, University Hospitals Cleveland Medical Center, Cleveland, United States, [4]Heart Center, North Karelia Central Hospital, Joensuu, Finland and University of Eastern Finland, Kuopio, Finland, [5]Clinical and Experimental Interventional Cardiology, University of Saarland, Homburg (Saar), Germany, [6]BHF/University Centre for Cardiovascular Science, University of Edinburgh, Edinburgh, United Kingdom*

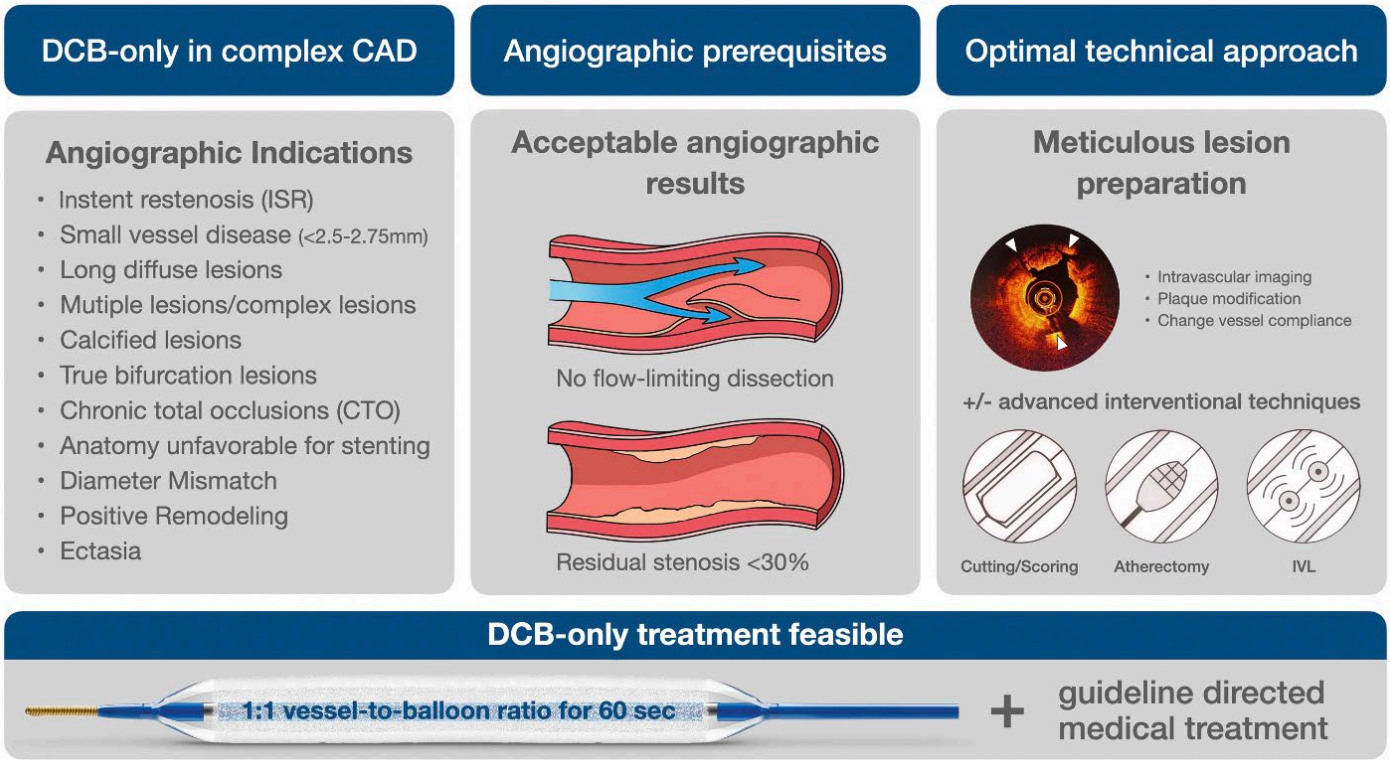
**Introduction:** Drug-coated balloon (DCB) angioplasty has emerged as an alternative to stent-based treatment in coronary artery disease (CAD), particularly in patients where a "leave-nothing-behind" approach may be advantageous. This systematic review aimed to evaluate the current evidence on DCB-only therapy in complex CAD and to assess its potential role in clinical practice.

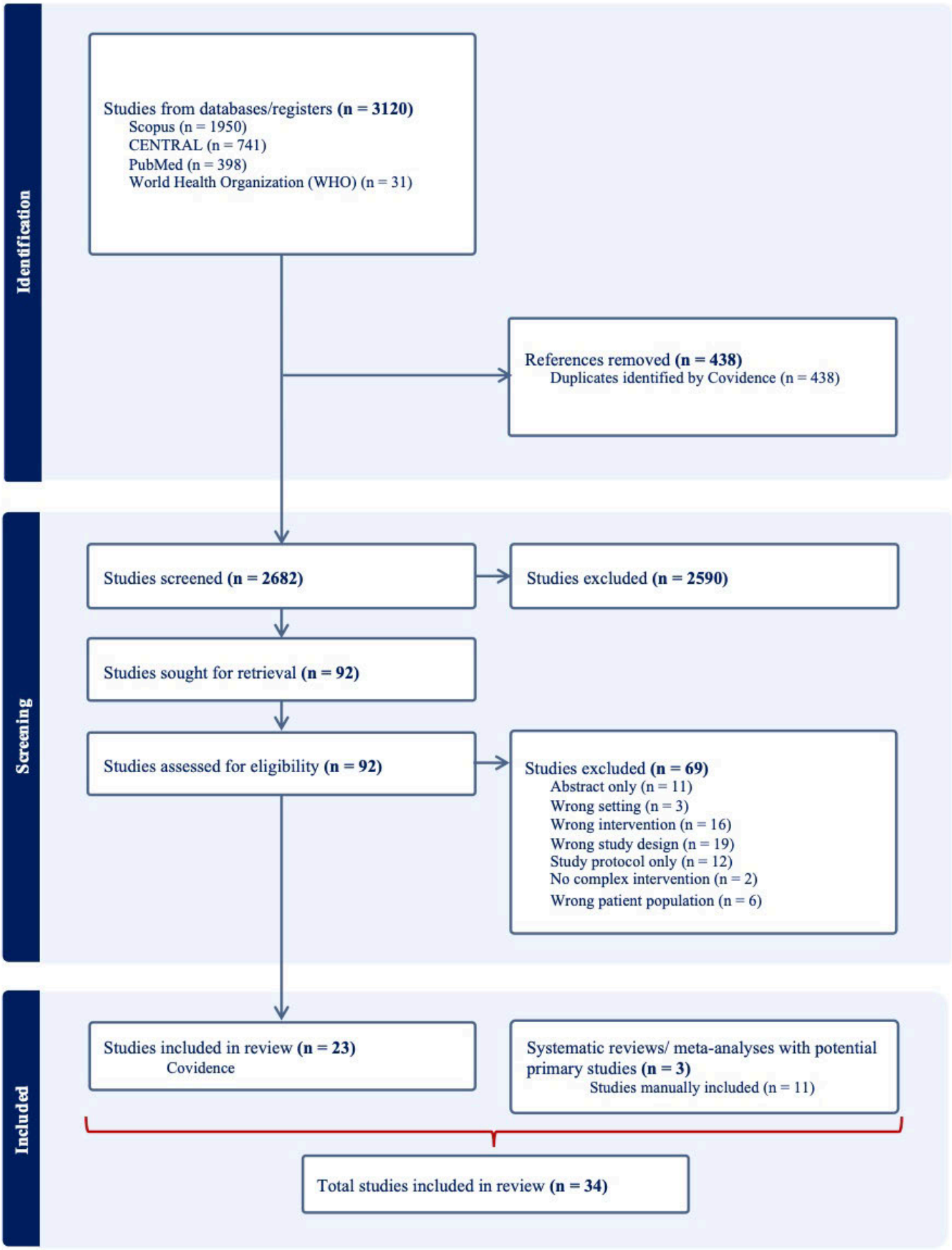
**Material & Methods:** We performed a systematic review searching PubMed, CENTRAL, SCOPUS, and ICTRP from inception to 24th March 2025 to identify studies investigating a DCB-only strategy in complex CAD, defined as bifurcation and calcified lesions, chronic total occlusions (CTO), three-vessel disease, or left main disease. The main inclusion criteria were: (i) studies including patients with complex CAD, and (ii) the use of DCB-only angioplasty as the main treatment strategy. Risk of bias was systematically assessed.

**Results:** A total of 3,120 records were identified. After duplicate removal, screening, and full-text review, 34 studies met our inclusion criteria (32 non-randomized, 2 randomized). Seven studies investigated bifurcation lesions (n = 660), nine evaluated CTOs (n = 870), six assessed calcified lesions (n = 455), and twelve included all-comer cohorts with complex lesions (n = 7,079). Most studies were conducted in Asia. Overall, DCB therapy demonstrated acceptable to favorable outcomes compared with drug-eluting stents, with 47% (16/34) of the studies lacking a control group. The overall risk of bias was high.

**Conclusion:** Whilst DCB therapy appears to be safe and effective in patients with higher lesion complexity, evidence is scarce and of limited methodological quality. Randomized controlled trials comparing a DCB-only strategy in complex CAD are warranted.

**COI:** MK has received consulting fees from Merck.





## P083

### Prevalence and prognostic relevance of perioperative myocardial infarction/injury after major noncardiac surgery in older patients

Emre Ergin[1], Koray Durak[1], Noemi Glarner[1], Katrin Burri[1 2], Emel Kaplan[1], Vanessa Thommen[1], Daniel Bolliger[2], Luzius Steiner[2 3], Edin Mujagic[4], Franz Haller[5], Nikolaus Buchmann[5], Heike Bischoff-Ferrari[5], Felix Mahfoud[1], Danielle Menosi Gualandro[1], Christian Puelacher[1 6], Christian Müller[1]

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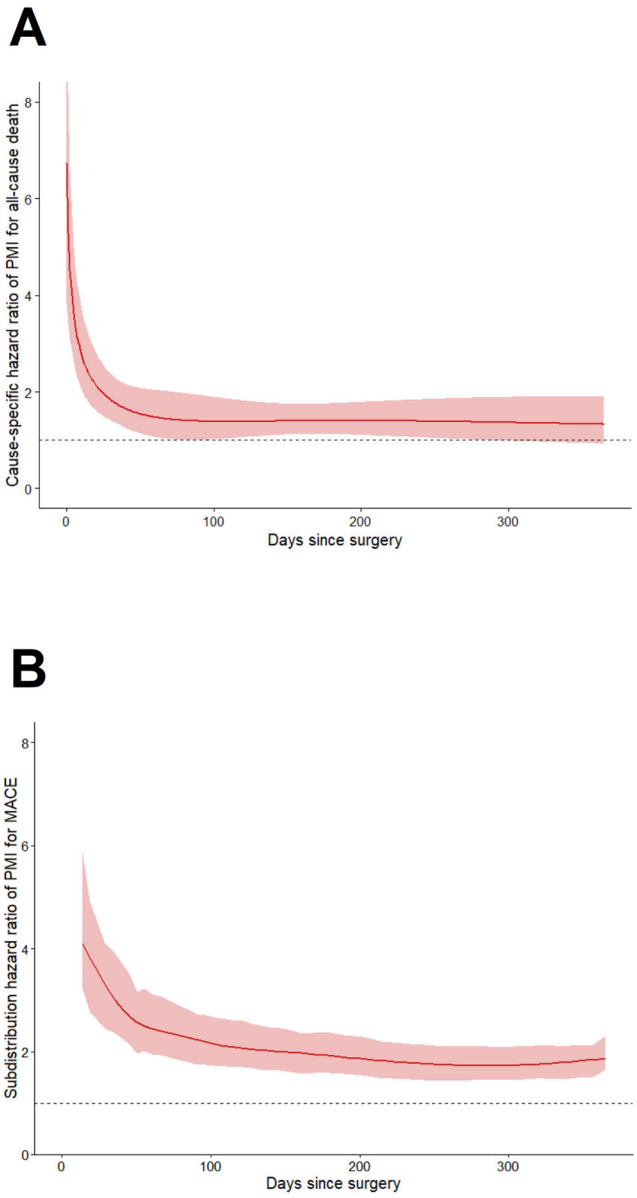
**Introduction:** The prognostic relevance of perioperative myocardial infarction/injury (PMI) in geriatric patients undergoing major noncardiac surgery remains unclear, as high comorbidity burden may lessen its impact.

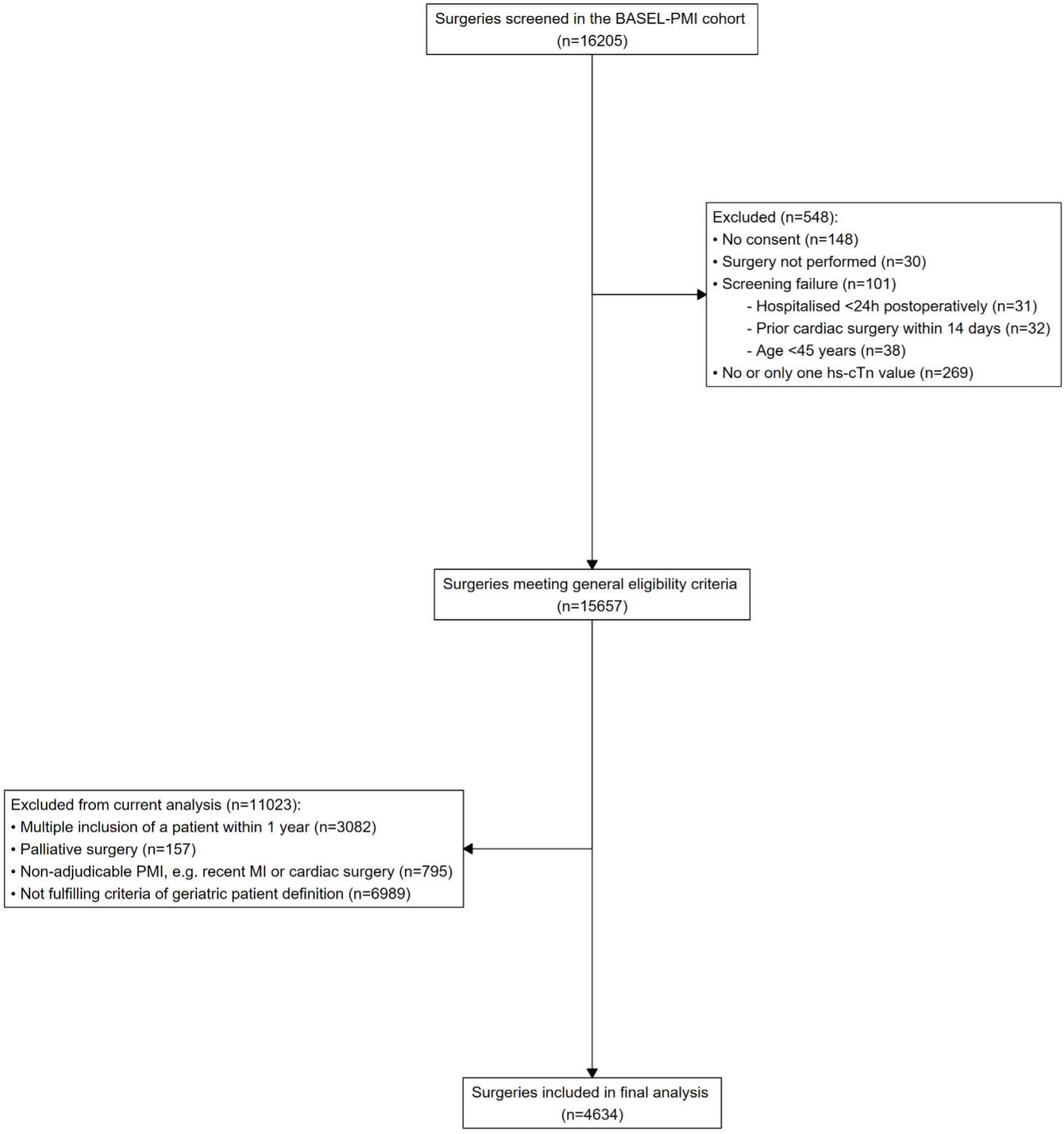
**Material & Methods:** Geriatric patients (defined as age ≥70 years with ≥3 comorbidities, or ≥80 years) enrolled in a multicentre, prospective study of patients at increased cardiovascular risk undergoing major noncardiac surgery were analysed. The primary endpoint, all-cause mortality at 1 year, was analysed using Cox proportional hazards regression. Secondary endpoints included MACE (acute heart failure, acute myocardial infarction, life-threatening arrhythmia, and cardiovascular death), analysed using Fine–Gray hazard regression. All models were adjusted for prespecified confounders with PMI as time-varying exposure.

**Results:** Among 4634 geriatric patients (mean age 80 years; 42.9% women), PMI occurred in 892 patients (19.2%), which was higher compared to non-geriatric patients (P <0.0001). The distribution of PMI aetiologies was comparable between groups. At 1-year, all-cause mortality was 26.2% in patients with PMI and 13.2% in patients without PMI, and MACE occurred in 30% versus 13%, respectively. After multivariable adjustment, the hazard ratio of PMI was highest on postoperative day 1 (all-cause mortality: 10.5 [95%CI, 4.5 – 24.5]; MACE: 4.4 [95%CI, 3.2 – 5.9]), declined by day 90 (1.4 [95%CI, 1.0 – 1.9] and 2.2 [95%CI, 1.7 – 2.7], respectively), and persisted through 1 year.

**Conclusion:** PMI was very common among geriatric patients and associated with substantially higher 1-year risks of all-cause mortality and MACE, with greatest vulnerability observed during the initial 90 postoperative days.

**COI:** No





## P084

### The Coronary Pressure-Gradient Index Instantaneous Wave-Free Ratio under Dobutamine-induced Hyperemia

Marius Bigler[1], Anselm Stark[1], Lorenz Räber[1], Christoph Gräni[1], Christian Seiler[1]

*[1]Department of Cardiology, University Hospital Bern (Inselspital), University of Bern, Bern, Switzerland*

**Introduction:** The instantaneous wave-free ratio (iFR) has been introduced and validated as a drug-free alternative to fractional flow reserve (FFR) for assessing the hemodynamic relevance of coronary artery stenosis. Its diastolic ratio between coronary and aortic pressure brought it into focus for the assessment of dynamic, predominantly diastolic flow restriction based on cardiac cycle dependent geometric changes within the setting of coronary artery anomalies. As these flow restrictions primally occur under strenuous stress conditions, assessment requires invasive testing under pharmacologic stress using dobutamine. However, the behaviour of iFR under dobutamine infusion remains insufficiently characterized.

**Material & Methods:** This retrospective study analyzed hemodynamic data from patients with chronic coronary syndrome who underwent coronary lesion assessment during reactive hyperemia induced by a 1-minute proximal coronary balloon occlusion ($FFR_{postischemic}$), as well as under pharmacologic inotropic stress within a previous clinical trial. It investigated the associations between resting iFR, $FFR_{postischemic}$, the independent structural parameter of quantitative percent diameter stenosis (%DS), and both iFR and FFR measured during dobutamine-atropine–induced stress (within 1 minute of reaching maximal heart rate, i.e. 220–age).

**Results:** 100 patients (mean age 66±11years, 25% female) were analyzed. iFR at rest was 0.81±0.21, $FFR_{postischemic}$ 0.80±0.14, and%S 53±17%. At peak stress test (maximum heart rate 150±16bpm, i.e. 98±11% of the theoretical maximum), $iFR_{Dobutamine}$ was 0.67±0.23, and $FFR_{Dobutamine}$ was 0.80±0.17. Using a paired student's t-Test, there was no significant difference between $FFR_{postischemic}$ and $FFR_{Dobutamine}$ ($p = 0.45$), but a relevant difference between iFR and $iFR_{Dobutamine}$ ($p < 0.001$). Using a $FFR_{postischemic}$-threshold of ≤0.80 as reference for a receiver-operating characteristic analysis, the optimal cut-off values were identified as follows: 0.87 for iFR, 51% for%DS, 0.69 for $iFR_{Dobutamine}$ and 0.83 for $FFR_{Dobutamine}$.

**Conclusion:** This retrospective analysis of hemodynamic data in chronic coronary syndrome demonstrated a relevant effect of dobutamine on iFR but not FFR, indicating the need for adapted thresholds for $iFR_{Dobutamine}$.

**COI:** No

## P085

### Refinement of the 2024 European Society of Cardiology risk factor-weighted clinical likelihood using an artificial intelligence-based tool – discriminatory power and test characteristics

Florian Geiser[1], Simon Frey[1 2], Ann-Sophie Otto[1], Giulia Rinaldi[1], Igor Schneider[1], Damian Wild[1], Philip Haaf[1], Christian Müller[1], Michael Zellweger[1]

*[1]Universitätsspital Basel, Basel, Switzerland, [2]Kantonsspital Baden, Baden, Switzerland*

**Introduction:** Current ESC guidelines recommend assessing the pre-test probability (PTP) for coronary artery disease (CAD) using the risk factor-weighted clinical likelihood (RF-CL). Our memetic pattern-based algorithm (MPA) including 32 variables (symptoms, vitals, risk factors, ECG and laboratory) was shown to be an excellent rule-out test. However, it is unclear whether combining the RF-CL with the MPA could further improve ischemia prediction.

**Material & Methods:** RF-CL (PTP) and MPA were determined in 2485 consecutive patients with suspected CAD referred for $^{82}$Rb-Positron Emission Tomography. Using the interval likelihood ratios of the MPA model (Panel A), post-test probability was refined from PTP (RF-CL) resulting in a combined PTP. Distribution across risk groups, AUC and test characteristics were calculated. Endpoint was relevant ischemia defined as ≥10% of myocardium.

**Results:** Mean patient age was 66±11 years, and 43% were female. Median RF-CL was 11% [6, 19], and relevant ischemia was observed in 9%. As shown in Panel B, the AUC of MPA and combined PTP were similar ($p = 0.34$), but both significantly higher compared to RF-CL ($p < 0.01$ each). The combined PTP allocated significantly more patients to the very low-risk group compared to the RF-CL (+70%) (Panel C). As shown in table 1, the MPA had the highest test performance. Both MPA cut-offs (very low and low risk) outperformed the lowest refined PTP cut-off (PTP ≤5%). Nevertheless, the negative predictive value of the combined PTP model to rule-out relevant ischemia remained excellent at 97.8%.

**Conclusion:** The combined PTP model classified significantly more patients into very-low risk compared to RF-CL with comparable test characteristics. This finding has clinical relevance: patients with a PTP <5% require no further testing, whereas those with a PTP of 5–15% may benefit from additional evaluation.

**COI:** M Zellweger is advisory board member of Explors Health and has (minor) stocks.

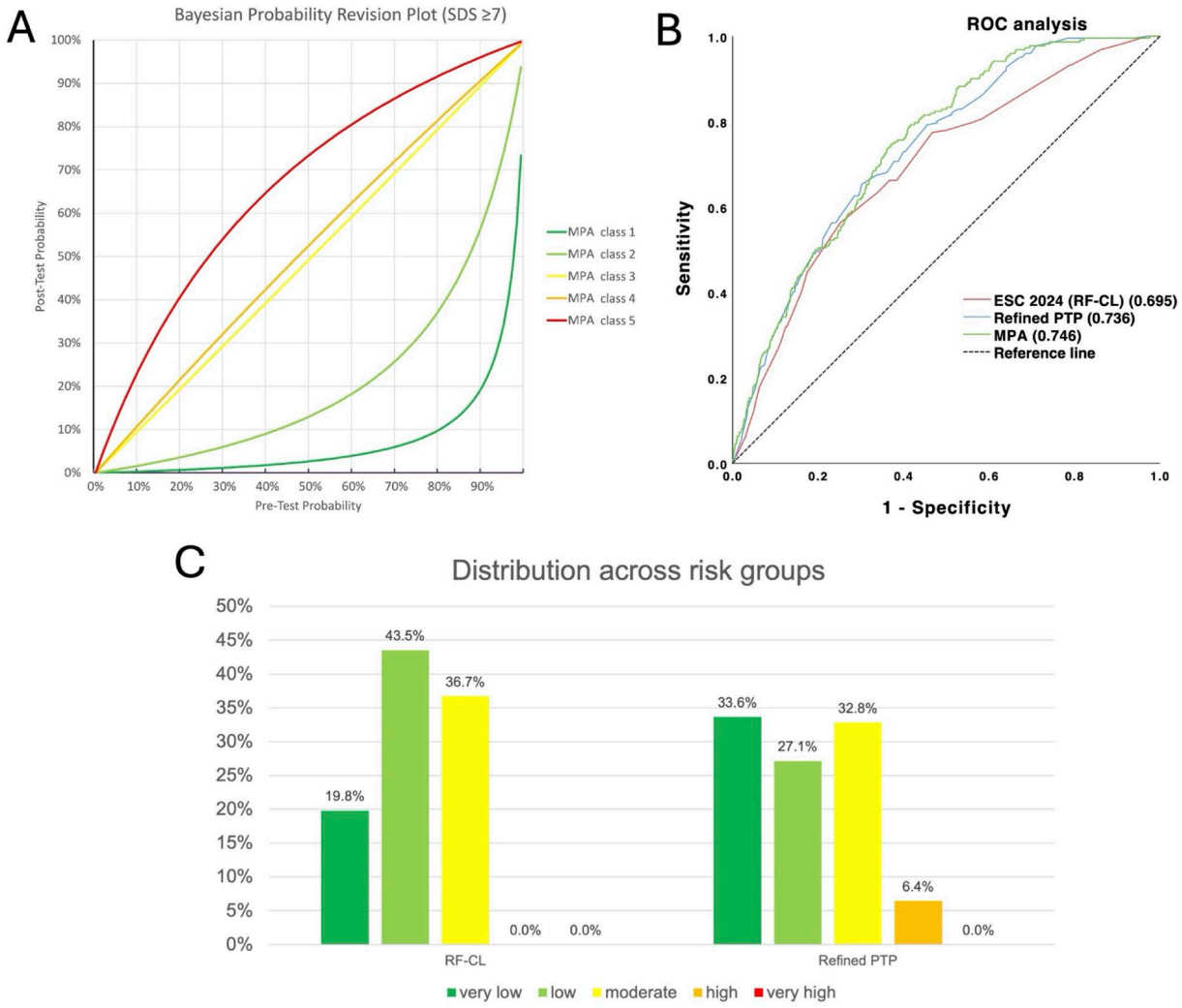
Table 1: Test characteristics to detect or exclude relevant ischemia (≥10% myocardium).

| cut-off | Sensitivity | Specificity | NPV | PPV |
|---|---|---|---|---|
| **RF-CL ≤5%** | 0.932 | 0.211 | 0.970 | 0.104 |
| **RF-CL ≤15%** | 0.635 | 0.659 | 0.949 | 0.155 |
| **MPA class 1** | 0.995 | 0.163 | 0.997 | 0.104 |
| **MPA class 2** | 0.973 | 0.312 | 0.992 | 0.122 |
| **Refined PTP ≤5%** | 0.919 | 0.361 | 0.978 | 0.124 |
| **Refined PTP ≤15%** | 0.685 | 0.636 | 0.954 | 0.156 |

MPA: memetic pattern-based algorithm. NPV: negative predictive value. PPV: positive predictive value. PTP: pre-test probability. RF-CL: risk factor-weighted clinical model.

Figure 1: Graphical summary




## P086

### Real-world comparison of urea-based paclitaxel-coated balloons versus sustained-release sirolimus-coated balloons for de novo coronary lesions

Dorian Garin[1], Matthias Bossard[2], Florim Cuculi[2], Nikola Bosancic[2], Luca Federico Vercelli[2], Mario Togni[3], Stéphane Cook[3], Juan F Iglesias[1]

*[1]Hôpitaux Universitaires de Genève, Genève, Switzerland, [2]Luzerner Kantonsspital, Lucerne, Switzerland, [3]HFR Fribourg-Hôpital Cantonal, Villars-sur-Glâne, Switzerland*

**Introduction:** Drug-coated balloons (DCB) have emerged as an alternative treatment strategy for de novo coronary artery disease (CAD). However, no published studies have directly compared urea-based paclitaxel-coated balloons (PCBs) with sustained-release sirolimus-coated balloons (SCBs) in patients undergoing percutaneous coronary intervention (PCI). We aimed to compare these two contemporary devices in a real-world, all-comers PCI population.

**Material & Methods:** We analyzed consecutive patients treated with urea-based PCBs or sustained-release SCBs for de novo coronary lesions from the prospective multicenter SIROOP registry (NCT04988685). The primary endpoint was 24-month device-oriented composite endpoint (DOCE: cardiovascular (CV) death, target vessel myocardial infarction (TV-MI), device-related ischemia, clinically indicated target lesion revascularization (TLR)) analyzed by win ratio method after propensity score matching.

**Results:** Among 166 eligible patients (84 treated with urea-based PCB, and 82 with sustained-release SCB), propensity score matching resulted in 94 patients (47 matched pairs) for comparative analysis. Mean age was 68.4 years, 20% were female, 31% had diabetes mellitus, and 88% underwent lesion preparation. At 24 months, DOCE occurred in 13 patients (5 in the urea-based PCB group and 8 in the sustained-release SCB group), comprising 0 CV, 1 TV-MI (0 vs 1), 10 device-related ischemia events (4 vs 6), and 3 clinically indicated TLR (1 vs 2). The win ratio for DOCE was 1.35 (95% confidence interval [CI] 0.29 to 5.88, p = 0.70) with 224 wins, 166 losses, and 1819 ties for the urea-based PCB, and a net treatment benefit of 0.03 (95% CI -0.08 to 0.14).

**Conclusion:** Urea-based PCBs and sustained-release SCBs demonstrated similar DOCE at 24 months in real-world patients with de novo coronary lesions. Despite the small sample size, these findings suggest comparable clinical performance between these contemporary DCB formulations, although larger randomized studies are needed to confirm these results.

**COI:** No

## POSTER WALK: CARDIOLOGY CASES

### P087

### Giant Cell Myocarditis in a Patient with a heterozygous Likely Pathogenic Titin (TTN) Variant

Lorraine Sazgary[1], Argelia Medeiros Domingo[2], Umberto MacCio[1], Fran Mikulicic[1], Firat Duru[1 3], Robert Manka[1], Andreas Flammer[1], Frank Ruschitzka[1 3], Ardan Saguner[1 3]

*[1]University Hospital Zurich, Zürich, Switzerland, [2]SwissDNALysis, Duebendorf, Switzerland, [3]Center for Translational and Experimental Cardiology (CTEC), Zürich, Switzerland*

**Introduction:** A 43-year-old man presented with exertional chest pain and progressive dyspnea for 7 days. His medical history was unremarkable, no known family history of cardiovascular disease. On admission, he was asymptomatic at rest. Blood pressure was 114/91 mmHg, heart rate 83 bpm, oxygen saturation 98% on room air. Physical examination showed jugular venous distension.

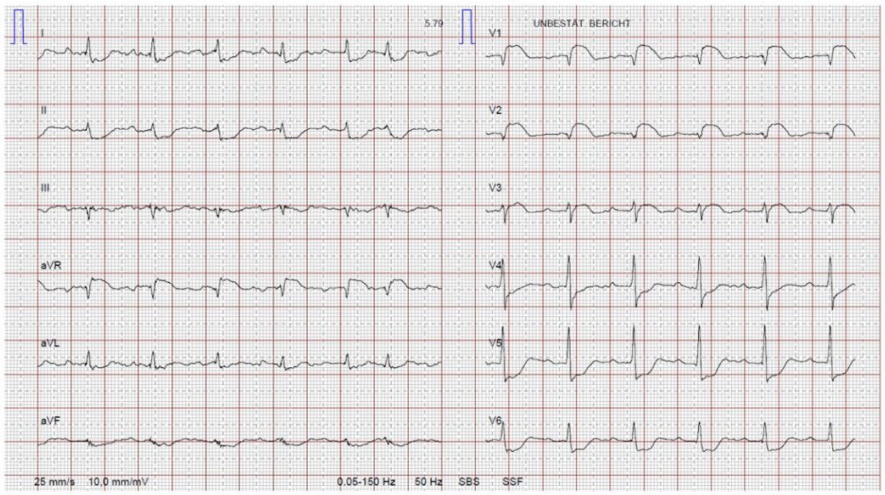
**Material & Methods:** The initial ECG is shown in Figure 1a. Coronary angiography excluded obstructive coronary artery disease. Nt-proBNP was markedly elevated (15538 ng/l), as was hs-cTnT (114 ng/l). Transthoracic echocardiography (TTE) showed a moderately dilated left ventricle with severely reduced ejection fraction (LVEF 23%).

**Results:** The patient was admitted to ICU and treated with intravenous furosemide. His course was complicated by episodes of sustained wide-complex tachycardia (Figure 1b). Cardiac magnetic resonance demonstrated diffuse, patchy epicardial late gadolinium enhancement and myocardial edema, consistent with myocarditis (Figure 2). Endomyocardial biopsy confirmed giant cell myocarditis (GCM). High-dose corticosteroids, cyclosporine and azathioprine were initiated. The patient deteriorated into cardiogenic shock requiring short-term mechanical circulatory support. He was successfully weaned after nine days. At discharge, LVEF was 34%. During follow-up, he remained symptomatic with persistent systolic dysfunction despite optimal therapy, leading to ICD implantation. He experienced recurrent ventricular tachycardia and severely reduced exercise capacity. The patient underwent heart transplantation five years after diagnosis. Genetic testing showed a heterozygous likely pathogenic variant in the *titin (TTN)* gene (c.107635C >T p.(Gln35879Ter)) and a heterozygous variant of uncertain significance (VUS) in the *desmoplakin (DSP)* gene (c.242G >A p.(Cys81Tyr)).

**Conclusion:** We hereby report a case of GCM in a patient carrying a heterozygous likely pathogenic *TTN* variant and VUS in *DSP*. While causality cannot be established, our findings align with the concept that genetic predisposition may influence the clinical disease course. Systematic genetic analyses in larger cohorts of GCM patients may provide further insight.

**COI:** No

1a

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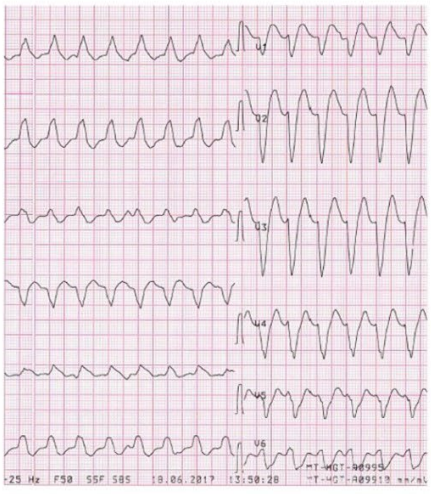
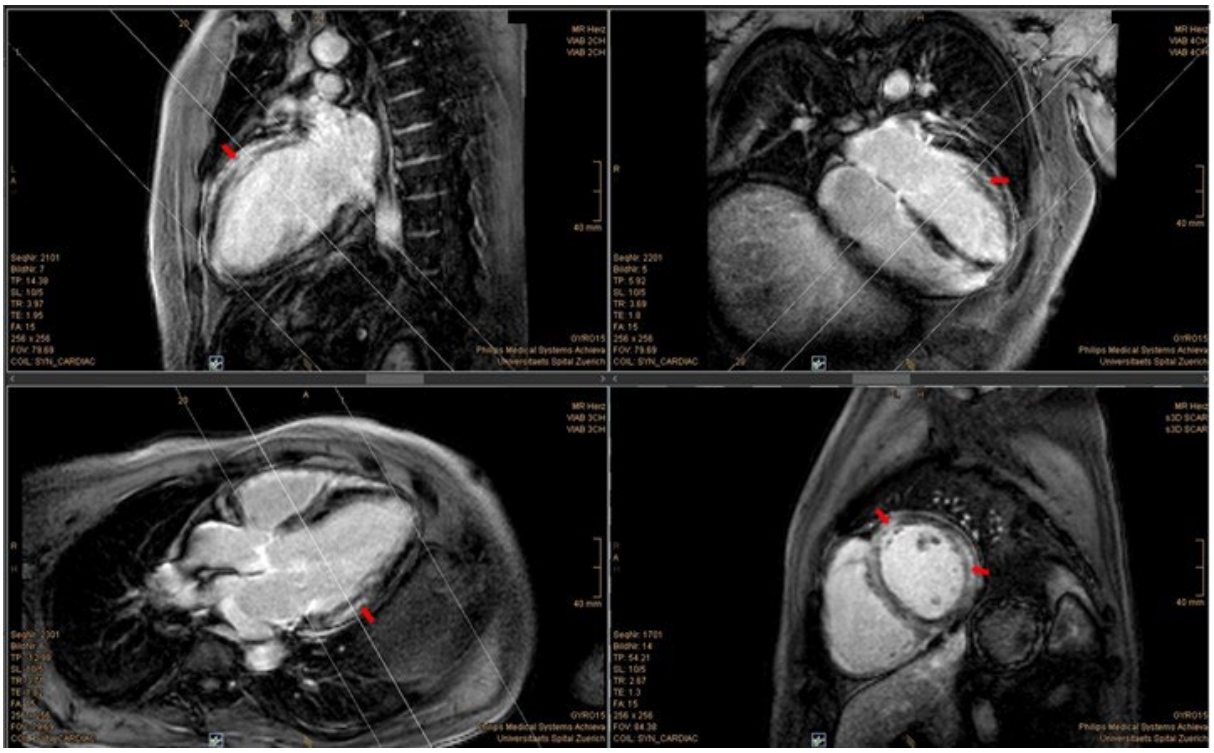




## P088

### "Levoatrial Cardinal Vein: A Rare Pathway of Paradoxical Embolism"

Franziska Jans[1], Theresa Dellas Buser[2], Manon Germann[2], Joannis Chronis[1]

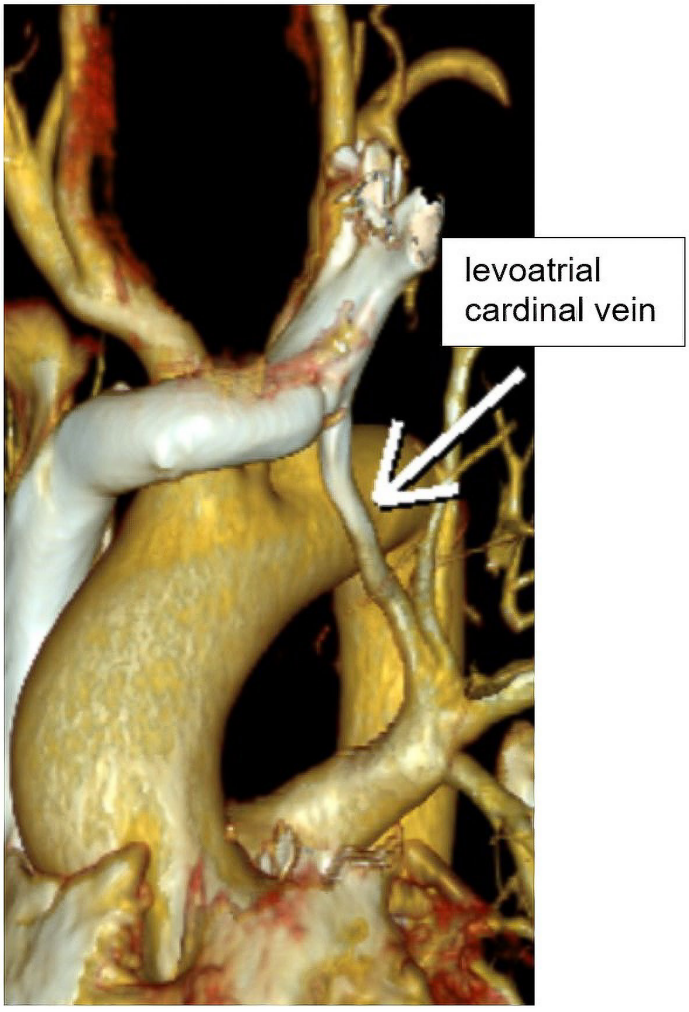
*[1]HOCH Health Ostschweiz, Department of Cardiology, St Gallen, Switzerland, [2]HOCH Health Ostschweiz, Department of Radiology, St Gallen, Switzerland*

**Introduction:** We present a case of a paradoxical embolic event associated with the rare congenital anomaly of a levoatrial cardinal vein.

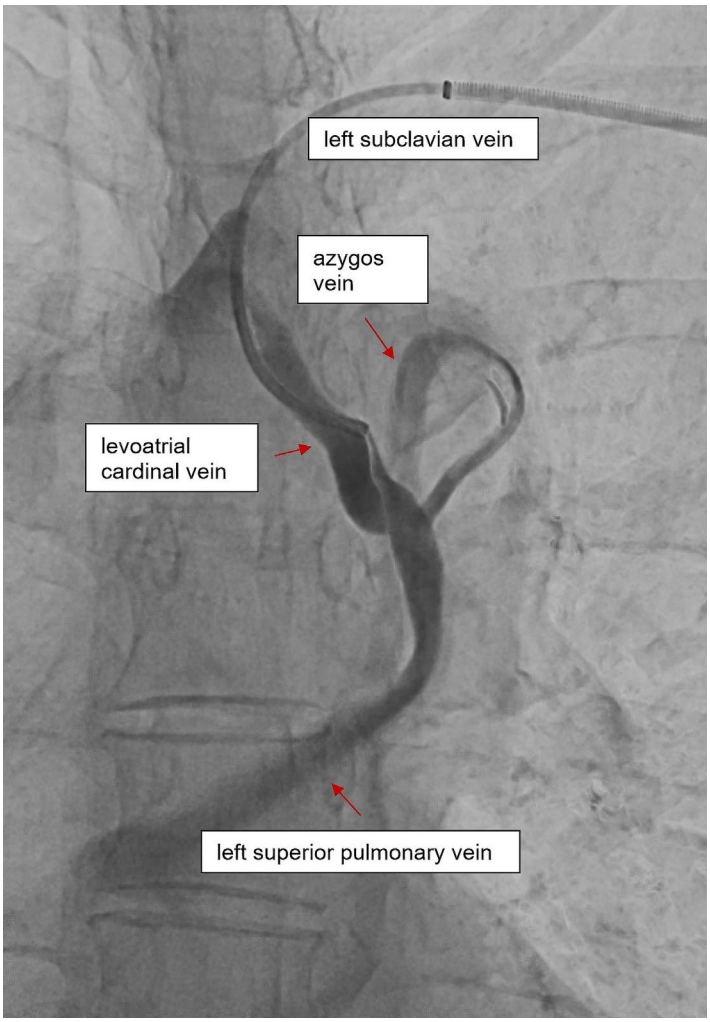
**Material & Methods: Results:** Case summary: A 45-year-old patient experienced an embolic cerebral stroke. Contrast guided echocardiography demonstrated a right-to-left shunt, which, although the exact shunt-tunnel could not be clearly visualized, was initially misinterpreted as being due to a patent foramen ovale (PFO). Following PFO closure, the shunt persisted. Computed tomography was therefore performed under the assumption of a pulmonary vascular shunt and unexpectedly demonstrated a levoatrial cardinal vein (LACV). Multiplanar reconstructions revealed an anomalous venous connection between the systemic left brachiocephalic vein and the left upper pulmonary vein, allowing a potential bidirectional shunt. The patient subsequently underwent a successful transcatheter occlusion using the 10-mm Amplatzer Vascular Plug II (Abbott).

**Conclusion:** In patients with right-to-left shunting of unclear origin or when a patent foramen ovale cannot be reliably demonstrated, a LACV should be considered. It represents an important differential diagnosis alongside pulmonary arteriovenous malformations, as these pose a significant risk for embolism, including air embolism, following the insertion of a peripheral intravenous line line on the left side. To ensure accurate detection and precise anatomical characterization, advanced imaging modalities such as MRI or CT-angiography should be used early. Transcatheter closure is a safe and effective procedure to reduce the risk of further thromboembolic events.

**COI:** No






## P089

### A case report on using an inhalation test and lung ultrasound to unmask a pulmonary vein stenosis.

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**Introduction:** Lone pulmonary vein stenosis (PVS) is a rare cause of pulmonary hypertension caused by luminal narrowing of one the four pulmonary veins. Diagnosis can be particularly challenging, requiring a high-level of clinical suspicion. Notoriously, lone PVS can present with normal pulmonary artery pressure despite severe pulmonary hypertension in the lung segments drained by the obstructed vein. Currently, diagnosis relies on a multimodal approach that combines CT/MR angio–graphy or VQ scans. Here we present an original diagnostic approach in a 57-year-old man who refused CT/MR angiography due to severe claustrophobia. Five years prior to presentation, the patient underwent surgical correction of an anomalous middle and right superior pulmonary vein return to the superior vena cava with intra-atrial baffling from the superior vena cava into the left atrium. Afterwards, the patient developed progressive shortness of breath with exertion.

**Material & Methods: Results:** Systolic pulmonary artery pressure, as estimated by the RV-RA gradient measured by transthoracic echocardiogram, was within normal limits at rest (24 mmHg; N <35 mmHg) and during exercise testing at 120 W and 155 W (47 and 50 mmHg; N <50 mmHg). We decided to perform a 50 W exercise test while breathing nitrogen-enriched air through a facemask (hypoxic inhalation test or HIT). Then, during exercise under hypoxic conditions, systolic pulmonary pressure rose to an exaggerated level of 54 mmHg (N <50 mmHg). Additionally, lung ultrasound showed an abnormal increase in interstitial fluid in the upper part of the right chest only (Ultrasound Lung Comets-Tails (ULC) counting in the upper right chest: 8 ULC, N: ≤5)

**Conclusion:** Using HIT, we were able to unmask segmental pulmonary hypertension in a patient with suspected lone PVS but normal PAP at rest and during exercises. Furthermore, we were able to induce localized pulmonary edema in the lung segment drained by the culprit pulmonary vein.

**COI:** No

## P090

### A pitfall: not every atrial right to left shunt in stroke patients is a PFO

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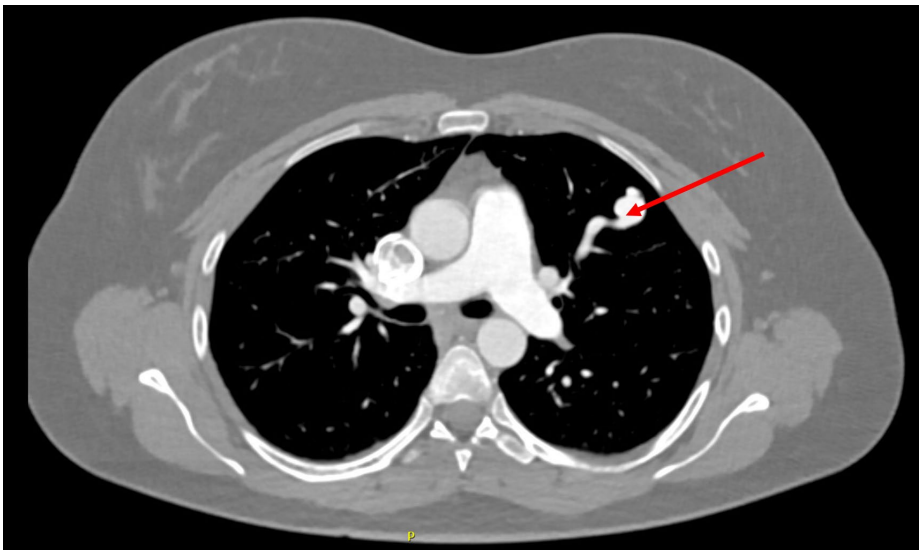
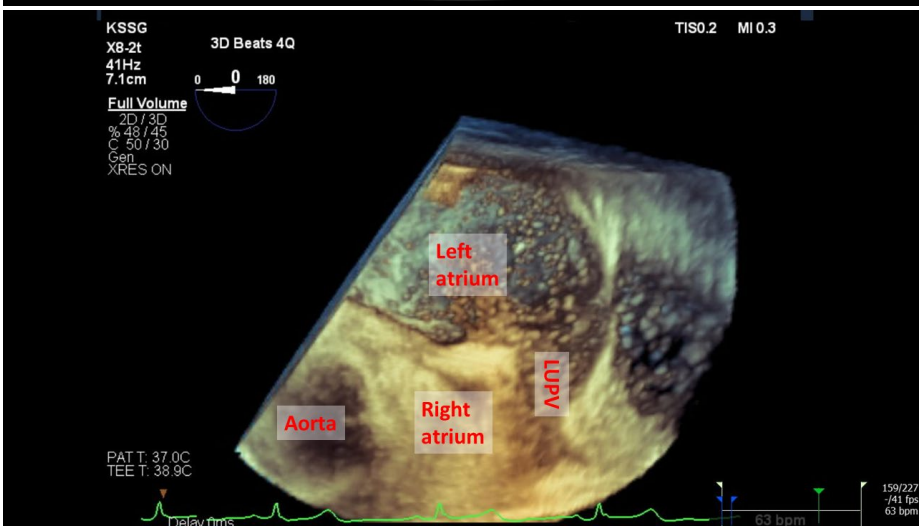
**Introduction:** While traveling in Costa Rica, a 31-year-old female patient experienced headache, acute blurred vision and a transient left-sided sensorimotor deficit. Initially these symptoms were interpreted as a previously known migraine. After returning to Switzerland she presented with persistent visual impairment. A large ischemic stroke with a thromboembolic pattern in the right posterior circulation territory was diagnosed in MRI. Subsequent workup revealed no evidence of thrombophilia, arrhythmia or macrovascular pathology. A large right-to-left shunt was found with agitated saline, interpreted as a patent foramen ovale (PFO). However the referring hospital could not identify an intra-atrial defect during percutaneous intervention. At our site during a second intervention the origin of the right-to-left shunt could be determined in transesophageal echocardiography (TOE).

**Material & Methods: Results:** During TOE an intrapulmonary shunt via the left upper pulmonary vein could be found instead of a PFO. Later a pulmonary arteriovenous malformation (PAVM) was confirmed by CT-scan (Figure 1: Chest-CT pulmonary arterial phase. PAVM (red arrow). A segmental artery (not shown) is delivering blood in an aneurysm (1,1x1,3x2,3 cm) draining into the left upper pulmonary vein (LUPV)). Treatment with interventional plug embolization was successfull later.

**Conclusion:** PAVMs are direct connections between a pulmonary artery and a pulmonary vein bypassing the capillary bed. They can be a cause of paradoxical embolism, leading to stroke, myocardial infarction, or brain abscess. Depending on the shunt volume hypoxia or major hemoptysis, for example, during pregnancy are possible. PAVMs can be a manifestation of Osler-Weber-Rendu-disease, and association with migraine is well known. During stroke workup, transthoracic echocardiography or TOE using agitated saline can detect a right-to-left shunt. However this case demonstrates that it is crucial to accurately identify the source of microbubbles to differentiate a PFO from for example a PAVM by vizualising the pulmonary veins (Figure 2: 3D-TOE: bubbles originating from the LUPV).

**COI:** No






## P091

### Reclassification of exercise-induced arrhythmogenic cardiomyopathy: identification of a rare intronic PKP2 variant after genetic reevaluation in a 52-year-old male athlete

Lucas Tramèr[1], Firat Erdogan[1], Argelia Medeiros Domingo[2], Ron Hille[3], Robert Manka[1 4], Corinna Brunckhorst[1], Firat Duru[1], Ardan Saguner[1]

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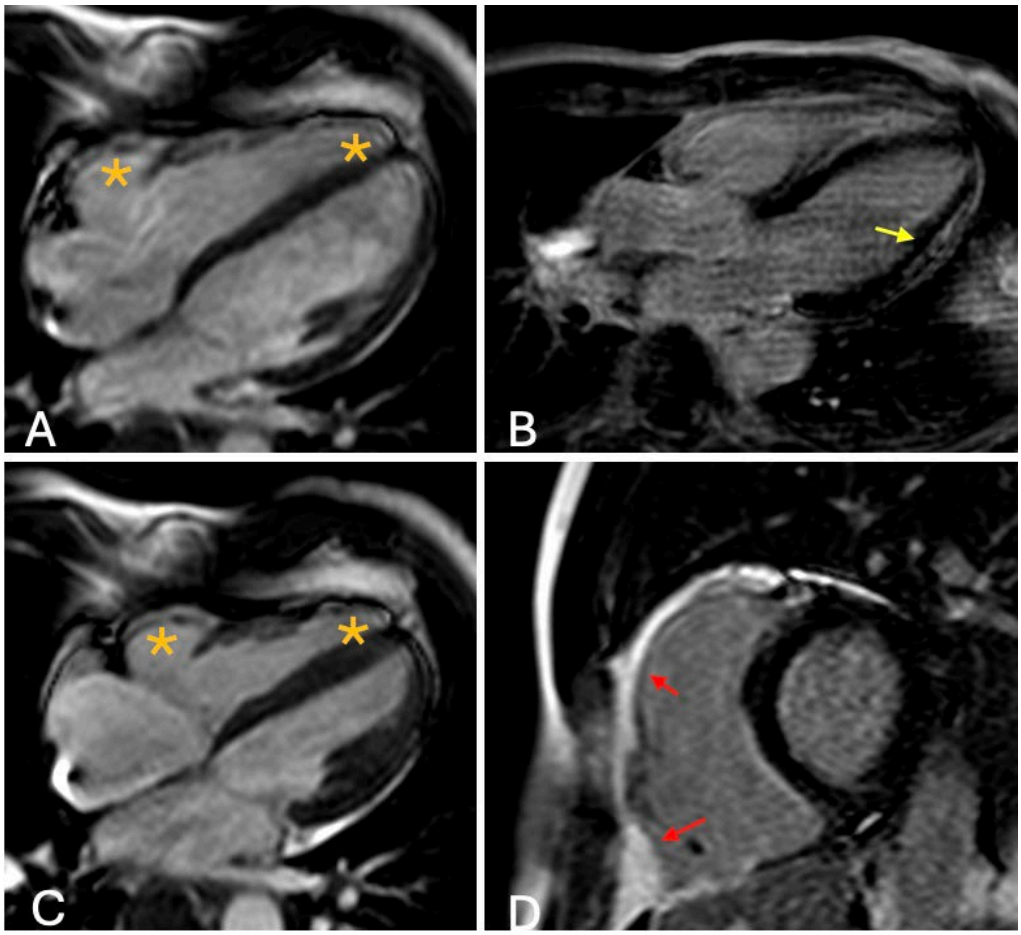
**Introduction:** A 52-year-old male lifelong endurance athlete with coronary artery disease (CAD) and no family history of cardiomyopathies or sudden cardiac death (SCD) presented for routine follow-up. At the time of CAD diagnosis, right ventricular (RV) dilatation was interpreted as physiological remodeling in response to endurance training (*athlete's heart)*. At follow-up, polytopic premature ventricular contractions (PVCs), progressive RV dilatation and subtricuspid dyskinesia raised suspicion for arrhythmogenic right ventricular cardiomyopathy (ARVC).

**Material & Methods:** The patient underwent comprehensive multimodality evaluation including serial transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR), exercise testing and 24-hour ambulatory electrocardiographic (ECG) monitoring. Genetic testing was performed at baseline and after 3 years using updated analytical methods.

**Results:** At diagnosis, the patient fulfilled a "borderline" diagnosis of ARVC according to the 2010 Task Force Criteria (major imaging and minor arrhythmia; at last follow-up, "definite" diagnosis by adding the pathogenic genetic variant). TTE showed a dilated RV with decreased systolic function and dyskinesia of the subtricuspid region, while the left-sided cavities were normal. Cardiac magnetic resonance (CMR) demonstrated late gadolinium enhancement (LGE) of the RV and subepicardial fatty infiltration of the left ventricular (LV) free wall. Holter ECG showed a 5% pleomorphic PVC-burden but no sustained ventricular arrhythmias (VA). The index genetic panel testing incorporating 45 genes in 2022 was negative, leading to a working diagnosis of exercise-induced/gene-elusive arrhythmogenic cardiomyopathy (EiACM). Repeat CMR after 2 years showed progressive disease with new RV apical involvement while repeat genetic testing after 3 years using novel analytical methods for identification of intronic variants identified a deep intronic pathogenic variant of the plakophilin 2 gene (*PKP2*), which explains the phenotype.

**Conclusion:** This case illustrates the pivotal role of periodic genetic re-testing and re-adjudication with state-of-the art tools in uncovering pathogenic variants in gene elusive ARVC.

**COI:** No




Main Figure: Cardiac magnetic resonance (Philips 1.5 Tesla). A: 4-chamber cine view (balanced steady-state free procession, bSSFP), enddiastole; B: 3-chamber late-gadolinium enhancement (LGE); C: 4-chamber cine view (bSSFP), endsystole; D: basal short-axis LGE; *: wall motion abnormalities of the subtricuspid region and apical free wall of the right ventricle; yellow arrow: subepicardial fatty infiltration of the lateral LV mid to apical; red arrows: LGE of the RV free wall.

P092

## Atrial Flow Regulator for Persistent Heart Failure Secondary to Mitral Stenosis Following Transcatheter Aortic Valve Replacement

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**Introduction:** Congestive heart failure secondary to elevated left atrial pressure remains challenging despite optimal medical management. Interatrial septal devices (IASD) have emerged as a treatment option for advanced heart failure by decompressing the left atrium through a unidirectional left-to-right shunt. We report a case of IASD implantation for refractory heart failure due to mitral stenosis following transcatheter aortic valve implantation (TAVI).

**Material & Methods:** A 76-year-old woman with severe concurrent aortic and mitral stenoses underwent transfemoral TAVI with a 29-mm Medtronic Evolut FX valve. She suffered a periprocedural stroke, causing left hemiparesis and dysarthria. Despite successful aortic valve replacement, she experienced recurrent pulmonary edema, almost dialy. Post-TAVI echocardiography revealed worsening transmitral gradient (from 7 to 11 mmHg). Given a modified Wilkins score of 11 points, percutaneous balloon valvuloplasty was contraindicated, and surgical replacement was prohibitively high-risk. An 8-mm diameter Occlutech Atrial Flow Regulator was implanted under transesophageal echocardiographic guidance with a palliative purpose.

**Results:** The patient experienced immediate clinical improvement with complete resolution of acute pulmonary edema episodes and successful participation in rehabilitation. Post-procedural echocardiography demonstrated a patent interatrial shunt with a left-to-right mean gradient of 20 mmHg and slight reduction in transmitral gradient to 9-10 mmHg. She wasdischarged after 5 months of hospitalization and remained free of

 

heart failure symptoms for four months before experiencing cardiac decompensation. The patient died 11 months post-TAVI due to overall clinical decline.

**Conclusion:** This case demonstrates that IASD implantation may provide meaningful symptomatic relief in carefully selected patients with refractory heart failure when conventional therapeutic options are exhausted. Despite the patient's eventual decline due to multiple comorbidities, the intervention provided several months of symptom-free survival and enabled hospital discharge. Further studies are needed to better define the role of IASD in patients with heart failure and identify optimal candidates for this palliative intervention.

**COI:** No

## P093

### Protruding intravascular tumor mimicking a tricuspid valve mass: a case report

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[1]*HOCH – Health Ostschweiz, St. Gallen, Switzerland*

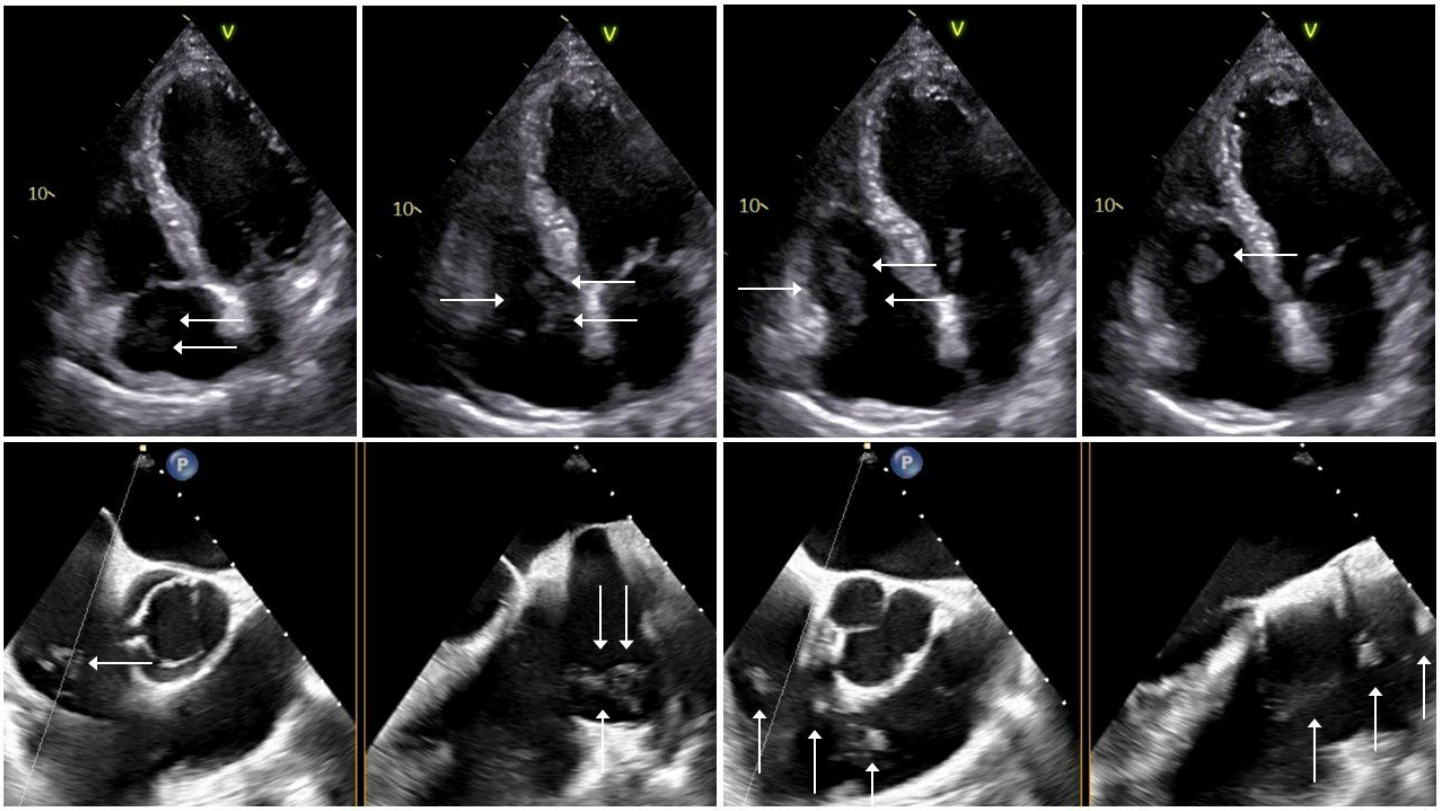
**Introduction:** Intracardiac tumours pose a challenge both diagnostically and therapeutically. This case describes the procedure for a tumour detected in the tricuspid valve area in a patient with sarcoma in the left deltoid muscle.

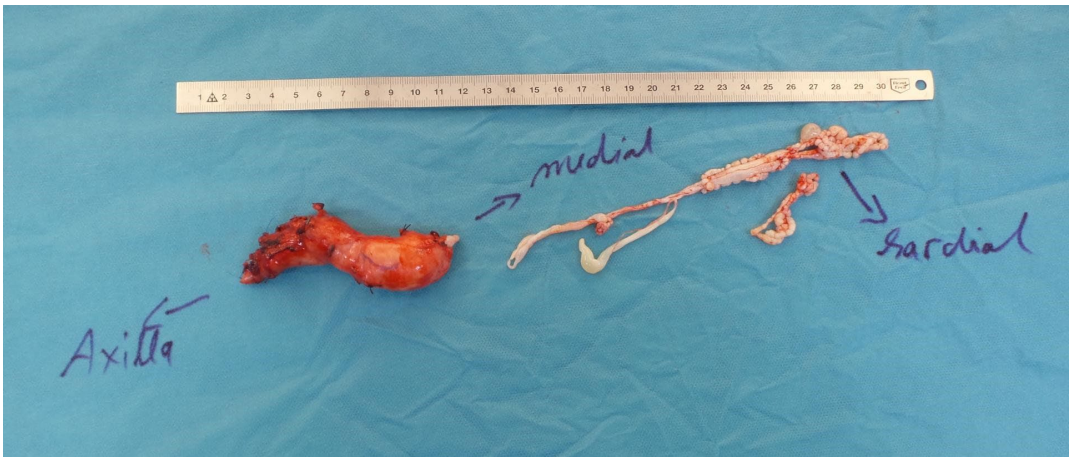
**Material & Methods:** A 61-year-old man with high-grade/G2 spindle cell/sclerosing rhabdomyosarcoma of the left deltoid muscle, who had been treated with radical surgical excision, repeat resection of the axillary artery and vein, and local radiotherapy was referred for transthoracic echocardiography for the evaluation of endocarditis due to elevated inflammatory markers. An apparently floating tricuspid valve mass raised suspicion for tricuspid valve endocarditis, however definite assignment of the structure was uncertain (Figure 1).

**Results:** An empiric course of antibiotics for six weeks and oral anticoagulation did not alter the echocardiographic appearance of the mass. FDG-PET/CT showed no cardiac uptake however there was evidence of subclavian vein thrombosis with suspicion for local tumour recurrence. Surgical excision of the left axillary and brachiocephalic vein revealed an 15cm intravascular tumour extension without apparent adhesions to distal structures (Figure 2). Postoperative echocardiography demonstrated normal right heart and tricuspid valve function without evidence for a residual tumour.

**Conclusion:** Intraluminal venous tumour invasion is a rare cause for cardiac masses. Multimodality imaging is crucial for finding the correct diagnosis and to guide clinical management decisions.

**COI:** No






## POSTER WALK: CONGENITAL & PEDIATRIC CARDIOLOGY

### P094

### The challenge of slow flow: Need for improvement of the accuracy of pulmonary venous flow determination by 2D, 4D and 5D flow cardiac magnetic resonance

Fabienne Dirbach[1], Estelle Tenisch[2], Milan Prsa[3], Sara Fässler[1], Christopher Roy[2], Mariana Falacão[2], Paolo Garelli[1], David Saraiva Rodrigues[2], Michael Markl[4 5], Matthias Stuber[2 6], Juerg Schwitter[1 7], Tobias Rutz[1 7]

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**Introduction:** Accurate pulmonary venous (PV) flow quantification by cardiovascular magnetic resonance (CMR) is crucial in patients with complex congenital heart disease (CHD). 2D phase-contrast (2D flow) remains the clinical reference but is limited by challenging plane prescription and measurement difficulties in small vessels. 4D and 5D flow enable volumetric, time-resolved acquisition but may suffer from segmentation difficulties and low signal in small veins. This study compared PV flow quantification using 2D flow, respiratory-navigated 4D flow, and free-running, self-gated 5D flow.

**Material & Methods:** CHD patients underwent 2D, 4D, and 5D flow imaging. Velocity encoding (VENC, cm/s) was set 20% above expected maximum velocity for 2D and 200 cm/s for 4D/5D flow. Flow was measured in the main, right and left pulmonary artery (MPA, RPA, LPA), left and right pulmonary veins (RPV, LPV). 3D vessel segmentation was performed for 4D and 5D datasets. PV net flow volumes (NFV) were compared across techniques and with corresponding arterial NFV for internal consistency.

**Results:** 59 right-/ and or leftsided CHD patients (mean age 28±13y, 42% women) were included. PV flow was obtained in 15 patients by 2D and in all patients by 4D and 5D flow. 4D and 5D flow underestimated NFV in pulmonary arteries and particularly in PV compared with 2D. Bias between 2D and 4D flow NFV was significantly smaller than between 2D and 5D flow (Table). Internal consistency comparison showed large biases and wide limits of agreement for all methods; 4D had slightly narrower limits, while 5D flow showed particularly large variability for right-sided PVs (Figure).

**Conclusion:** All three techniques showed limited accuracy for PV flow in CHD. 4D and 5D flow underestimated PV volumes, with 4D demonstrating better agreement and internal consistency than 5D flow. Optimization of VENC, potential dual-VENC approaches, and improved PV-specific segmentation may enhance future measurements.

**COI:** No

## Table: Comparison of NFV bias between CMR-based methods

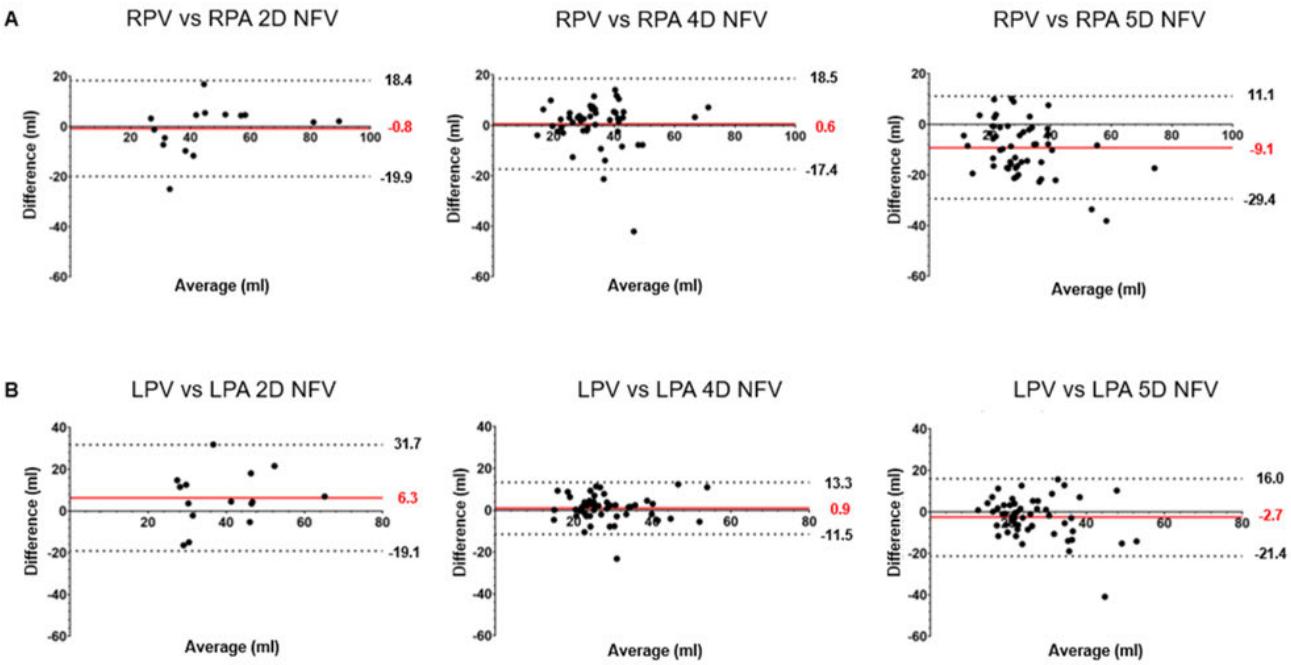
| NFV (ml/beat) | 2D vs 4D flow | 2D vs 5D flow | 4D vs 5D flow | p |
|---|---|---|---|---|
| MPA | -8.62 (-41.24, 24.01) | -6.9 (-39.41, 25.61) | 1.87 (-26, 29.74)§ | 0.003 |
| RPA | -10.25 (-26.1, 5.59) | -8.64 (-25.18, 7.91) | 1.87 (-10.86, 14.59)# | <0.001 |
| LPA | -8.08 (-28.47, 12.32) | -8.02 (-30.07, 14.03) | 0.19 (-15.48, 15.86)‡ | <0.001 |
| RPV | -6.44 (-20.63, 7.75) | -17.69 (-38.97, 3.58)§§ | -8.91 (-25.85, 8.02) | <0.001 |
| LPV | -9.47 (-36.11, 17.18) | -10.70 (-32.06, 10.66)†† | -3.61 (-21.07, 13.84) | 0.035 |

Data shown are bias (ml/beat) (95% lower, upper LOA). P-values refer to one-way analyses of variance (ANOVA) with Tukey post-hoc analyses for comparison of bias between the three sequences.

§MPA: p <0.018 4Dvs5D vs 2Dvs4D and 2Dvs5D; #RPA: p<0.001 2Dvs4D vs 4Dvs5D and 2Dvs5D vs 4Dvs5D; ‡LPA: p<0.001 2Dvs4D vs 4Dvs5D and 2Dvs5D vs 4Dvs5D; §§RPV: p<0.004 2Dvs5D vs 2Dvs4D and 4Dvs5D; ††LPV: p=0.023 2Dvs5D vs 4Dvs5D

Abbreviations: NFV= net flow volume, MPA = main pulmonary artery, RPA = right pulmonary artery, LPA = left pulmonary artery, RPV= right pulmonary vein, LPV= left pulmonary vein

## Figure: Bland-Altman analyses for comparison of internal consistency in the pulmonary circulation (patients without shunt or Fontan-type physiology)




Data shown are bias (ml/beat), (95% lower, upper LOA). P-values refer to one-way ANOVA with Tukey post-hoc analyses for comparison of bias between the three sequences. Patients with Fontan-type physiology were excluded to avoid the potential influence of collaterals; RPV vs RPA: p<0.001 4D vs 5D flow; Abbreviations: see Table

## P095

### Racing against time: A quality study of accelerated CMR in patients with congenital heart disease

Emilie Schalch[1], Ambra Masi[1], Christopher Roy[2], Paolo Garelli[1], David Saraiva Rodrigues[2], Matthias Stuber[2 3], Judith Bouchardy[1], Jürg Schwitter[1 4], Tobias Rutz[1 4], Fabienne Dirbach[1]

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**Introduction:** Improved survival of patients with congenital heart disease (CHD) has precipitated the use of cardiovascular magnetic resonance (CMR). Conventional CMR exams remain time-consuming (~60min) prompting efforts to accelerate the process to meet the surge in demand. This study evaluated accelerated CMR in selected CHD patients, assessing whether a 30%-reduction in exam duration and thus a 40-minute target can be achieved without compromising clinical objectives.

**Material & Methods:** CHD patients referred for CMR were scanned on a 1.5T scanner. Patients with precise clinical questions (e.g., shunt quantification), unlikely to require contrast were scheduled for accelerated CMR. The accelerated CMR protocol included localizers, true fast imaging with steady-state free precession (TRUFI-SSFP) in three orthogonal planes, compressed-sensing cine SSFP in long and short axes, 3D self-navigated whole heart, T1 mapping and 2D/4D flow. For standard CMR, contrast-enhanced angiography and late gadolinium enhancement sequences were added. Patients were categorized as aorthopathy, right-sided CHD, shunt lesions, or "other".

**Results:** Among 222 ambulatory patients, 89 underwent accelerated CMR, while adequately addressing the clinical questions. In the accelerated group, the 40-minute target was met in 78% of exams with an overall mean scan time of 35min (Figure). Unplanned contrast administration, required in 13 patients for improvement of image quality or clinical reasons, was associated with longer scan times (38:28 vs. 35:05min:ss, p = 0.124) and higher rates of scan time non-adherence (50% vs. 20%, p = 0.035, Table). Scan time was significantly longer in right-sided CHD than in aortopathy in the accelerated group (33:43 vs. 40:51min:ss, p <0.001).

**Conclusion:** Accelerated CMR is feasible in selected patients respecting planned scan time in most cases without compromising clinical reliability. Contrast administration and right-sided CHD are associated with prolonged scan times. Our findings support the feasibility of CMR acceleration, while ongoing implementation of advanced sequences promise to further reduce scan duration.

**COI:** No

**Figure: Histogram of the standard and accelerated group**

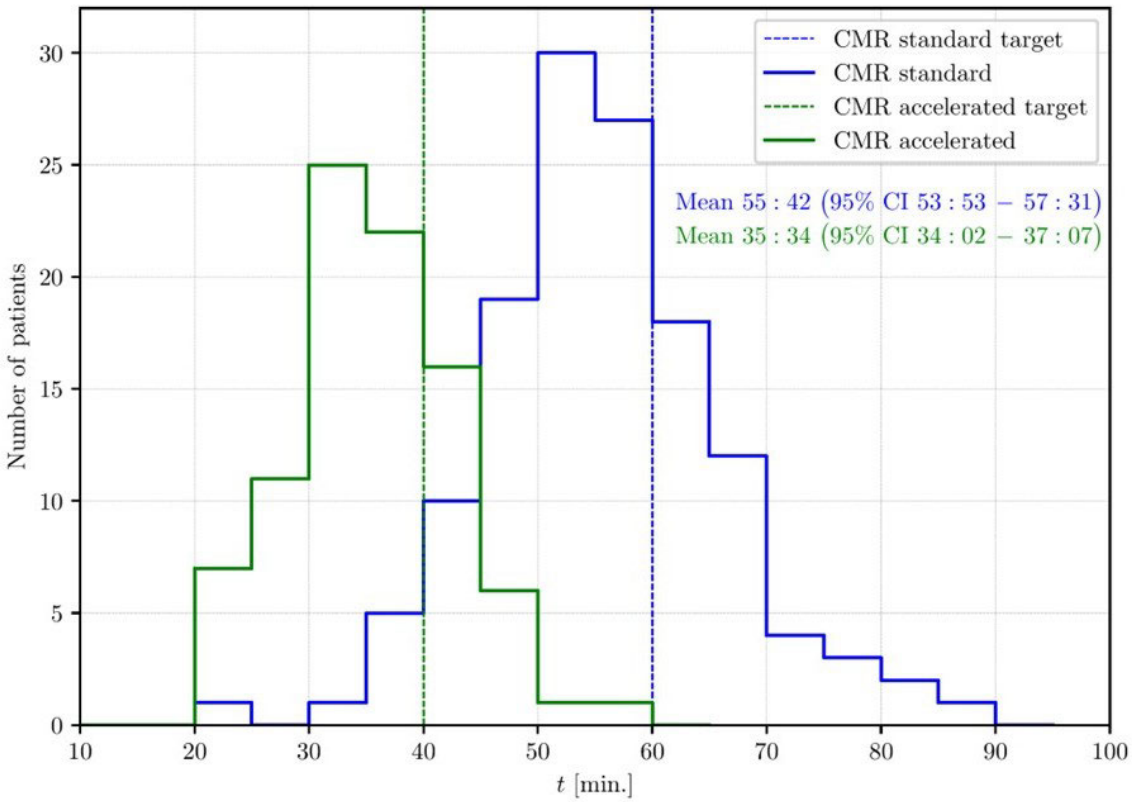

**Table: Comparison of patient characteristics between standard and accelerated group and comparison of mean scan time in each group**

| Patient characteristics | | | |
|---|---|---|---|
| | Standard group | Accelerated group | p |
| Number | 133 | 89 | |
| Age, median (IQR) | 34 (24; 47) | 27 (22; 38) | 0.003 |
| Sex, female (%) | 55 (41) | 33 (37) | 0.577 |
| Scan time (mean ± SD, min,sec ) | 55:42 ± 10:36 | 35:34 ± 07:18 | <0.001 |
| Aortopathy, N (%) | 41 (31) | 54 (61) | |
| Right sided CHD, N (%) | 43 (32) | 20 (23) | |
| Shunt lesion, N (%) | 31 (23) | 12 (13) | |
| Other, N (%) | 18 (14) | 3 (3) | |
| Contrast, N (%) | 111 (84) | 13 (15) | <0.001 |
| Scan time respected N, (%) | 95 (72) | 69 (78) | 0.352 |
| **Mean scan time per group (min, sec)** | | | |
| | Standard group | Accelerated group | p |
| Aortopathy, mean ± SD | 51:13 ± 09:24 | 33:43 ± 06:33 | <0.001 |
| Right sided CHD, mean ± SD | 57:23 ± 11:05 | 40:51 ± 06:56 | <0.001 |
| Shunt lesion, mean ± SD | 55:36 ± 14:10 | 36:36 ± 05:12 | <0.001 |
| Other, mean ± SD | 55:08 ± 15:16 | 29:48 ± 13:14 | 0.014 |

p-values were calculated with independent t-test for normally distributed parameters and with Mann-Whitney-U test for not normally distributed parameters. Abbreviations: CHD=congenital heart disease, N=number of patients, IQR=interquartile range, SD= standard deviation

P096

## Comparison of free-running whole-heart 5D and 4D flow imaging to standard 2D flow in patients with congenital heart disease

Fabienne Dirbach[1], Estelle Tenisch[2], Milan Prsa[3], Christopher Roy[2], Paolo Garelli[1], Sara Fässler[1], David Saraiva Rodrigues[2], Mariana Falacão[2], Michael Markl[4 5], Matthias Stuber[2 6], Juerg Schwitter[1 7], Tobias Rutz[1 7]

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**Introduction:** Flow quantification by cardiac magnetic resonance (CMR) is essential in congenital heart disease (CHD). 2D phase contrast (2D flow) requires precise image plane prescription, prolonging exam times. Free-breathing 3D whole-heart flow sequences (4D flow) accelerate acquisition but require respiratory navigation, rendering exam duration unpredictable. Free-running radial, self-gated, respiratory and cardiac motion-resolved 5D flow promises ease-of-use and stable scan times. This study compared net flow volumes (NFV) between 2D, 4D and 5D flow and maximum velocity (Vmax) to transthoracic echocardiography (TTE).

**Material & Methods:** In CHD patients 2D, 4D and 5D flow was obtained on a 1.5T scanner. 2D flow was performed in the ascending (AAo), descending aorta, main (MPA), right, and left pulmonary arteries and superior vena cava. 3D vessel segmentation was performed for 4D and 5D flow datasets. NFV were compared between 2D, 4D and 5D flow and Vmax to TTE.

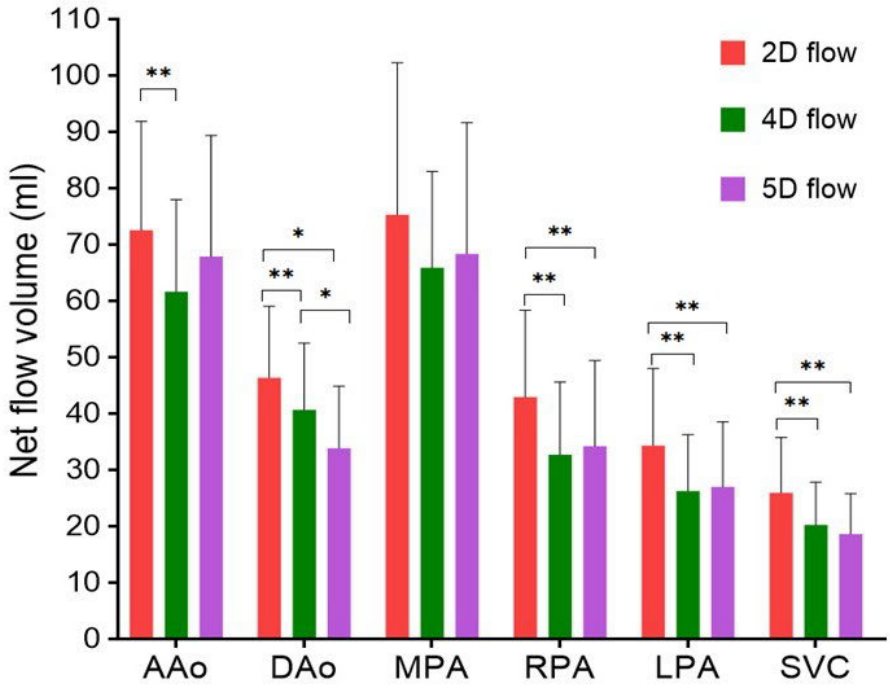
**Results:** 59 patients (mean age 28±13y, 42% women) with right- and/or leftsided CHD were included. 4D and 5D flow underestimated NFV relative to 2D flow by 4-17ml/beat, most prominent for 4D flow and smaller vessels (Figure 1). Scan duration did not differ significantly. Internal consistency was best for 4D flow, followed by 5D flow, while 2D flow showed the largest variability: MPA vs AAo (bias ml, 95% LOA): 2D flow: -4.84 (-34.18, 24.5), 4D flow -0.84 (-17.85, 16.18), 5D flow -6.4 (-28.53, 15.73). 2D and 4D flow underestimated Vmax compared to TTE: AAo: TTE 120±46; 2D 108±36; 4D 107±36; 5D 115±40 cm/s; p <0.03 TTE vs 2D and 4D flow; p = 0.253 TTE vs 5D flow, Figure 2).

**Conclusion:** 4D and 5D flow provided measurements comparable to 2D flow. Despite systematic underestimation of NFV, whole-heart techniques showed superior internal consistency without prolonging scan times. 5D flow yielded the most accurate Vmax compared to TTE, supporting its potential for comprehensive non-invasive hemodynamic evaluation.

**COI:** No

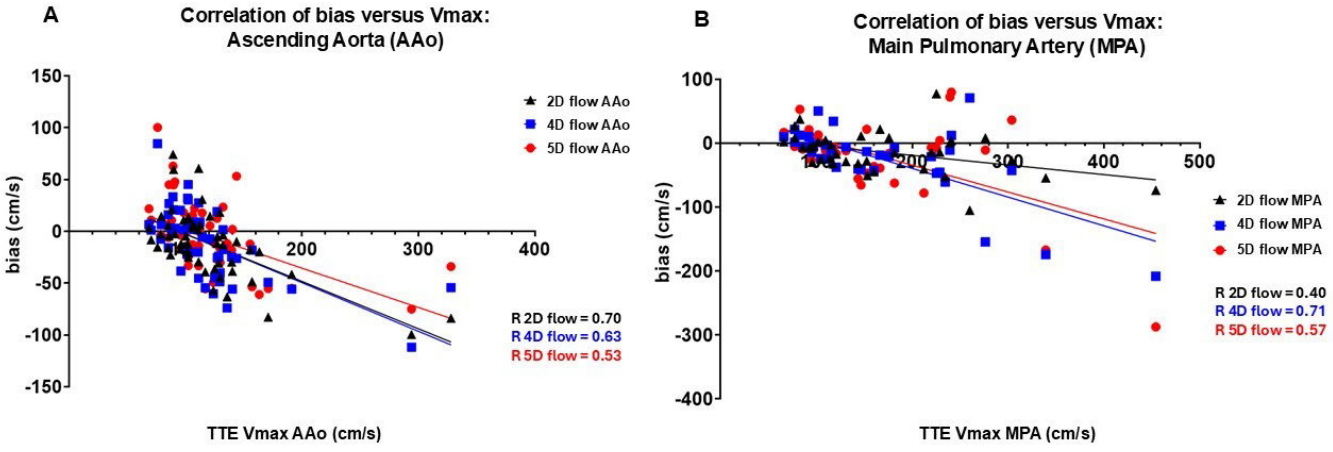
**Figure 1 Comparison of net flow volumes (NFV, ml), (mean and SD) between 2D, 4D and 5D flow**




Data shown are mean and SD, p-values refer to analyses of variance (ANOVA) with Bonferroni post-hoc analyses for comparison of bias between the three sequences. *p<0.03, **p<0.009, ***p<0.001

Abbreviations: AAo= ascending aorta, DAo= descending aorta, LPA= left pulmonary artery, LPV= left pulmonary vein, MPA= main pulmonary artery, NFV= net flow volume, RPA= right pulmonary artery, RPV= right pulmonary vein, SVC= superior vena cava

**Figure 2: Correlation of bias (cm/s) and maximal peak velocity between TTE versus 2D, 4D and 5D flow**




Abbreviations: R = correlation coefficient, TTE = transthoracic echocardiography, Vmax = maximal peak velocity, others see Figure 1

## P097

### Patent foramen ovale closure using the Cardioform Gore Septal Occluder: real-world data from a single-center experience

Marina Rodrigues[1], Adamopoulos Dionysios[2], Sarah Mauler-Wittwer[2], Georgios Giannakopoulos[2], Hajo Müller[2], Stéphane Noble[2]

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**Introduction:** Patent foramen ovale (PFO) closure has been shown to reduce the risk of recurrent stroke in selected patients. The Cardioform Gore Septal Occluder (GSO) device is one of the approved devices in Switzerland, but there is limited real-world data.

**Material & Methods:** We analyzed 218 consecutive patients (mean age 57 ± 14 years, 70% males) who underwent PFO closure with a GSO device at our institution between 2015 and 2025. All patients were treated either with a 25 mm or a 30 mm GSO device. A 6-month clinical follow-up was performed, including microbubble test with transthoracic and transoesophageal echocardiography. The endpoints assessed at 6 months were the presence of a significant shunt (more than moderate [10-25 microbubbles] at rest or during the Valsalva manoeuvre), the incidence of supraventricular arrhythmias, recurrent stroke, reintervention or serious device-related adverse events.

**Results:** Device implantation was successful in all patients, using either a 25 mm (n = 105, 48%) or a 30 mm (n = 113, 52%) device. All patients completed the 6-month follow-up. At 6 months, no patient had a recurrent stroke. Supraventricular arrhythmias were detected in 9% of patients (atrial fibrillation in 6.5%, atrial flutter in 1.5%, atrial tachycardia in 1%.) One patient experienced a tamponade at 5 days. Two patients were readmitted for fever without bacteremia. Echographic assessment showed more than mild residual shunting in only 3.3% of patients. One patient required a second intervention due to a severe residual shunt (device positioned into an ASD). No difference in arrhythmia or residual shunt incidence was observed between both device sizes.

**Conclusion:** PFO closure using the GSO device is an effective and safe procedure. The outcomes were similar for both device sizes. Residual shunts were low, whereas the rate of atrial fibrillation at 6 months was relatively high compared to other devices.

**COI:** No

## P098

### Tattoo and adult congenital heart disease: is my heart disease my motivation having a tattoo?

Cecilia Logoz[1], Judith Bouchardy[2], Giorgio MacCaferri[1], Léa Iten[1], Magalie Ladouceur[3], Fanny Brand[3], Colette Gendre[1], Valérie Geiser[1], Tobias Rutz[1]

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**Introduction:** As the survival of patients with congenital heart disease (CHD) improved in recent decades, individuals face challenges associated with the chronicity of their condition. This raises the question of the coping mechanisms adopted by patients (such as tattoos, a common practice today). The aim of the study was to determine whether the severity of CHD and/or its clinical manifestations influence the prevalence of tattoos within this population.

**Material & Methods:** Adult CHD patients from two University hospitals completed a specially designed questionnaire about Quality of Life (QoL) and tattoos. Clinical information was extracted from their medical records. Participants were separated in the groups tattooed participants (TP) versus non-tattooed participants (nTP) with a subgroup of individuals having a tattoo linked to their CHD (CHD_TP).

**Results:** 328 patients were included (mean age 35± 12 y/o, 51% women). TP reported a lower QoL than nTP (table 1), with the lowest QoL observed in CHD_TP (table 2). TP reported more anxiety, fear, and cardiovascular symptoms than nTP (table 1). The prevalence of active tobacco smokers was higher in TP than in nTP (table 1).

CHD_TP showed the highest CHD anatomic severity and prevalence of cyanogenic CHD (table 2). Open-heart surgeries were more frequent in CHD_TP than in tattooed participants without any tattoo linked to their CHD (table 2), with also a higher number of surgeries per person in CHD_TP (table 2).

**Conclusion:** Our results favor a potential association between CHD and tattoos. TP show more severe cardiac and psychological involvement with a higher prevalence of severe CHD cases among individuals with a tattoo related to their CHD. Our study supports that the chronic nature of CHD may lead some patients to adopt coping mechanisms such as tattoos. Therefore, physicians could consider addressing body modification to better assess the disease's daily impact and provide more personalized care.

**COI:** No

**3**, Tattoo of a participant with atrial septal defect and pulmonary arterial hypertension

The participant gave their consent for this picture to be shared as part of our study.

**Table 1**, Comparison between untattooed and tattooed participants

| | Non-tattooed patients N=195 | Tattooed patients N=133 | p-value |
|---|---|---|---|
| Life Quality (0-100) | 80.05 ± 12.21 | 75.40 ± 15.69 | **0.002** |
| Anxiety | 27.2% | 42.1% | **0.005** |
| Fear | 10.8% | 19.5% | **0.026** |
| Concern about CHD | 25.9%* | 33.3%* | 0.722 |
| Psychiatric comorbidity | 13.8% | 16.5% | 0.501 |
| Tobacco smoking | 6.7% | 24.1% | **<0.001** |
| Cardiovascular symptoms | 26.7% | 40.6% | **0.008** |
| Dyspnoea | 16.9% | 30.8% | **0.003** |

**Table 1**, Comparison between untattooed and tattooed participants
*Concern about CHD data is missing for two untattooed participants and for one tattooed participant.

**Table 2**, Comparison between tattooed participants without any tattoo linked to their CHD and participants with at least one tattoo linked to their CHD

| | Tattooed w/o CHD link N=88* | Tattooed with CHD link N=43* | p-value |
|---|---|---|---|
| Life Quality (0-100) | 75.74 ± 12.7 | 74.56 ± 20.97 | 0.742 |
| Sadness | 23.8% | 9.3% | **0.046** |
| CHD anatomic severity | | | |
| Simple | 11.4% | 0% | **0.003** |
| Moderate Complexity | 76.1% | 62.1% | **0.003** |
| Great Complexity | 12.5% | 37.2% | **0.003** |
| Cyanogenic CHD | 20.45% | 44.2% | **0.005** |
| Open-Heart surgery | 65.9% | 90.4% | **0.003** |
| Nb of open-heart surgeries (average) | 1.69 ± 1.13 | 2.42 ± 1.39 | **0.008** |
| Percutaneous Procedure | 34.1% | 51.2% | 0.061** |
| Tobacco smoking | 25% | 23.2% | 0.827 |

**Table 2**, Comparison between untattooed participants and tattooed participants with at least one tattoo linked to their CHD
* Data about a link between CHD and tattoo is missing for two tattooed participants.
** The p-value is higher than 0.05, it is therefore considered only as a trend.

## P099

### Surgical outcome and mid-term follow up of patients with Shone's Complex

Nina Odgaard[1], Anine Müller[1], Fatima Mansoori[1], Agnesa Kyqyku[1 2], Adelaida Woenckhaus[1 2], Hitendu Dave[2], Robert Cesnjevar[2], Oliver Kretschmar[1], Walter Knirsch[1]

*[1]Pediatric Cardiology, Pediatric Heart Center, Children's Research Center, University Children's Hospital, University of Zurich, Zurich, Switzerland, [2]Congenital Cardiovascular Surgery, Pediatric Heart Center, Children's Research Center, University Children's Hospital, University of Zurich, Zurich, Switzerland*

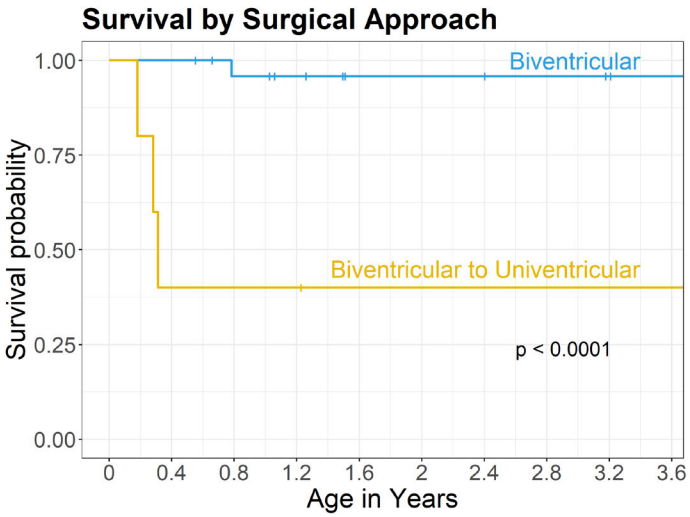
**Introduction:** Shone's Complex (SC) summarizes heterogeneous types of multilevel left heart obstructive congenital heart disease. Therapeutic decision-making after birth in SC remains challenging.

**Material & Methods:** Using the consecutive patient dataset (Data Warehouse), a detailed analysis of patients with an initial biventricular surgical approach for SC with focus on diagnostic, therapeutic, and clinical long-term outcomes was performed.

**Results:** Between 01/2014 and 12/2024 (follow-up (FU) until 09/2025), 31 patients were born with SC with a median birth weight of 3320g (IQR 2910-3630). The first invasive procedure was performed at 5.5 days of age (4-12.5). Multilevel LV obstruction was observed at the aortic arch (CoA) (90.3%), mitral valve (32.3%), and aortic valve (25.8%). 26 patients underwent biventricular repair, and five patients were changed from a biventricular to a univentricular approach during the early period of treatment. Patients received one (41.9%), two (38.7%), or more than two surgical procedures (19.4%). More than a third (38.7%) of the patients were treated with further catheter-based procedures, such as treatment of residual CoA (11.3%). Chronic heart failure treatment was necessary in 25.8% of patients at last FU. At median FU age of 3.9 years (1.2-6.7), the survival rate was 100% in the first 30 days of life, and the overall survival rate at the mid-term FU was 87%. The survival rate was decreased in patients who were converted from biventricular to univentricular palliation ($p < 0.0001$) (Figure 1). Patients died due to sudden cardiac death (n = 2), or had treatment terminated due to global ischemic brain injury (n = 2).

**Conclusion:** Shone's Complex has a high survival rate, but the choice of surgical approach remains a critical desision. Converting to univentricular palliation during the early period of treatment is a potential risk factor. Further investigation is needed to determine the cause and possible treatment improvements for this cohort.

**COI:** No



P100

## Atrial Fibrillation and Atrial Flutter in Pediatric Patients with Brugada syndrome: Clinical Presentation and Prognosis

Esther Scheirlynck[1], Georgia Sarquella-Brugada[2], Carlo de Asmundis[3], Marco Bergonti[1], Estefanía Martínez Barrios[2], Luigi Pannone[3], Konstantinos P. Letsas[4], Manlio Fabio Márquez Murillo[5], Leonardo Rivera[5], Moisés Levinstein Jacinto[6], Anaelle Raoul[7], Vincent Probst[7], Giulio Conte[1]

*[1]Istituto Cardiocentro Ticino, Lugano, Switzerland, [2]Hospital Sant Joan de Deu, Barcelona, Spain, [3]Heart Rhythm Management Centre, Postgraduate Program in Cardiac Electrophysiology and Pacing, Universitair Ziekenhuis Brussel-Vrije Universiteit Brussel, Brussels, Belgium, [4]Arrhythmia Unit, Laboratory of Cardiac Electrophysiology, Onassis Cardiac Surgery Center, Athens, Greece, [5]National Institute of Cardiology Ignacio Chavez, Mexico City, Mexico, [6]Centro Médico ABC, Centro de Especialidades Médicas, Mexico City, Mexico, [7]L'institut du thorax, INSERM, CNRS, UNIV Nantes,CHU Nantes, Nantes, France*

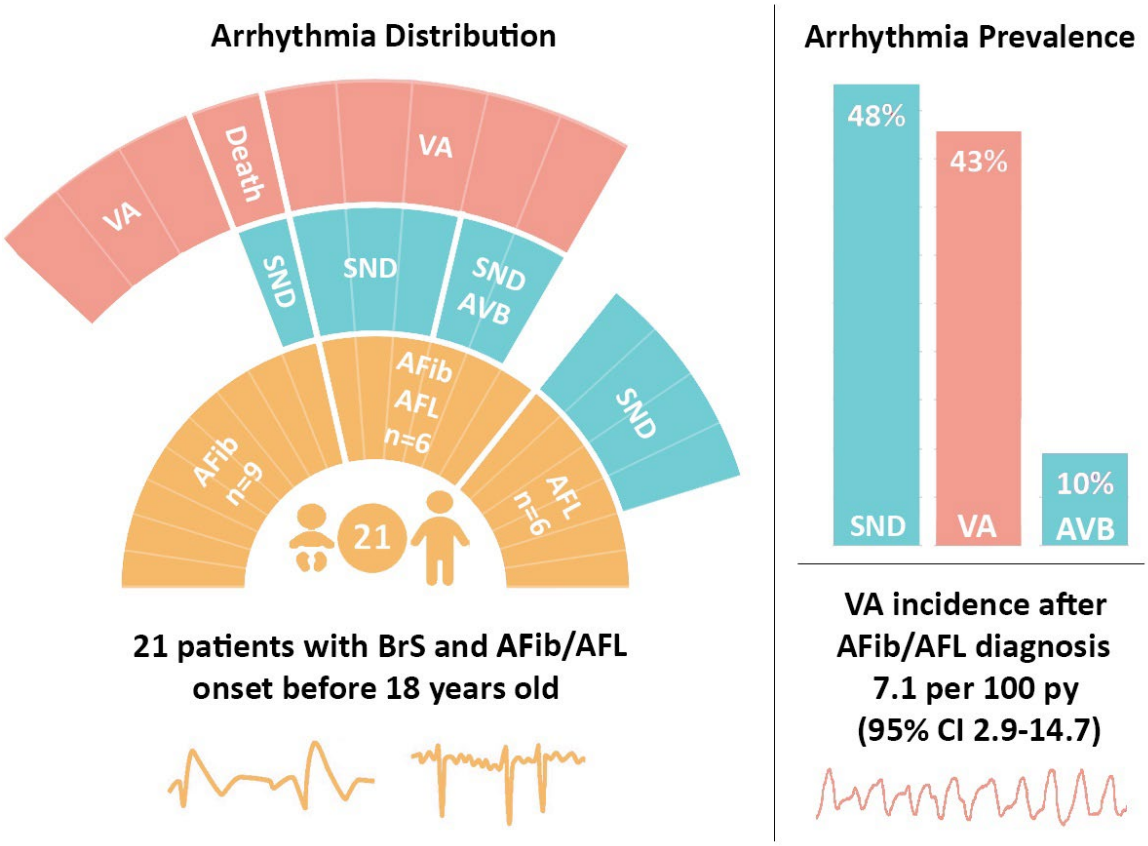
**Introduction:** Atrial fibrillation (AF) and atrial flutter (AFL) occur in up to 20% of patients with Brugada Syndrome (BrS). Recent findings suggest an unfavorable prognosis in terms of higher rate of ventricular arrhythmias (VA) when AF and/or AFL presents at a young age. The aim of our study is to describe the clinical presentation and prognosis of BrS patients presenting with atrial arrhythmias during childhood or adolescence.

**Material & Methods:** This is a multicenter, retrospective study conducted across 7 international centers, including BrS patients who presented AF and/or AFL before the age of 18. Clinical characteristics and arrhythmic events were assessed.

**Results:** A total of 21 patients, aged 11.6 (6.5-16.7) years at BrS diagnosis [5 (23%) females, 8 (38%) spontaneous type 1 ECG, 69% pathogenic/likely pathogenic SCN5A variant] were included. Atrial arrhythmia (AF in 9, AFL in 6, and both AF/AFL in 6 patients) was diagnosed at a median age of 14.9 (7.5-17.4) years. Associated sinus node dysfunction and 2nd degree AV block during childhood or adolescence was present in 10 (48%) and 2 (10%) patients respectively. Nine patients presented VA (43%), 2 before and 7 after atrial arrhythmia documentation. One patient suffered an arrhythmic death. During a median follow-up of 4.0 (2.5-6.3) years from AF/AFL diagnosis, the incidence rate of first VA was 7.1 per 100 person-years (95% CI 2.9–14.7 per 100 person-years). None of the patients with AFL only presented VA.

**Conclusion:** BrS patients with AF/AFL during childhood or adolescence present high rate of VA and sinus node dysfunction, warranting timely and careful prognostic and therapeutic assessment. None of the patients with AFL only presented VA.

**COI:** No



## POSTER WALK: PREVENTION, REHABILITATION & SPORTS CARDIOLOGY

### P101

### Weight Change and Long-term Cardiovascular Outcomes in Overweight and Obese Patients after Acute Coronary Syndromes

Louise Artels[1], Cédric Follonier[2], Stephanie Baggio[3 4], David Carballo[2], David Nanchen[5], Konstantinos Koskinas[6], Christian Matter[7], Lorenz Räber[6], Olivier Muller[1], Nicolas Rodondi[3 8], François MacH[2], Baris Gencer[1]

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**Introduction:** Obesity and overweight are common among patients with acute coronary syndromes (ACS), yet the long-term cardiovascular consequences of post-ACS weight change remain uncertain. This study investigated the association between 1-year weight change after ACS and 5-year clinical outcomes in overweight and obese patients.

**Material & Methods:** We analyzed data from 1473 overweight and obese ACS participants in the Swiss ELIPS cohort (n = 4445) with available weight measurements. Hazard ratios (HR) were estimated per 1% and 5% weight change for the subsequent 5-year risk of major adverse cardiovascular events (MACE), defined as cardiovascular death, non-fatal myocardial infarction, coronary revascularization, stroke or TIA. Models were adjusted for risk factors including age, sex, BMI, smoking, total cholesterol, hypertension, diabetes, and eGFR. Predefined subgroups included those with a BMI ≥27 kg/m$^2$ vs 25-27 kg/m$^2$.

**Results:** Among the participants (15.1% women, mean age 61.5 years), the mean BMI was 29.0 kg/m$^2$ (67% BMI ≥27 kg/m$^2$). Median weight change at 1 year was 0%, though 55% lost weight and 18.7% achieved >5% loss. Patient characteristics associated with weight loss over 1-year post-ACS were older age, higher baseline BMI, no smoking status, and participation in cardiac rehabilitation after discharge. During follow-up, 278 MACE (4-point) and 178 MACE (3-point) events occurred. Weight loss was associated with a lower risk of 4-point MACE (multivariate-adjusted HR; per 5%: 0.90, 95% CI: 0.82–1.00, p = 0.04). The association was stronger in patients with BMI ≥ 27 kg/m$^2$ (adj HR per 5% 0.87, 95% CI: 0.77-0.97) compared to those with BMI 25-27 kg/m$^2$ (adj HR per 5% 1.01, 95% CI: 0.85-1.20, interaction p = 0.16).

**Conclusion:** Our findings indicate that weight reduction may offer long-term benefits for post-ACS patients in real-world settings.

**COI:** No

### P102

### A systematic review of how cardiovascular disease guidelines address depression as a comorbidity

Kapka Miteva[1], Cédric Follonier[2], François MacH[2], Aliki Buhayer[3]

*[1][1]Department of Cardiology, Foundation for Medical Research, Faculty of Medicine, University of Geneva, Geneva, Switzerland, [2]Department of Cardiology, Geneva University Hospitals, Geneva, Switzerland, Geneva, Switzerland, [3]Department of Cardiology, Foundation for Medical Research, Faculty of Medicine, University of Geneva, Geneva, Switzerland*

**Introduction:** Depression is present in 20–40% of patients with cardiovascular disease (CVD) and significantly worsens prognosis. Our previous research evaluated how clinical practice guidelines (CPGs) for specific CVD conditions addressed depression. Given the condition-specific aetiology of CVD and its impact on long-term patient management, we extended our analysis to cardiovascular conditions not previously evaluated that are associated with a high prevalence of depression.

**Material & Methods:** Guidelines addressing cardiac arrhythmias (ARR), congenital heart disease (CGHD), cardiomyopathy (CM), cardio-oncology (CO); endocarditis (END), myocarditis and pericarditis (MYO), pulmonary hypertension (PH), and valvular heart disease (VAD) published in English between 2016 and 2025 were identified in Google Scholar, the TRIP database, Epistemonikos, grey literature searches and guideline-issuing organization websites, and were analyzed for actionable recommendations on depression screening, treatment, and drug-disease interactions.

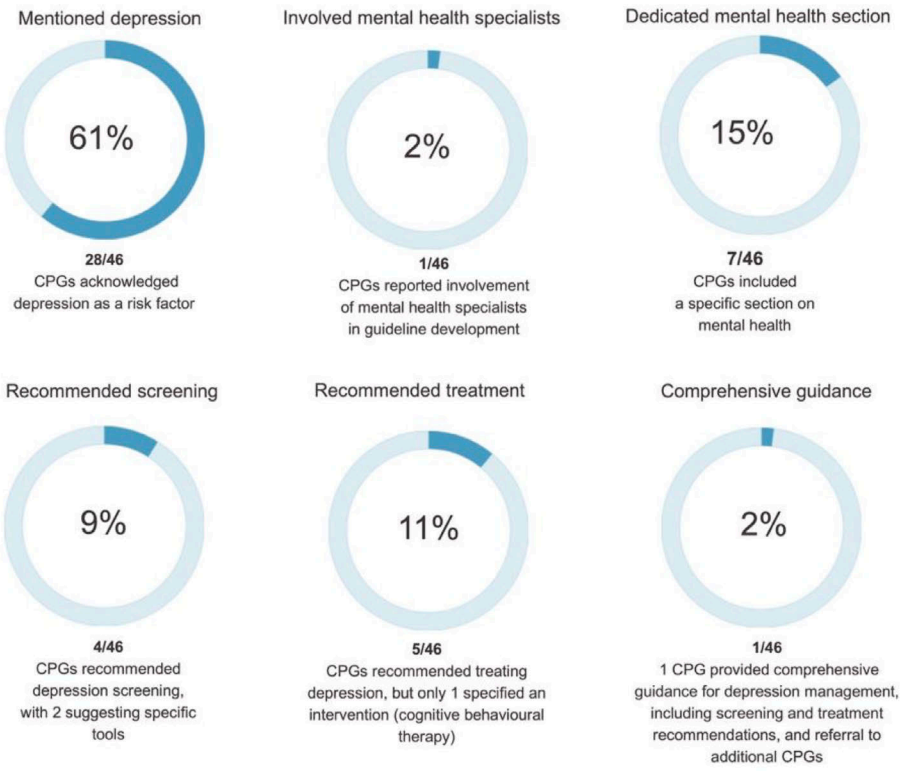
**Results:** Among 46 CPGs reviewed (18 ARR; 2 CGHD; 6 CM; 4 CO; 3 END; 3 MYO; 5 PH; and 5 VAD), one (2%) reported involving mental health specialists in guideline development, 28 (61%) mentioned depression as a risk factor, and 7 (15%) dedicated a section to mental health. Four (9%) CPGs recommended screening for depression, with two suggesting specific screening tools, five (11%) recommended treating depression, and only one specified an intervention (cognitive behavioural therapy). None provided recommendations for drug-disease interactions. One (2%) CPG provided comprehensive guidance on depression management, including referral to specialized CPGs for further guidance.

**Conclusion:** These findings confirm that although CVD CPGs widely acknowledge depression as a risk factor, guidance for its management remains scarce and inconsistent. Observed variations among CPGs for the same condition further underline this gap. Only one CPG for arrhythmias in coronary heart disease offered a comprehensive model, aligning with the ESC's recent call to establish a coherent framework for integrating depression management in CVD CPGs.

**COI:** No

**a.**




**b.**

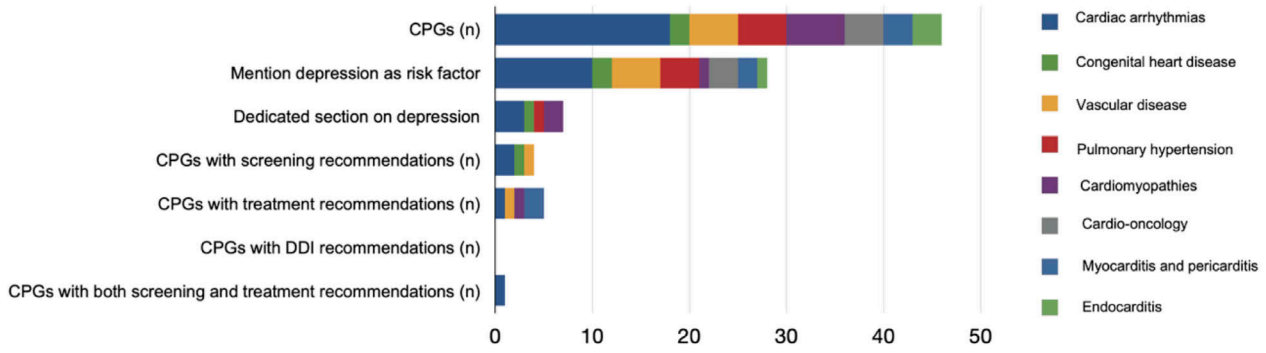



**Figure 1. a. Cardiovascular clinical practice guidelines addressing depression**. The data illustrate the level of acknowledgement of depression as a risk factor, reflected by the extent to which the condition is addressed in the different sections of 46 cardiovascular clinical practice guidelines (CPGs) published between 2016 and 2025 on cardiac arrhythmias, congenital heart disease, valvular disease, pulmonary hypertension, cardiomyopathies, cardio-oncology, myocarditis/pericarditis, and endocarditis. Results are expressed as percentage of total number of guidelines.
**b. Cardiovascular clinical practice guideline recommendations on depression management, by category and condition**. This chart illustrates the number of CPGs providing recommendations on depression management, categorized by type of recommendation (screening, treatment, and/or drug-disease interactions) and cardiovascular condition (cardiac arrhythmias, congenital heart disease, valvular disease, pulmonary hypertension, cardiomyopathies, cardio-oncology, myocarditis/pericarditis, and endocarditis). The analysis includes 46 CPGs published between 2016 and 2025. The results demonstrate a critical implementation gap, with the majority of guidelines recognising depression as a risk factor but significantly few providing actionable management guidance, including for screening.

## P103

### Prediction of Cardiovascular Events and Morbidity Incidence in Cardiology Out-Patients using Carotid Ultrasound

Michel Romanens[1], Ansgar Adams[2], Michael Havranek[3], Hermann Lanter[4], Isabella Sudano[5 5]

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**Introduction:** Ultrasound detection of carotid plaque is widely available and may help to manage morbidity and cardiovascular risk. Total amount of carotid plaque, is easily quantified by total plaque area (cTPA) and plaque progression may be associated with all cause and cardiovascular disease.

**Material & Methods:** A total of 1,224 patients (mean age 57 years, 38% female) underwent repeated carotid ultrasound with a median follow-up period of 6.5 years. Disease occurrence was recorded at follow-up visits or by hospital records / phone calls. SCORE2/-OP was used to stratify cardiovascular risk.

**Results:** There were 611 cTPA progressors (median and IQR at baseline: 45 [20–86] $mm^2$; at last visit: 81 [43–140]) $mm^2$ and 613 cTPA regressors (median and IQR at baseline: 64 [34–103] $mm^2$; at last visit: 40 [20–75] $mm^2$). A total of 52 cardiovascular events (ASCVD) occurred in progressors regreessors, respectively: myocardial infarction 7/1, stroke/TIA 7/4, coronary revascularisation 21/5, coronary or peripheral artery disease in 5/1 with total events of 41/11 or 6.7% vs 1.8%. Disease burden increased from 822 to 1,201 and any increase was recorded in 347 (28%) patients. SCORE2/-OP was neither a predictor of cardiovascular events nor all-cause disease progression. The hazard ratio of any cTPA progression was 3.54 (95%CI: 1.80 - 7.00, p <0.01) for cardiovascular events and the odds-ratio for any all-cause disease progression was 1.12 per quartile difference of cTPA (p <0.05).

**Conclusion:** Carotid plaque progression measured by cTPA is a marker of ASCVD events and all-cause disease progression, independently of SCORE2/-OP.

**COI:** No

**Table 1: Number of disease at Baseline and at the last visit in 1224 patients.**

| Disease Category | First Visit | % | Last Visit | % | Difference | % |
|---|---|---|---|---|---|---|
| Alcohol abuse | 5 | 0.6 | 9 | 0.7 | 4 | 1.1 |
| Cardiovascular Diseases | 199 | 24.2 | 233 | 19.4 | 34 | 9.0 |
| Chronic lung diseases | 79 | 9.6 | 136 | 11.3 | 57 | 15.0 |
| Any Cancer | 28 | 3.4 | 51 | 4.2 | 23 | 6.1 |
| Cerebrovascular disease | 0 | 0.0 | 9 | 0.7 | 9 | 2.4 |
| Rheumatological diseases | 36 | 4.4 | 47 | 3.9 | 11 | 2.9 |
| Adiposity | 255 | 31.0 | 290 | 24.1 | 35 | 9.2 |
| Depression / Anxiety | 129 | 15.7 | 151 | 12.6 | 22 | 5.8 |
| Nicotin abuse | 68 | 8.3 | 131 | 10.9 | 63 | 16.6 |
| Other diseases | 23 | 2.8 | 144 | 12.0 | 121 | 31.9 |
| ALL | 822 | 100.0 | 1201 | 100.0 | 379 | 100.0 |

## P104

### Retinal microvascular dysfunction in patients with newly diagnosed primary aldosteronism

Konstantinos Bitos[1], Philip Sommer[1], Flavia Piciacchia[1], Natallia Laptseva[1], Valentina Rossi[1], Matthias Nägele[1 2], Felix Beuschlein[3], Frank Ruschitzka[1 4 5], Andreas Flammer[1 4 5], Isabella Sudano[1 4 5]

*[1]Heart Failure and Heart Transplantation Unit, Department of Cardiology, University Heart Center Zurich, Zurich, Switzerland, [2]Cardiology Division, Cantonal Hospital Glarus, Glarus, Switzerland, [3]Department of Endocrinology, Diabetology and Clinical Nutrition, University Hospital Zurich (USZ), Zurich, Switzerland, [4]Center for Translational and Experimental Cardiology, University Heart Center Zurich, Schlieren, Switzerland, [5]University of Zurich, Zurich, Switzerland*

**Introduction:** Primary aldosteronism (PA) is the most prevalent cause of secondary hypertension and a promotor of atherosclerosis and thus cardiovascular events. High aldosterone may damage the vasculature, even in the absence of arterial hypertension, by negatively impacting on the endothelium and on vascular inflammation. In this study, we examined the influence of high aldosterone in PA on micro- and macrovascular function compared to essential hypertension (EH) and healthy controls (HC).

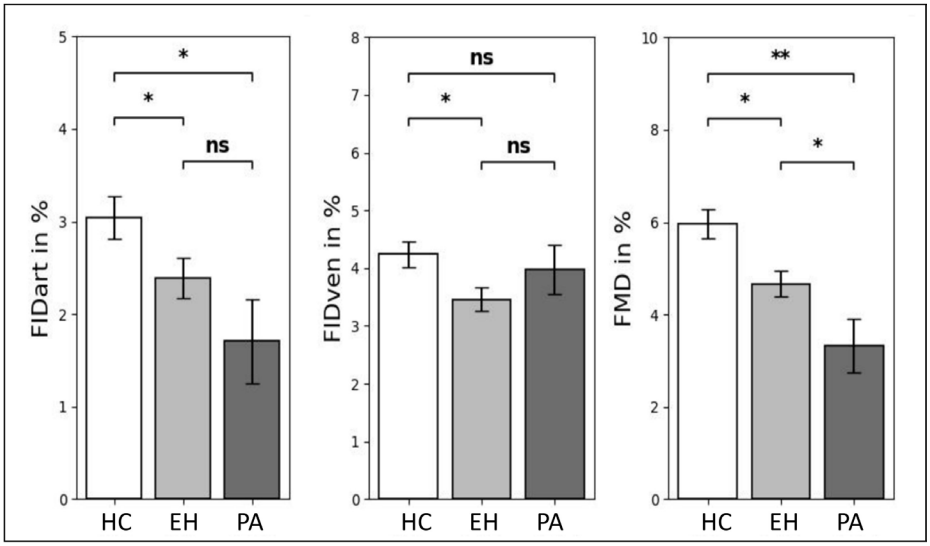
**Material & Methods:** In this prospective, single center, cohort-study, the primary endpoint was flicker-light induced arterial dilatation (FIDart), a surrogate of microvascular function, as assessed by retinal vessel analysis. Secondary endpoints further encompassed static retinal parameters and flow mediated dilatation of the brachial artery.

**Results:** We included 32 patients with PA (mean age 50±10y, 56% female), 143 patients with EH (mean age 62±3y, 37% female), and 122 HC (mean age 52±17y, 43% female). Patients with PA had a significantly reduced FIDart compared to HC (mean FIDart in PA 2.2±1.8% vs. HC 3.1±1.8%; p = 0.02). However, no significant difference was found between PA patients and EH patients (mean FIDart PA 2.2±1.8% vs. EH 2.3±2.3%, p = 0.9). To correct for possible confounding factors such as gender, age and systolic/diastolic blood pressure, an analysis of covariance (ANCOVA) was calculated (*Figure 1*). The adjusted means showed a reduced FIDart between PA patients and HC (PA 1.7±0.5% vs. HC 3.0±0.2%, p = 0.009), as well as between EH and HC (EH 2.4±0.2% vs. HC 3.0±0.2%, p = 0.03). PA patients showed a trend toward more reduced FIDart compared to EH patients; however this difference did not reach statistical significance in our cohort (PA 1.7±0.5% vs. EH 2.4±0.2%, p = 0.17).

**Conclusion:** Retinal microvascular function is significantly impaired in PA and EH patients. PA patients tended to exhibit more pronounced retinal microvascular dysfunction than EH patients, however without reaching statistical significance in our study.

**COI:** No




## P105

### Effects of Music Exposure on Perceived Exertion and Affective Responses During Cardiac Rehabilitation

Kinga Igloi[1], Layan Fessler[2], Ulrike Ahrendts[1], Eliana Hanna-Deschamps[1], Christophe Luthy[1], Elena Tessitore[3]

*[1]Division of Internal Medicine and Rehabilitation, Department of Rehabilitation and Geriatrics, University Hospitals of Geneva, Geneva, Switzerland, [2]Sciences Cognitives et Sciences Affectives, Laboratoire SCALab – UMR 9193 – Université de Lille., Lille, France, [3]Division of Cardiology, Internal Medicine Departement, University Hospitals of Geneva, Geneva, Switzerland*

**Introduction:** Affective responses to exercise are key determinants of physical activity adherence, particularly in patients undergoing cardiac rehabilitation. Music has been shown to enhance affective valence and reduce perceived exertion during exercise in healthy populations; however, evidence in cardiac rehabilitation patients remains limited. This study investigated whether the timing of music exposure during moderate-intensity continuous training (MICT) influences exercise-related affective responses in patients enrolled in cardiac rehabilitation.

**Material & Methods:** Eighteen patients (age 50–75 years) participating in a 3-week inpatient cardiac rehabilitation programme completed four supervised cycling MICT sessions under the following conditions: music during the first half of exercise, music during the second half, music throughout the session, and a no-music control condition. Sessions were performed in a pseudo-randomized order and consisted of a standardized warm-up, 20 minutes of moderate-intensity cycling (50% of maximal workload), and a cool-down. Affective valence, affective arousal, and perceived exertion were assessed repeatedly during exercise using validated scales. Forecasted pleasure and remembered pleasure were assessed pre- and post-exercise, respectively. Heart rate and heart rate variability were continuously monitored to ensure equivalence of physiological load across conditions. Data were analyzed using mixed-effects models

**Results:** Music exposure was associated with significantly lower perceived exertion during music throughout the session compared with the no-music condition, despite identical exercise intensity and cardiac workload across conditions. No significant differences in affective valence or arousal were observed between the two conditions. Forecasted pleasure was strongly correlated with remembered pleasure, supporting the internal consistency of these affective measures.

**Conclusion:** To our knowledge, this study is the first to demonstrate that music reduces perceived exertion during exercise in patients undergoing cardiac rehabilitation. These findings suggest that incorporating music into cardiac rehabilitation exercise sessions may reduce subjective effort and fatigue, potentially enhancing adherence to training programs and supporting long-term engagement in physical activity.

**COI:** No

## P106

### Semaglutide therapy does not impede improvements in aerobic endurance or body composition during early cardiac rehabilitation

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**Introduction:** Glucagon-like-peptide-1-receptor-agonists (GLP-1-RAs) are widely used for glycemic control and weight management in patients with cardiovascular disease. While effective for reducing body fat, they are associated with loss of muscle mass.

**Material & Methods:** We conducted a retrospective, observational study of cardiac patients completing a 3-week early CR program. Median time from cardiac event to CR initiation was 8 days [7–10]. Patients receiving GLP-1-RAs (n = 32; mean age: 65 yr; BMI: 33 kg/m²) were propensity-matched for age, sex, body composition, and comorbidities with patients not receiving GLP-1-RAs (n = 32; mean age: 64.5yr; BMI: 31.8kg/m²). Aerobic endurance was assessed by the six-minute walk test (6MWT). Body composition – including body fat mass (BFM), skeletal muscle mass (SMM), and myosteatosis (BFM/SMM ratio) – was measured using bioelectrical impedance analysis.

**Results:** Both groups improved significantly in aerobic endurance (GLP-1: +114m [90–176], p <0.001; noGLP-1: +150 m [108–1175], p <0.001), with no between-group difference (p = 0.857).

 

No significant differences were found between groups in pre-to-post CR changes for weight (GLP-1: -2.6kg [-6.6– -1.3]; noGLP-1: -3.0kg [-4.4– -1.5]; p = 0.971), BFM (GLP-1: -0.9kg [-2.5–0.5]; noGLP-1: -0.45kg [-1.2–0.5]; p = 0.214), SMM (GLP-1: -1.0kg [-2.5–0]; noGLP-1: -1.2kg [-2.4– -0.7]; p = 0457), or BFM/SMM ratio (GLP-1: -0.01; noGLP-1: +0.03; p = 0.248). A negative correlation was observed between myosteatosis and 6MWT at baseline (GLP-1: rho = −0.49; noGLP-1: rho = −0.28) and post-CR (GLP-1: rho = −0.59; noGLP-1: rho = −0.34), without significant differences between groups (baseline: z = −0.93, p = 0.35; post-CR: z = −1.21, p = 0.23).

**Conclusion:** A 3-week, early-initiation CR program improves aerobic endurance and body composition in cardiac patients, with no interference from concurrent GLP-1-RA therapy. Future studies are needed to assess long-term outcomes and explore synergistic effects of combined CR and GLP-1RA therapy.

**COI:** No

## P107

## Muscle Health Assessment in Cardiovascular Patients: Normative Data and Clinical Relevance

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**Introduction:** Cardiopulmonary exercise testing (CPET) is the clinical standard to evaluate cardiovascular patients' aerobic capacity by assessing the respiratory, cardiovascular, and lower limb muscle endurance. While CPET gives effective indicators for cardiovascular function, it provides limited insight into muscle health. Sarcopenia, the loss of muscle mass, strength, and function, is a major comorbidity. It negatively affects mobility, independence, and quality of life. Therefore, muscle health is a critical factor in this population. Although strength training is a key rehabilitation component alongside endurance training, muscle strength assessment often relies solely on handgrip strength (HGS), neglecting functionally relevant lower limb muscles. In this study, we discuss the implementation of lower limb muscle assessments in clinical practice.

**Material & Methods:** Ninety-four healthy adults (18–86 years), 20 cardiovascular outpatients (mean age 67 ± 8 years), and 17 inpatients (mean age 67 ± 12 years; including cardiovascular, oncological, and pulmonary diagnoses) underwent bioelectrical impedance analysis, HGS, isometric knee extension (IKE), and counter-movement jump (CMJ) tests. Age- and sex-specific normative trends were established via linear regression from the healthy cohort. Patients' test results were compared against these references to calculate percentage deviations, which were subsequently visualized.

**Results:** Maximal power in the CMJ exhibited the most pronounced age-related decline in both sexes (Figure1). Inpatients demonstrated substantial deficits across all muscle tests, whereas outpatients' results closely aligned with normative values. HGS showed a minimal deficit in inpatients (Figure2).

**Conclusion:** Distinct differences in muscle performance exist between patient groups relative to healthy normative values. Inpatients show significant deficits, while outpatients approximate normative muscle function. Lower limb muscle assessments appear more sensitive indicators of muscle health than HGS, traditionally used for sarcopenia screening. These tests show good reproducibility (unpublished data) and require a similar amount of time as HGS. Therefore, we recommend to consider lower limb muscle assessments as an additional evaluation at rehabilitation entry.

**COI:** No

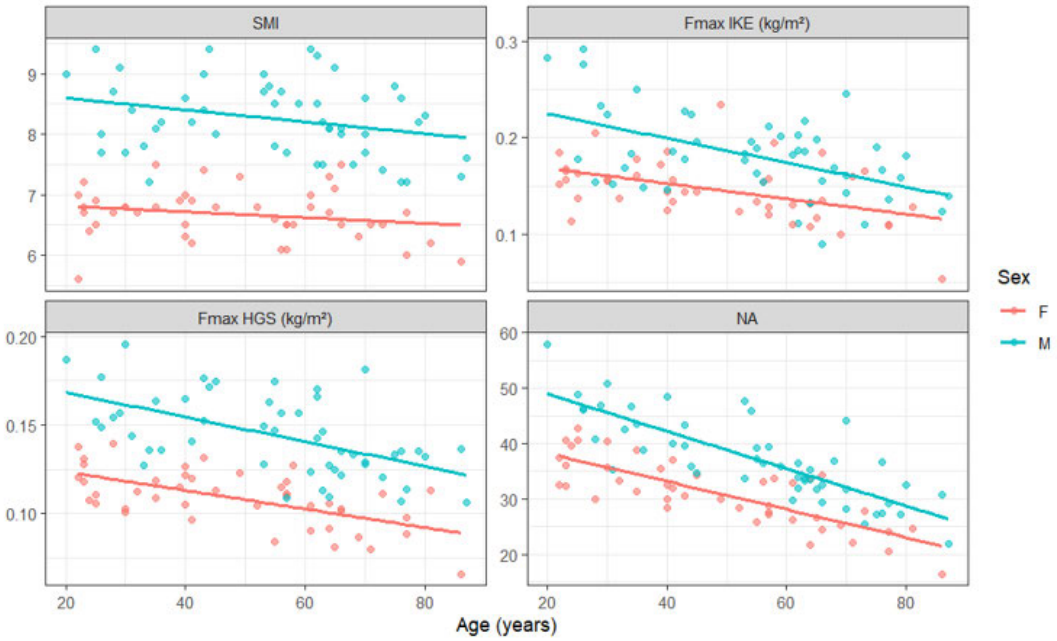


***Figure 1.*** *Relationship between age and muscle health parameters stratified by sex. Scatter plots with regression lines showing age-related changes in Skeletal Muscle Index (SMI), maximal isometric knee extension strength normalized to body surface (Fmax IKE, kg/m²), maximal handgrip strength normalized to body surface (Fmax HGS, kg/m²), and maximal power output during countermovement jump relative to body weight (Pmax CMJ, W/kg).*

 

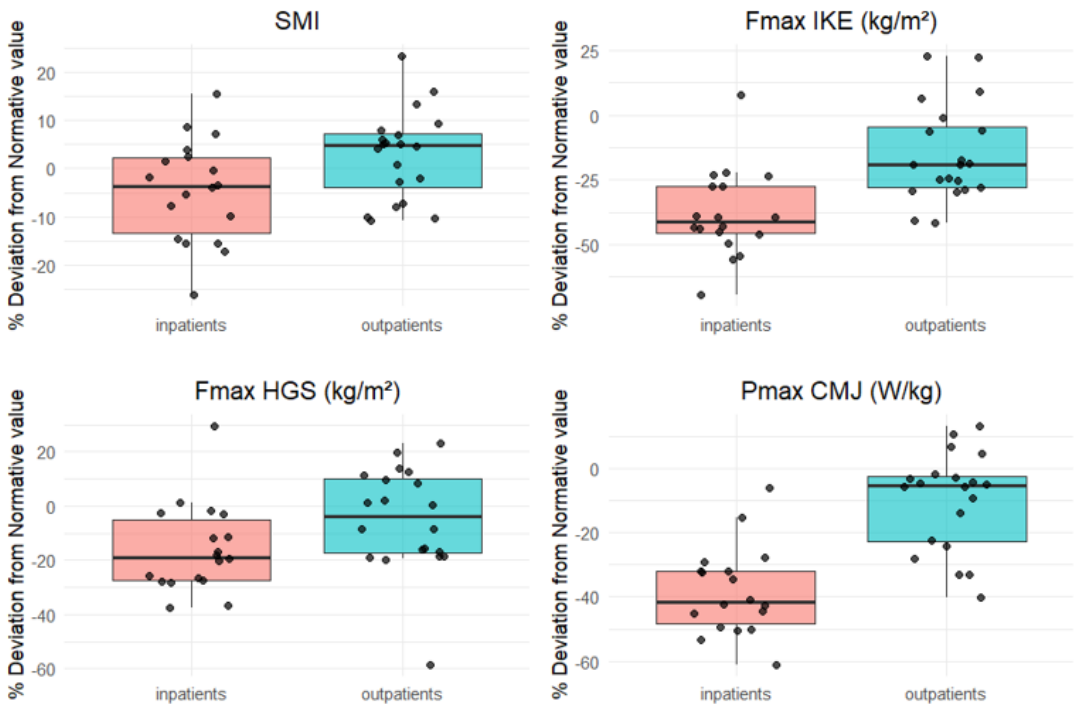


***Figure 2.*** *Boxplots illustrate the distribution of percentage deviations of in- and outpatients from age- and sex-specific reference values for Skeletal Muscle Index (SMI), maximal isometric knee extension strength normalized to body surface (Fmax IKE, kg/m²), maximal handgrip strength normalized to body surface (Fmax HGS, kg/m²), and maximal power output during counter-movement jump relative to body weight (Pmax CMJ, W/kg)*

## P108

### Impact of diuretic treatment on cardiac rehabilitation outcomes – insights from the RECOVER-R registry

Juliana Senftinger[1 2], Matthias Klimek[3], Jan Riess[1 2], Elisa Schmidt[2 4], Gloria Petrasch[2], Hadassa Brito Da Silva[2], Sarah Sichler[2], Cornelia Haberfellner[2], Kathrin Bieri[2], Silvia Herren[2], Pietro Sartori[3], Andreas Ziegler[1 3 5], Jan Vontobel[2], David Niederseer[2 6 7]

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**Introduction:** Despite their widespread use, there is no clear evidence that diuretics improve major clinical outcomes. Moreover, few studies have examined their effects on quality of life and exercise capacity, mainly in patients with heart failure. This analysis aimed to compare the effects of loop versus thiazide diuretics on functional capacity and quality of life during exercise-based cardiac rehabilitation (EBCR).

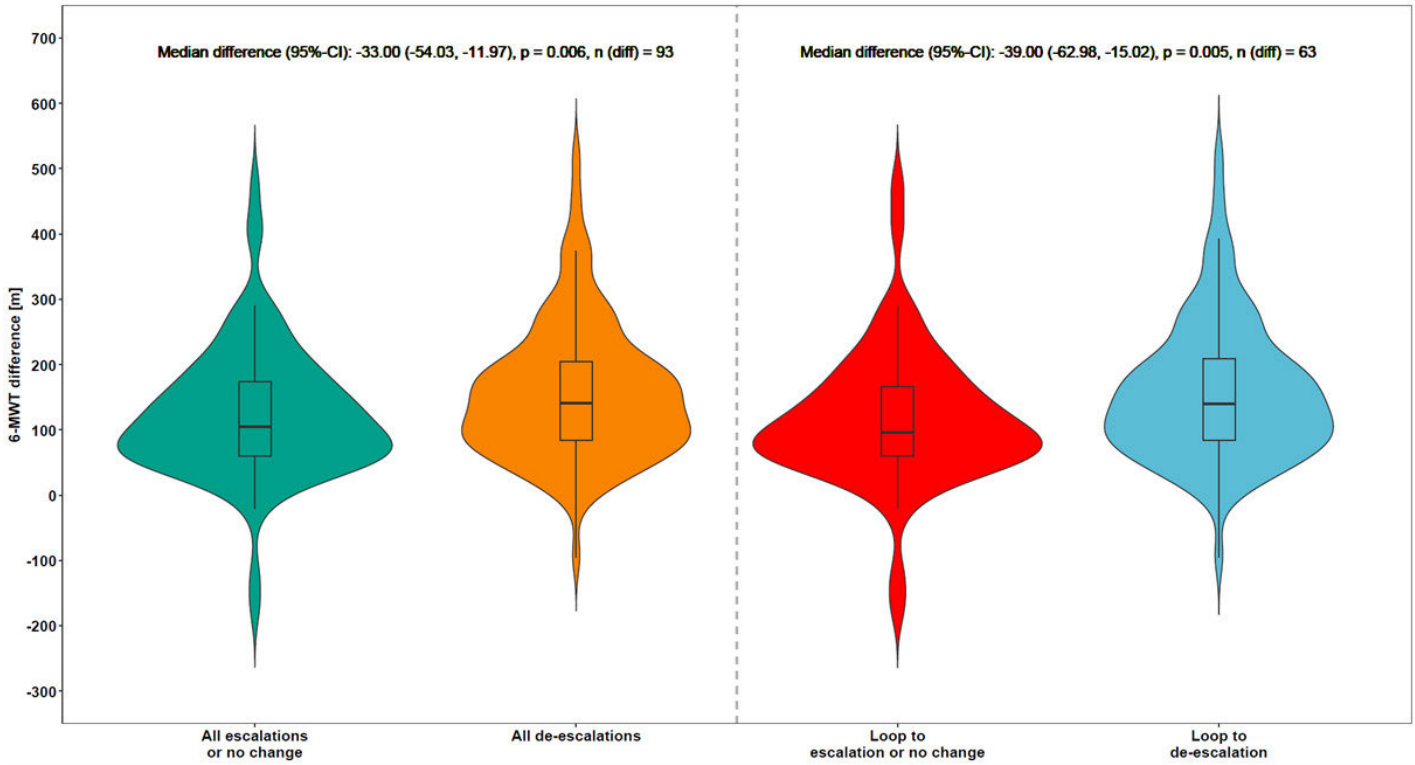
**Material & Methods:** We retrospectively analyzed patients attending inpatient EBCR between 2022 and 2024 at a specialized rehabilitation center in Switzerland. Patients were categorized according to loop or thiazide diuretic use at admission; therapy changes were recorded as escalation or de-escalation. Outcomes were assessed using the 6-Minute Walk Test (6-MWT) and the MacNew Heart (MNH) questionnaire at admission and discharge.

**Results:** A total of 865 patients (22% female; age 64 ± 11 years) were included. At admission, 32% received loop diuretics, 5% thiazides, and 2% both. Therapy modification occurred in 81% of loop diuretic users, 35% of thiazide users, and 92% of combination users. Baseline renal function was reduced and lowest in the combination group (eGFR [SD], mL/min: overall 74 [21]; loop 67 [24]; thiazide 72 [17]; combination 55 [23]). No significant differences were observed between loop and thiazide diuretics regarding changes in 6-MWT performance, MNH scores, or body weight. Patients undergoing therapy de-escalation showed a significant median improvement of 33 m in the 6-MWT (95% CI −54 to −12; p <0.01). Changes in body weight were not significant. Among loop diuretic users only, de-escalation was associated with a significant median improvement of 0.27 points in the MNH emotional function domain (95% CI −0.51 to −0.03; p = 0.05).

**Conclusion:** In patients undergoing cardiac rehabilitation, de-escalation of diuretic therapy – particularly loop diuretics – was associated with improved functional capacity and emotional well-being, while no significant differences were observed between diuretic types.

**COI:** No




## P109

### Association between therapy volume and functional outcomes in inpatient cardiopulmonary rehabilitation: a retrospective cohort study

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**Introduction:** Cardiovascular and respiratory diseases are major contributors to disability and healthcare costs in Switzerland. Inpatient cardiac (CR) and pulmonary rehabilitation (PR) are standard of care, yet evidence on the optimal therapy volume to improve functional outcomes remains limited. We therefore aimed to investigate the association between therapy volume and functional outcomes in CR and PR.

**Material & Methods:** We conducted a retrospective cohort study at a Swiss rehabilitation clinic. All patients admitted for CR or PR were eligible; those with complete six-minute walking test (6MWT) data and informed consent were included. The dependent variable was 6MWT at discharge; the independent variable was the number of sessions per week, based on an average therapy session of 30 minutes. Multiple linear regression models, adjusted for age, sex, baseline 6MWT, functional independence (FIM), and rehabilitation modality (CR, PR) were fitted.

**Results:** Of the 1786 eligible patients, 1331 (565 CR; 766 PR) were included. The mean number of weekly sessions was 19.7 in CR and 19.3 in PR. The mean discharge 6MWT was 434 m for CR and 362 m for PR. Each additional session per week was associated with a 7-m increase in discharge 6MWT (95% CI [4.7, 9.4]). Higher baseline 6MWT, higher baseline FIM, and male sex were positively associated with discharge 6MWT, while age showed a negative association. CR was associated with a higher 6MWT than PR (39 m, 95% CI [31.7, 46.6]). The interaction between rehabilitation modality and the number of sessions was not statistically significant (2.4 m, 95% CI [−0.7, 5.4]).

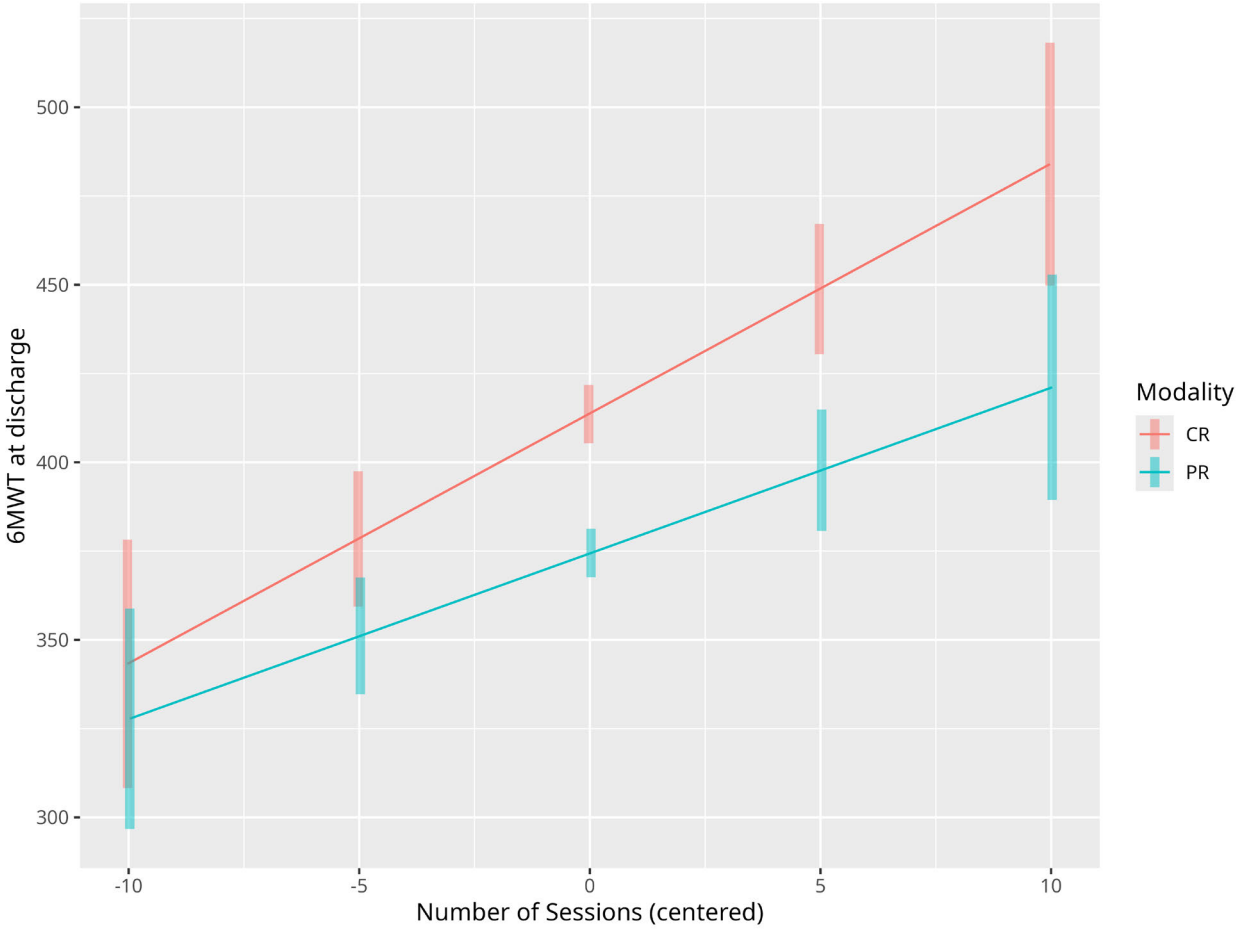
**Conclusion:** Therapy volume is positively associated with functional walking capacity at discharge. An additional five sessions per week may lead to clinically relevant improvements across both modalities, with potentially larger benefits in CR. Randomized controlled trials are needed to confirm causality in the relationship between therapy volume and functional outcomes.

**COI:** No

Baseline characteristics

| modality | n | age | 6MWT start | 6MWT end | Δ6MWT | FIM |
|---|---|---|---|---|---|---|
| CR | 565 | 67.4 (10.6) | 333.5 (136.3) | 433.9 (140.3) | 100.4 (76.6) | 97.1 (9.5) |
| PR | 766 | 68.6 (10.8) | 296.4 (136.8) | 362.2 (133.4) | 65.8 (70.7) | 97.4 (11.5) |

**Legend:** Values are shown as mean (SD).
CR: Cardiac rehabiliation; PR: pulmonary rehabilitation; 6MWT = Six Minute Walking Test; FIM = Functional Independence Measure




## P110

### Cost-effectiveness of an in-patient, exercise-based cardiac rehabilitation program

Hadassa Brito Da Silva[1 2 3], Gloria Petrasch[1], Jan Riess[1 4], Elisa Schmidt[1], Kathrin Bieri[1], Cornelia Haberfellner[1], Silvia Herren[1], Sarah Sichler[1], Eleonora di Carluccio[5], Pietro Sartori[5], Jan Vontobel[1], David Niederseer[1 6 7]

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**Introduction:** Exercise- based cardiac rehabilitation (EBCR) is an effective intervention to improve functional capacity, independence and quality of life in CVD patients after hospitalization and operations. However, there is a gap of knowledge in the assessment of the cost-efficiency of EBCR.

Thus,the aim of this study was to determine the cost-effectiveness of EBCR in in-patient cardiac rehabilitation patients.

**Material & Methods:** Patients referred for inpatient EBCR between 2022 and 2024 were analyzed in this retrospective single-center cohort study. Quality of Life was assessed through the MacNew Heart (MNH) questionnaire. The MacNew Heart Questionnaire scores were converted into EQ-5D-5L utilities by estimating mapping algorithms in which EQ-5D-5L utility values served as the dependent variable and MacNew global or domain scores served as predictors. Multiple regression approaches were compared, and ordinary least squares (OLS), the robust MM-estimator and the generalized linear model (GLM) were selected to generate predicted EQ-5D-5L values.

Quality- adjusted life years (QALYs) were calculated by taking the mean of the admission and discharge utility scores, multiplying it by the patient's length of stay in years.

**Results:** The cohort of 865 patients had a median age of 65 (quartiles 57.0 to 72.0) years, with 22.2% female participants and a median stay of 20 (quartiles 20.0 to 27.0) days. The median MNH global score increased by 0.8/6 points (quartiles 0.3 to 1.2), which corresponds to an EQ-5D-5L- change of 0.11 and a QALY of 0.05 (quartiles 0.04 to 0.06) years. Based on a median rehabilitation cost of 531.76 (quartiles 531.76 to 531.76) CHF per day, the cost per QALY amounts to 11258.30 (quartiles 9359.48 to 13131.85) CHF.

**Conclusion:** Considering a mean value of 11258.30 CHF per QALY, EBCR appears highly cost-effective, underscoring its value in secondary cardiovascular prevention.

**COI:** No

 

P111

## Prolonged Intensive Care Unit Stay After Cardiac Surgery: Long-Term Survival and Quality of Life in Survivors

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**Introduction:** Patients requiring a prolonged intensive care unit (ICU) stay after conventional cardiac surgery represent a distinct population characterized by high morbidity and mortality and substantial healthcare resource utilization. Despite advances in surgical techniques and critical care management, long-term outcomes in this population remain poorly characterized, particularly with regard to late survival and quality of life. The concept of chronic critical illness highlights the importance of physical, functional, and cognitive impairments acquired during prolonged ICU stays.

**Material & Methods:** We conducted a single-center observational study including adult patients admitted to the ICU after conventional cardiac surgery who required an ICU stay longer than 14 days between 2015 and 2020. Clinical, demographic, and management data were retrospectively extracted from electronic medical records. Vital status was assessed through December 2025. Among surviving patients, long-term quality of life was prospectively evaluated using the validated EuroQol EQ-5D questionnaire, administered via telephone interview.

**Results:** A total of 106 patients with prolonged ICU stays were identified. Mean age was 65.4 ± 12.4 years, and 79% were male. Survival was 66% at 1 year and 51% at 5 years after surgery. At the time of data cutoff (December 2025), 28 patients were alive, corresponding to an overall survival rate of 26.4%. Survivors were slightly younger than non-survivors (63.4 vs 66.1 years). Among surviving patients, quality-of-life assessment revealed frequent persistent limitations across multiple EQ-5D dimensions, particularly mobility, self-care, and usual activities.

**Conclusion:** A prolonged ICU stay after cardiac surgery is associated with high long-term mortality. Although survival beyond the first postoperative year is not negligible, long-term survival remains limited, and functional recovery among survivors is often incomplete, with impaired quality of life. These findings highlight the need for improved prognostic stratification, systematic assessment of long-term functional outcomes, and early consideration of therapeutic strategies in this vulnerable population.

**COI:** No

# POSTER WALK: RHYTHM DISORDERS II

P113

## Clinical phenotype and outcome of gene-elusive ARVC patients

Andrea Agbariah[1], Thierry Donati[1], Monika Hebeisen[1 2], Alexandros Protonotarios[3], Paul A.S. Olsen[4], Ardan Saguner[1], Firat Duru[1], Konstantinos Savvatis[3], Perry Elliott[3], Kristina H. Haugaa[4], Felix C. Tanner[1]

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**Introduction:** Up to 50% of patients with arrhythmogenic right ventricular cardiomyopathy (ARVC) lack identifiable pathogenic mutations and are classified as gene-elusive. This subgroup is poorly characterized, and current risk stratification tools may be less effective.

**Material & Methods:** We analyzed 370 patients with definite ARVC from three European registries, classified as gene-elusive (n = 114) or gene-positive (n = 256). Echocardiographic parameters were evaluated for diagnostic performance using ROC analysis, and associations with ventricular arrhythmias (VA) and death were assessed with Cox regressions.

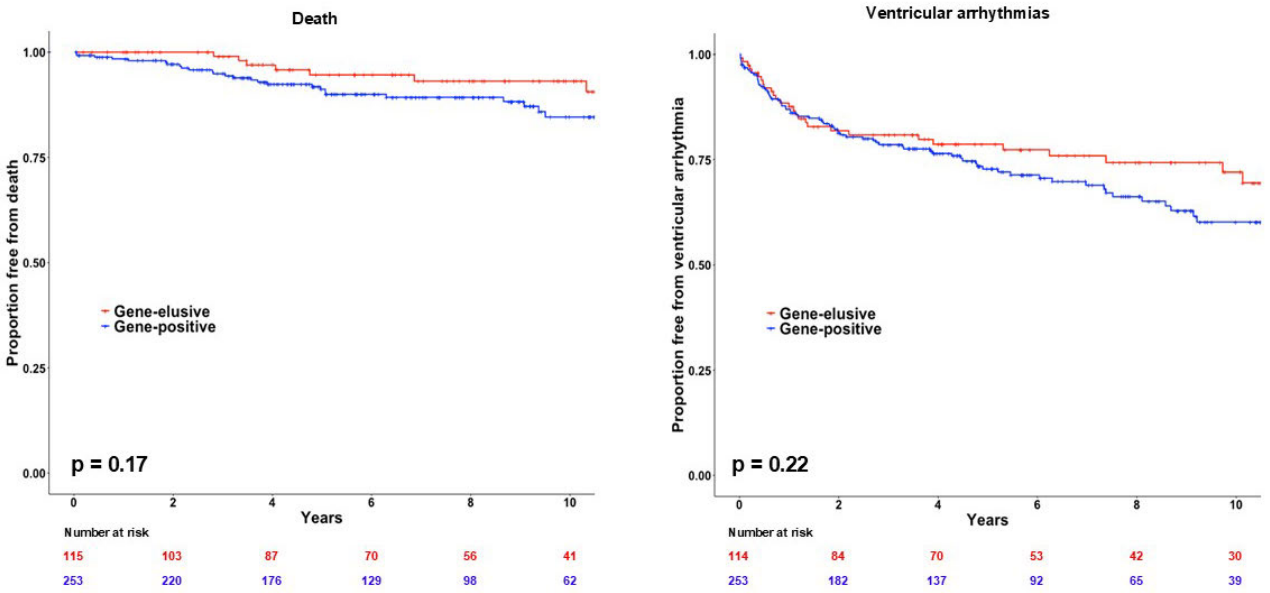
**Results:** Gene-elusive patients were older, more often male, and had a lower prevalence of late gadolinium enhancement than gene-positive patients. They exhibited more dilated atria, while biventricular size and function were similar. RV fractional area change, RV free wall strain, and right atrial reservoir strain were the most discriminative diagnostic markers in gene-elusive patients. Over a median follow-up of 6.7 years, VA incidence and all-cause mortality were comparable between the two groups (*Figure 1*). Predictors of outcomes largely overlapped between gene-elusive and gene-positive patients (*Table 1*).

**Conclusion:** Gene-elusive ARVC patients show a clinical and echocardiographic profile as well as long-term event risk comparable to gene-positive patients. Stratification of event risk is possible by a phenotype-based approach, including comprehensive echocardiographic assessment and shows a result similar to that in gene-positive patients.

**COI:** No

**Figure 1. Outcome of gene-elusive and gene-positive**




Kaplan–Meier curves of gene-elusive and gene-positive showing time to first event (panel A: death; panel B: ventricular arrhythmia).

**Table 1. Association with death or heart transplantation: bivariable Cox regression**

**Death**

| | Gene-elusive | | | |
|---|---|---|---|---|
| | HR | 95% CI | p | p for interaction (with gene-positive) |
| **Clinical** | | | | |
| Sex, female | 0.84 | 0.43 – 1.65 | 0.609 | 0.639 |
| Age, years (per unit increase) | 1.04 | 1.02 – 1.06 | 0.001 | 0.306 |
| **Dimensions (per 5 units increase)** | | | | |
| RVEDAi, cm²/m² | 2.68 | 1.96 – 3.67 | < 0.001 | 0.702 |
| LVEDVi, ml/m² | 1.01 | 0.92 – 1.11 | 0.820 | 0.234 |
| RAVi, ml/m² | 1.10 | 1.08 – 1.13 | < 0.001 | 0.097 |
| LAVi, ml/m² | 1.19 | 1.00 – 1.40 | 0.048 | 0.562 |
| **RV function (per 5 units increase)** | | | | |
| RVFAC, % | 0.50 | 0.41 – 0.61 | < 0.001 | 0.446 |
| TAPSE, mm | 0.25 | 0.14 - 0.46 | < 0.001 | 0.120 |
| RVFWS, % | 1.81 | 1.36 – 2.41 | < 0.001 | 0.059 |
| **LV function (per 5 units increase)** | | | | |
| LVEF, % | 0.65 | 0.57 – 0.75 | < 0.001 | 0.480 |
| LVGLS, % | 2.82 | 1.85 – 4.30 | < 0.001 | 0.283 |

For each covariate, an interaction with *gene status* was tested. When the interaction term was not statistically significant, results from the model without interaction are presented. When a statistically significant interaction was detected, results from the interaction model are reported.
CI, confidence interval; HR, hazard ratio; LAVi, left atrial volume indexed; LVEF, left ventricular ejection fraction; LVEDVi, left ventricular end-diastolic volume indexed; LVGLS, left ventricular global longitudinal strain; PSAX, parasternal short axis; RAVI, right atrial volume indexed; RVEDAi, right ventricular end-diastolic area indexed; RVFAC, right ventricular fractional area change; RVFWS, right ventricular free wall strain; RVOTi, right ventricular outflow tract indexed; TAPSE, tricuspid annular plane systolic excursion.

**Ventricular arrhythmia**

| | Gene-elusive | | | |
|---|---|---|---|---|
| | HR | 95% CI | p | p for interaction (with gene-positive) |
| **Clinical** | | | | |
| Sex, female | 0.40 | 0.21 – 0.75 | 0.004 | 0.850 |
| Age, years (per unit increase) | 1.24 | 0.64 – 2.41 | 0.214 | 0.450 |
| **Dimensions (per 5 units increase)** | | | | |
| RVEDAi, cm²/m² | 1.80 | 1.42 – 2.30 | < 0.001 | 0.464 |
| LVEDVi, ml/m² | 1.10 | 1.04 – 1.16 | < 0.001 | 0.734 |
| RAVi, ml/m² | 1.09 | 1.05 – 1.14 | < 0.001 | 0.095 |
| LAVi, ml/m² | 1.11 | 0.97 – 1.26 | 0.130 | 0.330 |
| **RV function (per 5 units increase)** | | | | |
| RVFAC, % | 0.77 | 0.66 – 0.89 | < 0.001 | 0.148 |
| TAPSE, mm | 0.55 | 0.37 – 0.81 | 0.002 | 0.597 |
| RVFWS, % | 1.39 | 1.10 – 1.76 | 0.006 | 0.369 |
| **LV function (per 5 units increase)** | | | | |
| LVEF, % | 0.88 | 0.76 – 1.01 | 0.059 | 0.505 |
| LVGLS, % | 1.86 | 1.27 – 2.74 | 0.001 | 0.576 |

For each covariate, an interaction with *gene status* was tested. When the interaction term was not statistically significant, results from the model without interaction are presented. When a statistically significant interaction was detected, results from the interaction model are reported.
CI, confidence interval; HR, hazard ratio; LAVi, left atrial volume indexed; LVEF, left ventricular ejection fraction; LVEDVi, left ventricular end-diastolic volume indexed; LVGLS, left ventricular global longitudinal strain; PSAX, parasternal short axis; RAVI, right atrial volume indexed; RVEDAi, right ventricular end-diastolic area indexed; RVFAC, right ventricular fractional area change; RVFWS, right ventricular free wall strain; RVOTi, right ventricular outflow tract indexed; TAPSE, tricuspid annular plane systolic excursion.

## P114

### The timing of the P-wave in V1-V6 precordial transition allows to identify the mechanism of right atrial tachycardia.

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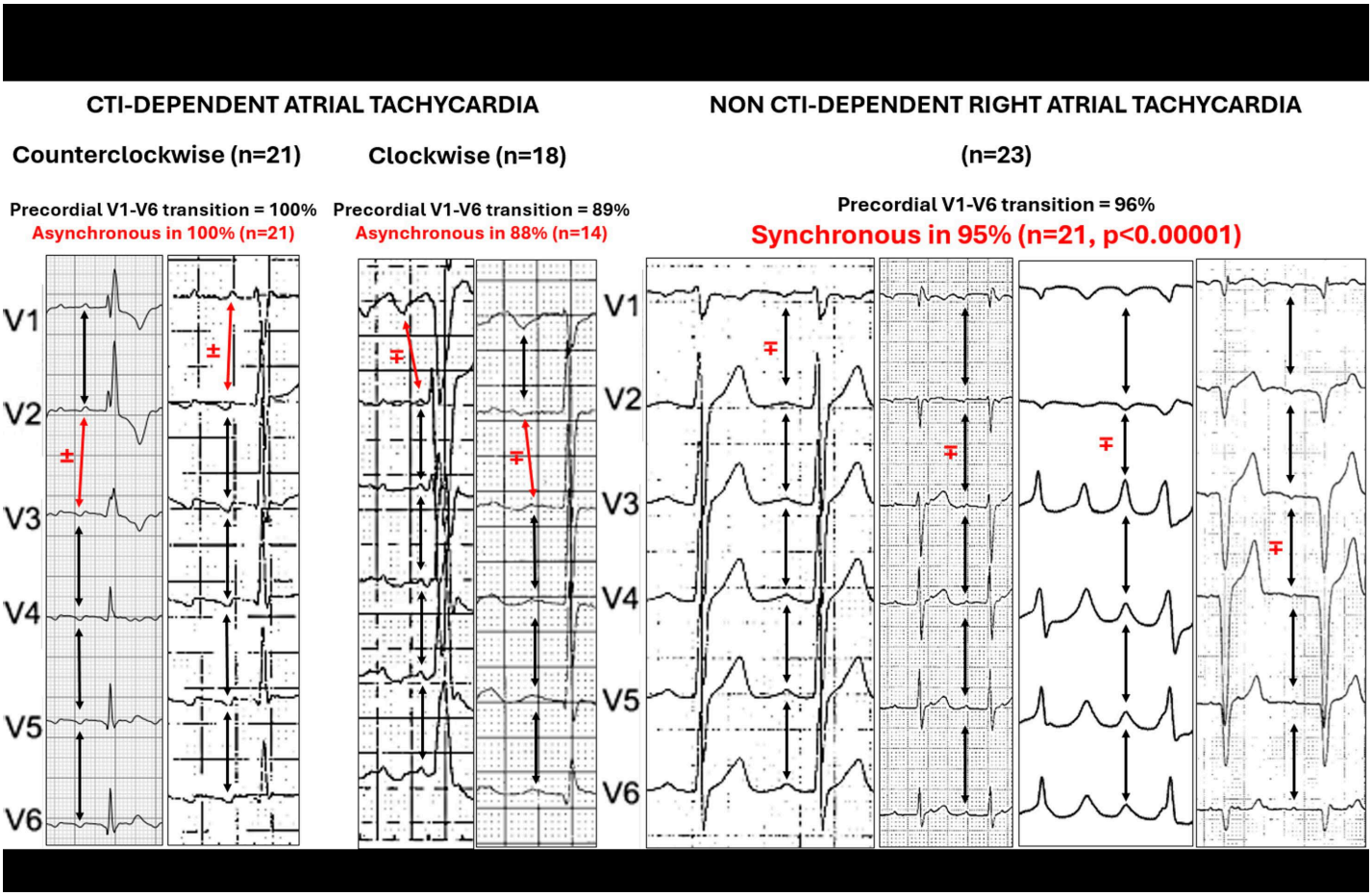
**Introduction:** Right atrial tachycardia (AT) is a commonly addressed condition in electrophysiology. Yet, correct 12-lead ECG-based discrimination of cavotricuspid isthmus-dependent AT (CTI-AT) from atypical right atrial AT (non-CTI right AT) can be challenging and impact procedural planning. Precordial transition has been described in CTI-AT but whether the timing of the P-wave provides additional insights into the mechanism of right AT remains unknown.

**Material & Methods:** 12-lead ECGs and EP studies of patients who underwent right AT ablation were reviewed. Consecutive patients who displayed unmasked P-waves in precordial leads and in whom the mechanism of AT was proved during EP study were included and were classified in three groups: 1) non-CTI right AT, 2) counterclockwise CTI-AT (ccwCTI-AT) and 3) clockwise CT-AT (cwCTI-AT). Precordial P-wave polarity transition was considered *synchronous* when peak or nadir of P-wave occurred simultaneously in V1-V6 or *asynchronous* when it occurred with a time gap of >20 ms.

**Results:** Among 62 patients (24% women, mean age 62.5), 23 had non-CTI right AT, 21 ccwCTI-AT and 18 cwCTI-AT. P-wave was negative in V1 in 96% (22/23) and 78% (14/18) of cases with non-CTI right AT and cwCTI-AT respectively. P-wave was positive in V1 in 100% (21/21) of ccwCTI-AT. Precordial V1-V6 P-wave transition was observed in 96% (22/23), 100% (21/21) and 89% (16/18) of patients with non-CTI right AT, ccwCTI-AT and cwCTI-AT, respectively. The timing of the P-wave precordial transition was *asynchronous* in 95% (35/37) of CTI-AT cases and *synchronous* in 95% (21/22) of non-CTI right AT; p <0.00001.

**Conclusion:** Among patients with right AT displaying precordial transition on 12-lead ECG, an *asynchronous* transition is highly specific of CTI-dependent AT while a *synchronous* V1-V6 precordial transition clearly points towards non-CTI-dependent right AT. This might improve 12-lead ECG based diagnosis of right AT mechanism and allow adequate ablation procedural planning.

**COI:** No



P115

## Subgroup-Specific Validation of ECG-based Neural Networks for Predicting Atrial Fibrillation in the Population

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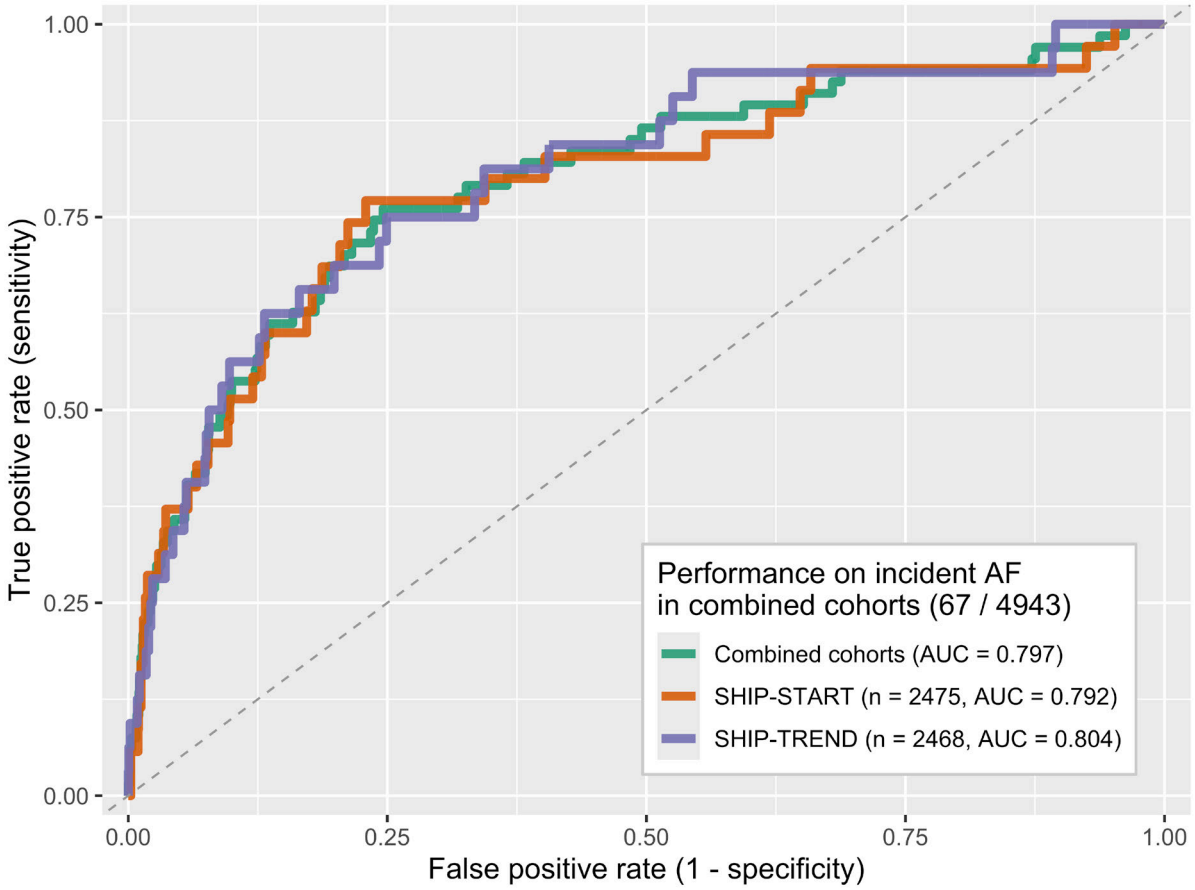
**Introduction:** Atrial fibrillation (AF) is the most common arrhythmia and increases the risk of stroke, heart failure, and other cardiovascular complications. Advances in machine learning (ML) and neural networks (NN) have improved AF prediction beyond traditional clinical risk factors. ECG-based NN models show promise for early AF risk stratification. The Study of Health in Pomerania (SHIP) cohort provides a population-based dataset to validate such models across clinically relevant subgroups.

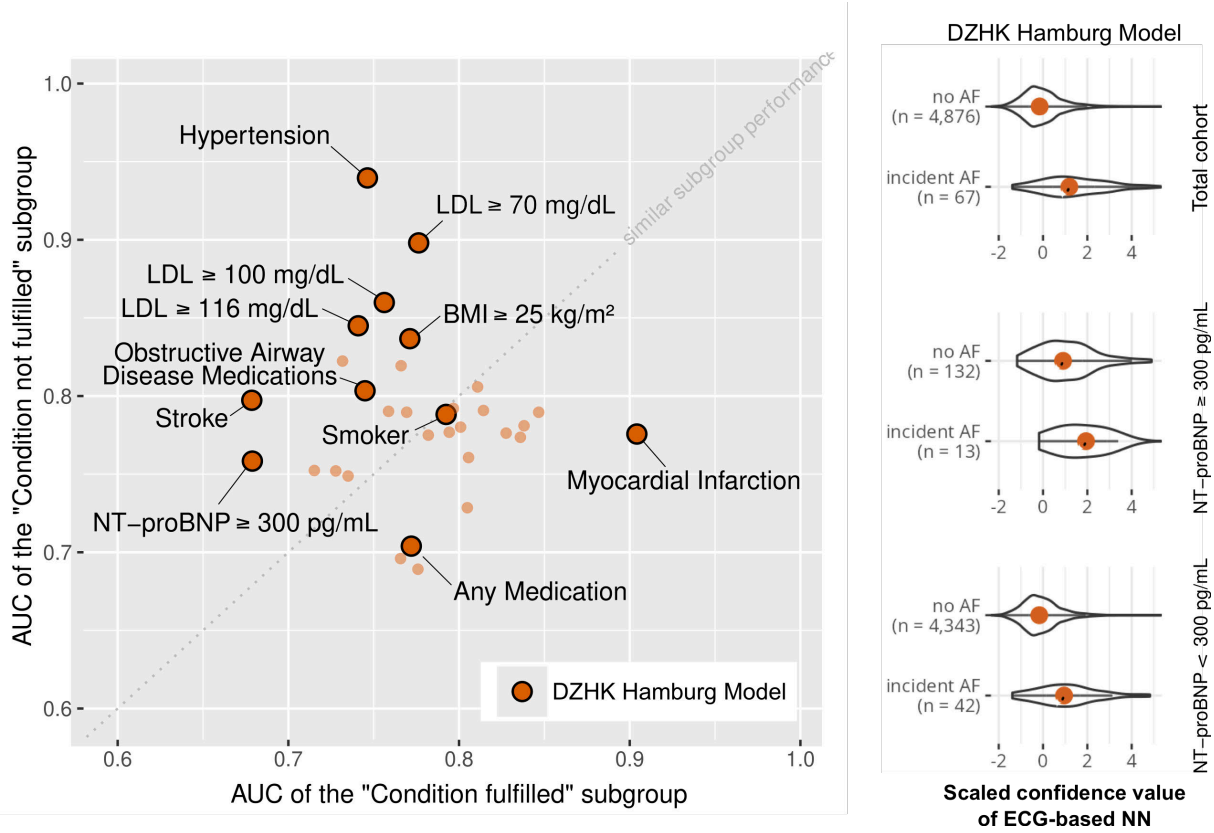
**Material & Methods:** A previously developed NN model using single-lead ECGs was applied to estimate 3-year AF risk. Model performance was evaluated in the SHIP-START and SHIP-TREND cohorts, excluding participants with baseline AF. Subgroup analyses were conducted based on age, BMI, lipid levels, NT-proBNP, cardiovascular comorbidities, and medication use. Predictive accuracy was assessed using the area under the ROC curve (AUC) for incident AF after 5–7 years of follow-up.

**Results:** Among 4,943 participants (incident AF = 67), the NN achieved an overall AUC of 0.797 across both cohorts (SHIP-START 0.792; SHIP-TREND 0.804) (Figure 1). Subgroup analyses revealed substantial variability. High accuracy was observed in individuals with prior myocardial infarction (AUC 0.90 vs. 0.78) and in those with low LDL levels (<70 mg/dL: 0.90 vs. 0.78; <100 mg/dL: 0.86 vs. 0.76). In contrast, NT-proBNP levels also affected accuracy, with improved performance at ≥125 pg/mL (0.78 vs. 0.69) and reduced accuracy at ≥300 pg/mL (0.68 vs. 0.76) (Figure 2).

**Conclusion:** NN-based AF prediction shows strong potential but demonstrates clinically relevant variability across subgroups. While performance is robust in certain high-risk populations, reduced accuracy in others highlights the need for subgroup-specific refinement. Integrating such models into clinical practice may support more personalized AF risk assessment and earlier detection.

**COI:** Benjamin Holderied acknowledges travel grants from the German Center for Cardiovascular Research (DZHK), Partner Site North, Germany. SHIP is part of the Community Medicine Research net of the University of Greifswald, Germany, which is funded by the Federal Ministry of Education and Research (grants no. 01ZZ9603, 01ZZ0103, and 01ZZ0403), the Ministry of Cultural Affairs as well as the Social Ministry of the Federal State of Mecklenburg-Western Pomerania, and the network 'Greifswald Approach to Individualized Medicine (GANI_MED)' funded by the Federal Ministry of Education and Research (grant 03IS2061A).






## P116

### Wearable PPG Sensor for Detecting Cardiac Arrhythmias in Ambulatory Settings

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**Introduction:** Cardiac arrhythmias are associated with cardiovascular morbidity and mortality but they often go underdiagnosed because of their asymptomatic or intermittent course. Photoplethysmography (PPG) holds great potential as a continuous, long-term monitoring tool for detecting cardiac rhythm anomalies. Here, we present a novel algorithm capable of detecting abnormal heart rhythms based on PPG and accelerometer signals collected in an ambulatory setting.

**Material & Methods:** ECG, PPG, and accelerometer signals were collected from 445 participants referred for ambulatory ECG recording allocated in two arms: 24-hour arm (45 participants) and 7-day arm (400 participants). Cardiac rhythms were automatically annotated using software based on ECG signals and a cardiologist reviewed the resulting annotations. The following heart rhythms were included: normal sinus rhythm, sinus bradycardia, (sinus and supraventricular) tachycardia, and abnormal (atrial fibrillation and ventricular bigeminy).

We developed an algorithm to classify cardiac rhythms in 5 classes based on PPG and accelerometer data: normal, bradycardia, tachycardia, , and undecidable (indicating poor signal quality, motion, or uncertainty). The algorithm extracts interbeat intervals and classifies them over 2-minute episodes. Performance metrics were computed by comparing the class of each episode to the ECG annotations.

**Results:** The performance metrics for both arms are displayed in Table 1. Our algorithm achieved an accuracy of 94.1% for the detection of abnormal rhythms in the 24-hour arm that was even improved in the 7-day arm with an accuracy of 96.4%. Notably, atrial fibrillation represented most abnormal episodes (92.4% in the 24-hour arm and 99.0% in the 7-day arm). The specificity and sensitivity were very good and similar in both arms.

**Conclusion:** We developed an algorithm that accurately detects arrhythmias from PPG and accelerometer signals in ambulatory settings, with excellent specificity. This approach shows strong potential for easy implementation as a large-scale screening tool in populations at increased risk for arrhythmias.

**COI:** No

*Table 1: Performance metrics for abnormal rhythm detection.*

| Arm | Class | Duration [h] | Accuracy [%] | Sensitivity [%] | Specificity [%] |
|---|---|---|---|---|---|
| 24-hour (n = 45) | Overall | 315.7 | 89.3 | | |
| | Abnormal rhythm | 50.6 | 94.1 | 90.0 | 94.9 |
| | Bradycardia | 0.1 | 94.1 | 100 | 94.1 |
| | Normal | 265.0 | 90.8 | 89.2 | 99.2 |
| | Tachycardia | 0.0 | 99.6 | N/A | 99.6 |
| 7-day (n = 400) | Overall | 19198.8 | 91.9 | | |
| | Abnormal rhythm | 654.7 | 96.4 | 80.9 | 97.0 |
| | Bradycardia | 63.5 | 95.4 | 100 | 95.4 |
| | Normal | 18478.3 | 91.9 | 92.2 | 84.6 |
| | Tachycardia | 2.3 | 99.8 | 5.9 | 99.9 |

P117

## Association of antiplatelet therapy and oral anticoagulation with cerebral microbleeds: a cross-sectional, multicentre analysis

Jonas Gruthölter[1 2], Benjamin Vögeli[1], Stefanie Aeschbacher[2], Michael Coslovsky[3], Nicolas Rodondi[4], Moa Haller[4], Giulio Conte[5], Giorgio Moschovitis[5], Elia Rigamonti[5], Jürg Beer[6], Tim Sinnecker[7], Leo Bonati[3], Felix Mahfoud[1], Stefan Osswald[2], David Conen[8], Michael Kühne[1 2], Philipp Krisai[1 2]

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**Introduction:** Cerebral microbleeds (CMBs) reflect cerebral small-vessel disease and may be associated with antithrombotic therapy. We examined whether observed associations represent a potential treatment effect or reflect underlying vascular risk.

**Material & Methods:** In a cross-sectional analysis of 2,655 patients from the multicentre Swiss-AF study, CMBs were detected by standardised brain MRI. Antithrombotic therapy was categorised as no therapy, oral anticoagulation (OAC), antiplatelet therapy (APT) or combination therapy (OAC+APT). Associations of antithrombotic therapy with CMB presence and burden were assessed using unadjusted and multivariable logistic regression models adjusted for age, sex and cardiovascular risk factors.

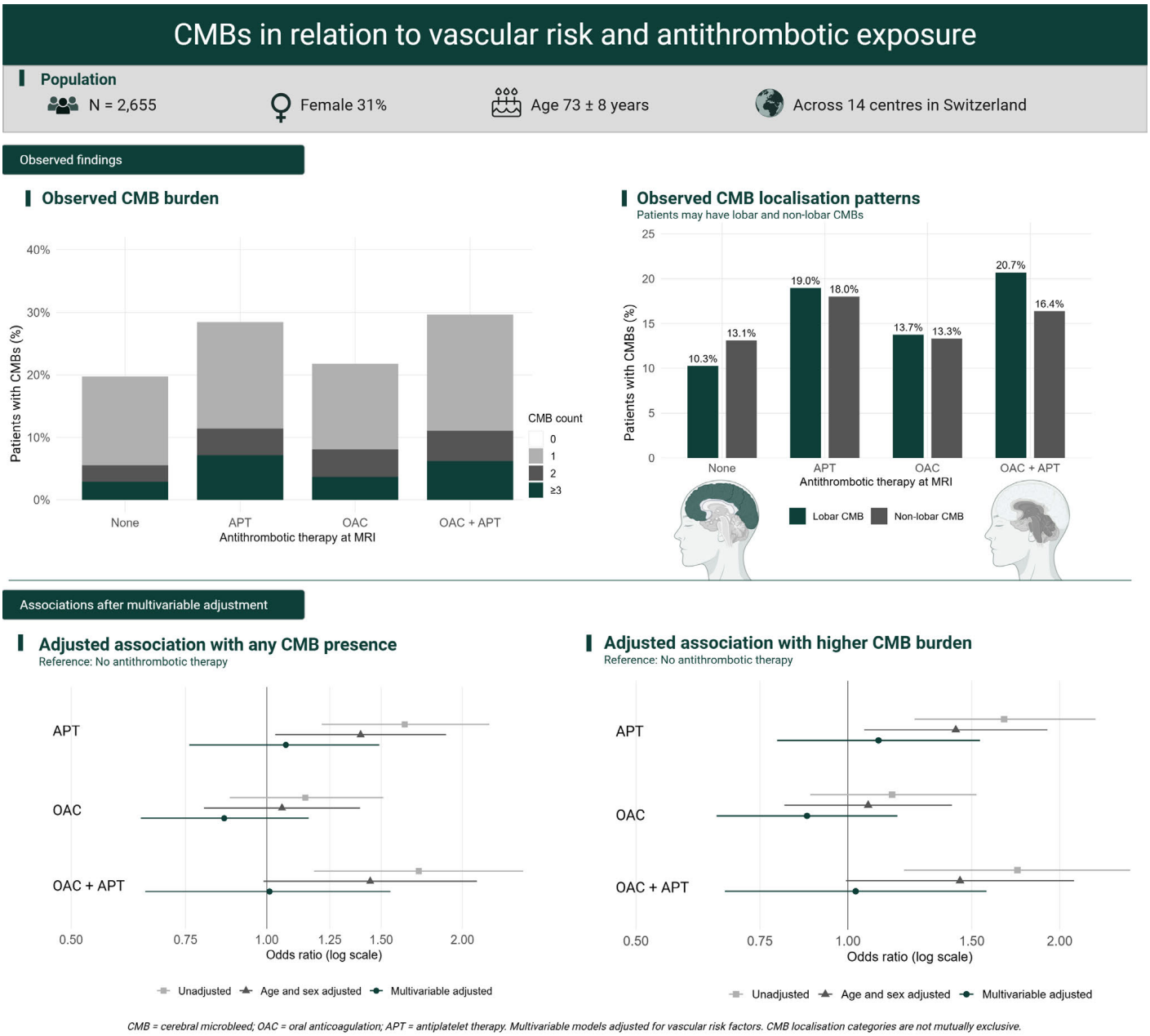
**Results:** Mean age was 73 ± 8 years, 31% were female, 37% had vascular disease and 64% had prior atrial fibrillation. Any CMBs were present in 635/2,655 (23.9%): 19.8% without antithrombotic therapy, 22.1% with OAC, 28.7% with APT and 29.7% with combination therapy. Patients with APT and OAC+APT had a higher CMB burden. CMBs were similarly distributed between lobar and non-lobar regions for the OAC and APT groups but showed modest localisation differences in the no therapy and OAC+APT groups. In unadjusted models, APT and OAC+APT were associated with prevalent CMBs and a higher CMB burden.

However, after adjustment for confounders, neither APT nor OAC+APT was associated with CMB (OR 1.07, 95% CI 0.76–1.49, p = 0.701 for APT and OR 1.01, 95% CI 0.65–1.55, p = 0.981 for OAC+APT). No therapy and OAC were not associated with CMB presence or burden.

**Conclusion:** In this large, multicentre cohort, patients with APT and OAC+APT had a higher prevalence and burden of CMBs compared with patients with no antithrombotic therapy or OAC. After adjustment for vascular risk factors, neither APT nor OAC+APT were associated with CMBs. CMBs may reflect underlying vascular burden rather than antithrombotic exposure.

**COI:** No




*CMB = cerebral microbleed; OAC = oral anticoagulation; APT = antiplatelet therapy. Multivariable models adjusted for vascular risk factors. CMB localisation categories are not mutually exclusive.*

## P118

### Sex-Specific Metabolic and Inflammatory Pathway Remodeling in Arrhythmogenic Cardiomyopathy

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**Introduction:** Arrhythmogenic cardiomyopathy (ACM) is a hereditary heart disease characterized by fibrofatty myocardial replacement, ventricular arrhythmias, and progressive myocardial dysfunction. While mitochondrial stress, immune activation, and inflammatory signalling are increasingly recognized as central disease mechanisms, the molecular drivers linking myocardial pathology to circulating biomarkers remain incompletely defined and sex-specific molecular signatures in ACM have not been systematically explored. We aimed to to characterize pathway alterations in ACM myocardium and to explore sex-specific molecular patterns in plasma.

**Material & Methods:** Myocardial tissue from patients with definite ACM and healthy controls (n = 10/group) underwent mRNA sequencing (Illumina HiSeq 2500) and label-free LC–MS/MS proteomics. Differential expression and pathway enrichment analyses were performed. Plasma proteomics was performed in 38 ACM patients (13 women, 25 men) and 24 controls using proximity extension assay (360 proteins). Sex-specific analyses were conducted using standard comparative statistics and gene-set enrichment.

**Results:** In myocardial samples from ACM patients (80% with desmosomal mutation), we observed broad transcriptional remodelling versus healthy controls, with consistent activation of mitochondrial stress, and DNA-damage pathways together with altered inflammatory signalling. Tissue proteomics identified significant protein dysregulation, supporting these pathways. Plasma proteomics demonstrated distinct molecular patterns despite comparable clinical characteristics between women and men. Women exhibited higher levels of proteins related to metabolic regulation and myocardial stress, whereas men

showed increased markers of systemic inflammation, immune activation, and extracellular matrix turnover (p <0.05).

**Conclusion:** Integrated myocardial and plasma profiling in ACM hearts indicate that mitochondrial dysfunction, DNA-damage signalling and inflammation form distinct disease mechanisms. In a larger plasma cohort, sex-stratified proteomics suggest that these processes are engaged differently in women and men, with a more metabolic/mitochondrial stress-oriented profile in women and a more inflammatory/immune-dominant profile in men.

**COI:** No

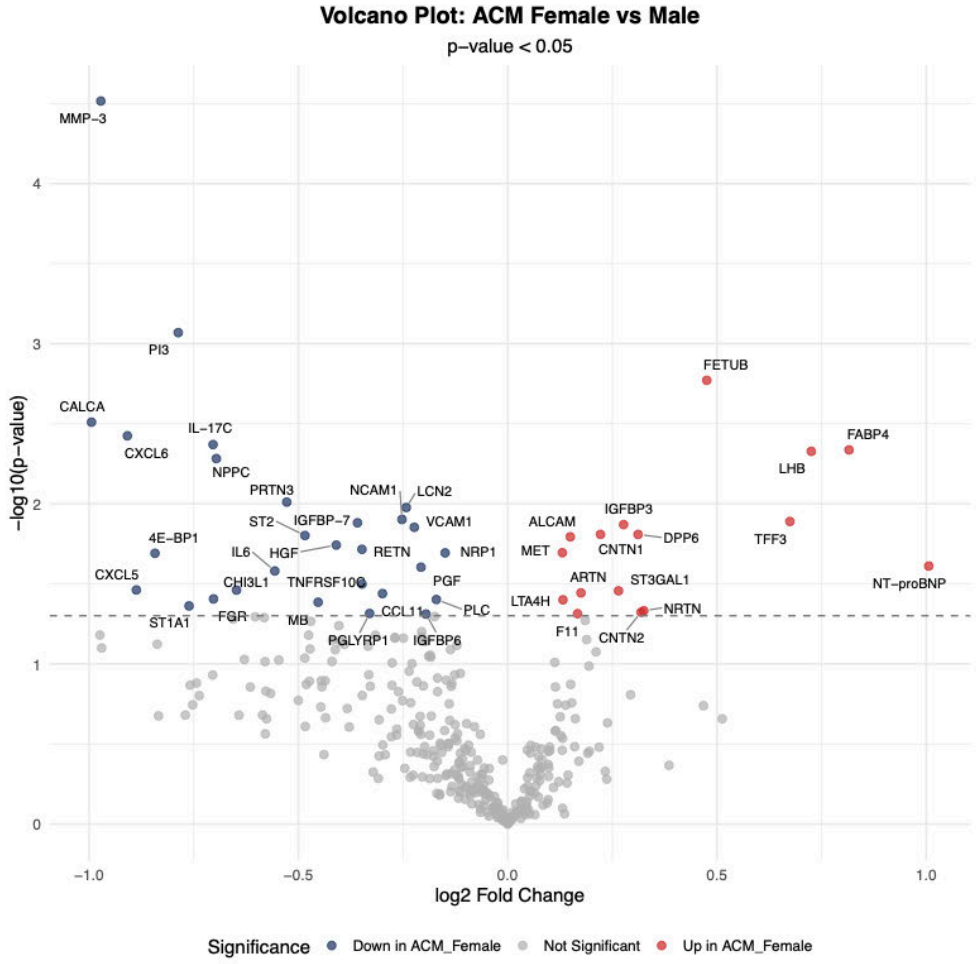



Figure 2. Volcano plot with differential plasma protein expression between women and men with ACM, highlighting proteins significantly higher in women (right) and in men (left) at p<0.05.

P119

## Impact of pre-procedural imaging in pulsed-field ablation for the treatment of atrial fibrillation

Fabian Jordan[1], Nicola Formenti[1], David Spreen[1], Corinne Isenegger[1], Jonas Brügger[1], Arianna Bettelini[1], Céline Moser[1], Nicolas Schärli[1], Reto Stump[1], Philipp Krisai[1], Sven Knecht[1], Beat Schär[1], Felix Mahfoud[1], Christian Sticherling[1], Michael Kühne[1], Patrick Badertscher[1]

[1]*University Hospital of Basel, University of Basel, Basel, Switzerland, Cardiovascular Research Institute Basel, Basel, Switzerland, Basel, Switzerland*

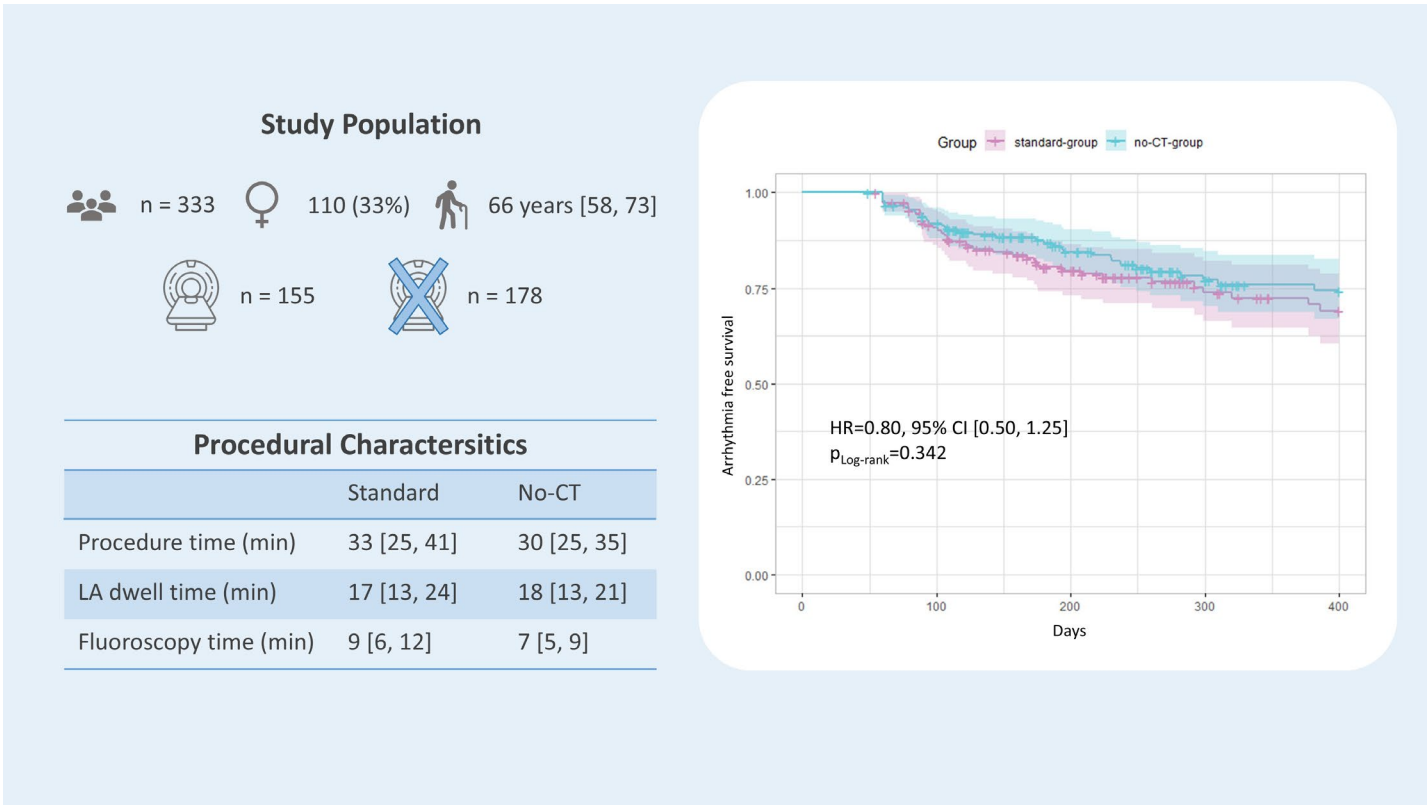
**Introduction:** Pulsed-field ablation (PFA) is an effective modality for pulmonary vein isolation (PVI) for the treatment of atrial fibrillation (AF). Pre-procedural computed tomography (CT) is commonly used for anatomical orientation, yet its incremental value in contemporary PFA workflows remains uncertain. We aimed to discover if there is a benefit of pre-procedural imaging.

**Material & Methods:** Patients undergoing first-time PVI only with PFA using a pentaspline catheter without electroanatomical mapping were prospectively enrolled at a tertiary center. Patients were treated in two consecutive protocol phases: initially with a standard protocol using CT-based anatomy, and subsequently with a protocol performed without pre-procedural imaging.

**Results:** A total of 333 patients (median age 66 [58–73] years, 33% female) were included: 155 (47%) with imaging and 178 (53%) without imaging. Total procedure duration was slightly shorter without imaging (30 [25–35] vs 33 [25–41] minutes, p = 0.034). Left atrial dwell time was similar (18 [13–21] vs 17 [13–24] minutes, p = 0.598). Fluoroscopy time was lower without imaging (7 [5–9] vs 9 [6–12] minutes, p <0.001). Complications were infrequent (Total 2, 0.6% overall). During a median follow-up of 300 [193–581] days, arrhythmia recurrence did not differ significantly (20% vs. 27%; log-rank p = 0.342, HR 0.80).

**Conclusion:** In this pilot experience, procedural performance and arrhythmia outcomes were similar whether pre-procedural CT imaging was used. A dedicated non-inferiority randomized trial is required to validate these observations.

**COI:** No



## P120

### Incidence and Burden of New-onset Atrial Fibrillation after STEMI Detected By 14-day ECG Patch Monitoring

Céline Moser[1 2], Arianna Bettelini[1 2], Jonas Brügger[1 2], Fabian Jordan[1 2], Sven Knecht[1 2], Reto Stump[1 2], Jasper Boeddinghaus[1 2], Gregor Leibundgut[1 2], Beat Schär[1 2], Philipp Krisai[1 2], Nicolas Schärli[1 2], Felix Mahfoud[1 2], Christian Sticherling[1 2], Michael Kühne[1 2], Patrick Badertscher[1 2]

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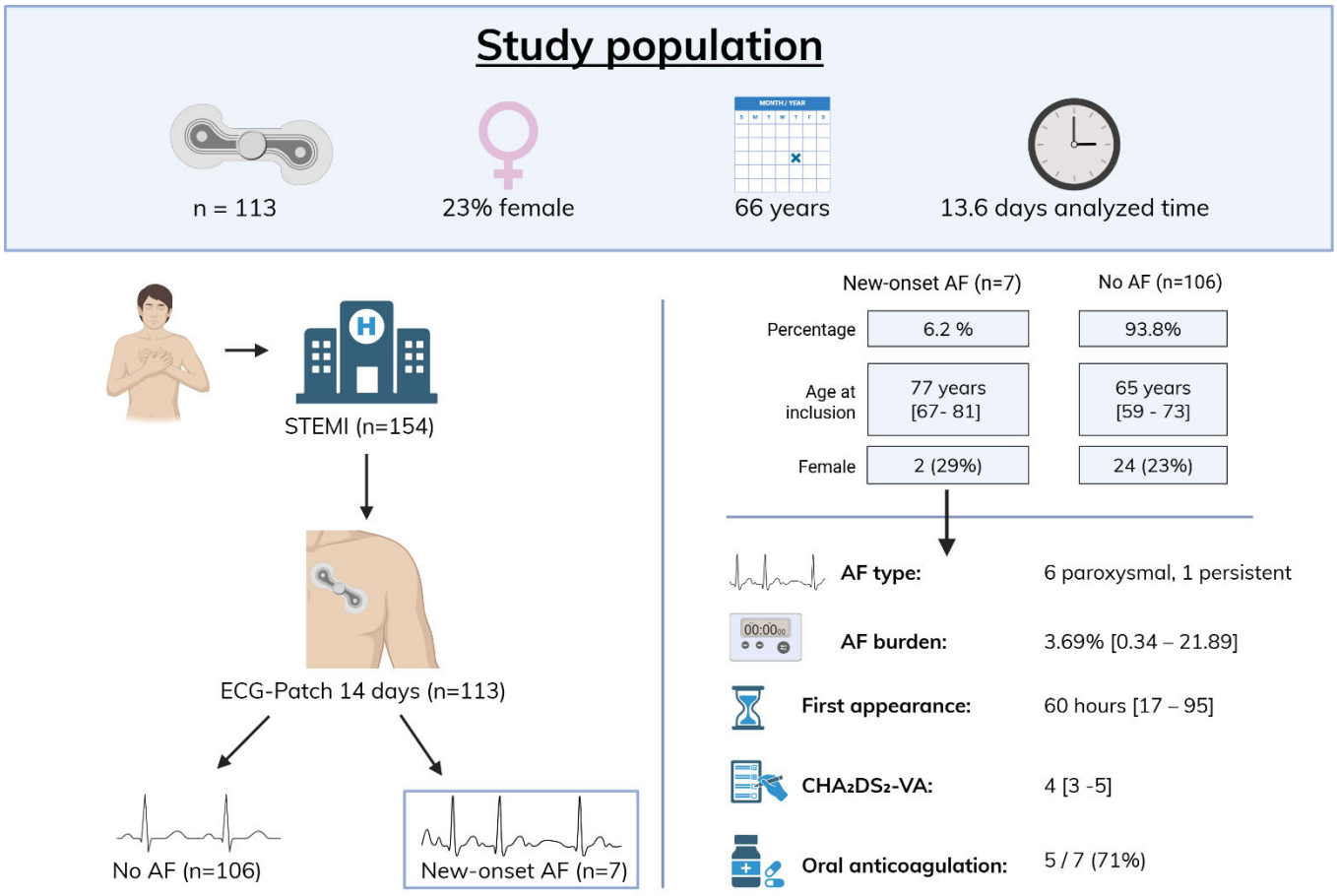
**Introduction:** Reported new-onset atrial fibrillation (NOAF) incidence following ST-segment elevation myocardial infarction (STEMI) varies widely, likely reflecting disease severity and differences in monitoring intensity. Robust data on post-STEMI AF burden is needed to guide therapeutic decisions, such as initiation of anticoagulants. We therefore aimed to assess the incidence, timing, and burden of NOAF after STEMI using systematic 14-day continuous ECG patch monitoring.

**Material & Methods:** Consecutive patients presenting with STEMI at a Swiss tertiary center were prospectively enrolled and prescribed a 14-day single-lead ECG patch (Zio, iRhythm Technologies, USA). Patients with known AF prior to STEMI or implanted cardiac devices with an atrial lead were excluded.

**Results:** Among 154 STEMI admissions, 113 patients (73%; median age 66 years; 23% female) underwent patch monitoring. Median analyzable monitoring duration was 13.6 days [IQR 13.2–13.8]. NOAF was detected in 7/113 patients (6.2%; median age 77 years; 29% female). Six patients (86%) had paroxysmal AF and one (14%) persistent AF. Median AF burden was 3.69% [0.34–21.89], corresponding to a mean AF duration of 53 minutes per day. First AF detection occurred after a median of 60 hours [19–95] of monitoring. Patients with NOAF were older than those without AF (77 vs 65 years; p = 0.015). Median $CHA_2DS_2$-VA score in NOAF patients was 4 [3–5]. Oral anticoagulation in addition to antiplatelet therapy was initiated in 5 of 7 patients (71%).

**Conclusion:** In this prospective cohort of STEMI patients, 14-day ECG patch monitoring identified NOAF in 6.2% of patients, mainly within the first three days. Despite a high thromboembolic risk profile, AF burden was generally low, highlighting the unresolved question of whether oral anticoagulation benefits outweigh bleeding risk in low-burden NOAF detected after STEMI. Further studies are warranted to define burden-informed anticoagulation strategies in this population.

**COI:** No



## POSTER WALK: HEART FAILURE II

### P121

### Prognostic impact of left atrial reservoir strain in patients with acute heart failure

Matteo Marchetti[1], Sarah Grutter[1], Nicolas Barras[1], Henri Lu[1], Georgios Tzimas[1], Denise Auberson[1], Patrick Yerly[1], Panagiotis Antiochos[1], Roger Hullin[1], Sarah Hugelshofer[1], Pierre Monney[1]

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**Introduction:** Decrease in left atrial reservoir strain (LAS) is associated with increased LV filling pressures and atrial fibrillation (AF) recurrence risk. Its prognostic impact in patients with acute heart failure (AHF) remains poorly studied.

**Material & Methods:** This prospective cohort evaluated consecutive patients admitted for AHF, who underwent transthoracic echocardiography both at admission and 48 hours before discharge. Patients with LAS assessment both upon admission and discharge were included and decongestion parameters [weight, inferior maximal vena cava diameter (IVC-MD)] were measured. We assessed the prognostic role of discharge LAS on mortality, rehospitalisation for cardiovascular causes (CVH) and the combined outcome of death or CVH at 1 year.

**Results:** Out of 221 patients included, 134 (60%) had LAS measured at admission and discharge. After a median hospital stay of 12.5 (9-19) days with effective decongestion (decrease in weight from 72.2 to 69.4 kg, p <0.00001 and in IVC-MD from 21 to 18 mm, p <0.00001), there was no significant change in LAS (9.2 to 10.0%, p = 0.46). Weight loss was not correlated with change in LAS (Spearman rho -0.05, p = 0.57). CVH, death and the composite outcome of death or CVH occurred in 54/134 (40%), 28/134 (21%) and 68/134 (51%), respectively. A LAS <10% at discharge was significantly associated with CVH (P = 0.039) and indicated a trend towards higher death or CVH (P = 0.051) (Figure 1A-B). After adjustment for age, sex and the presence of AF, higher LAS was associated with lower risk of death or CVH (HR = 0.945, 95% CI = 0.898-0.995, p = 0.032) and CVH (HR = 0.928, 95% CI = 0.874-0.986; P = 0.016) at 1 year (Table 1).

**Conclusion:** Among patients with AHF, acute decongestion did not influence LAS. A LAS <10% was associated with higher CV rehospitalisation and death or CV rehospitalisation at 1 year and might predict, among other parameters, which patients benefit from an intensified outpatient follow-up.

**COI:** No

**Figure 1: Cardiovascular rehospitalisation (A) and Death or cardiovascular rehospitalisation (B), according to discharge left atrial strain.**

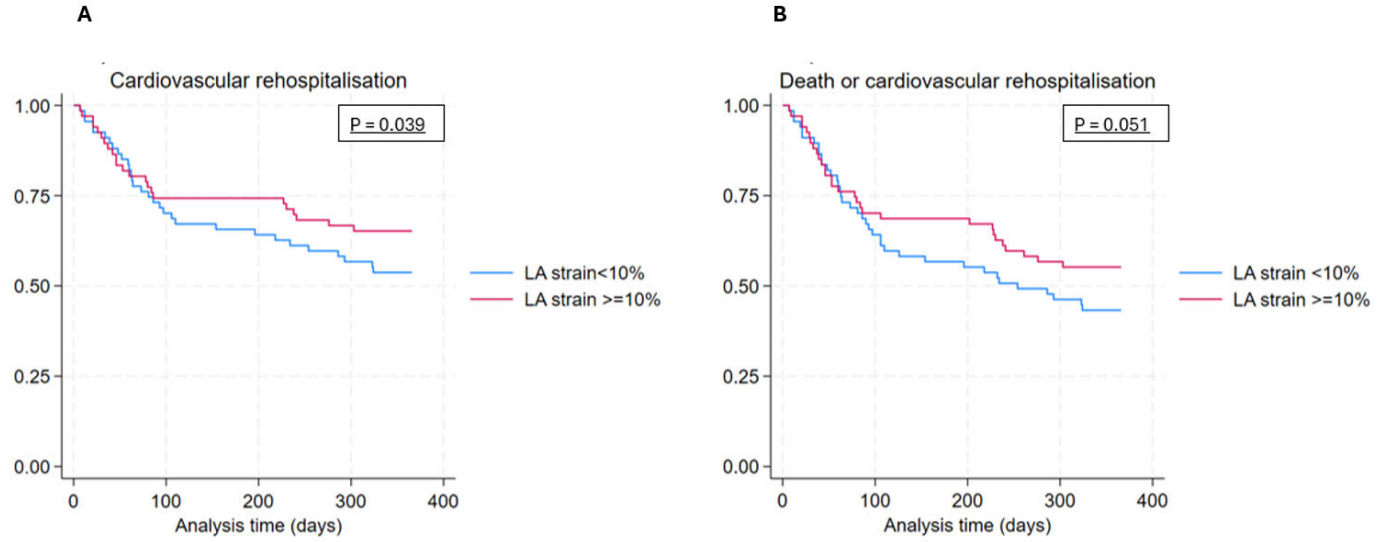


**Table 1: Adjusted hazard ratios for cardiovascular rehospitalisation and death or cardiovascular rehospitalisation.**

**Abbreviations: LAS = Left atrial strain; AF = atrial fibrillation**

| N = 134 patients | | |
|---|---|---|
| CV rehospitalisation at 1 year occurred in 54 (40%) | | |
| | **Hazard Ratio (95% CI)** | **P-Value** |
| LAS | 0.928 (0.874-0.986) | **0.016** |
| AF | 0.643 (0.360-1.147) | 0.135 |
| Age | 1.002 (0.976-1.028) | 0.869 |
| Sex | 0.917 (0.529-1.590) | 0.760 |
| Death or CV rehospitalisation at 1 year occurred in 68 (51%) | | |
| LAS | 0.945 (0.898-0.995) | **0.032** |
| AF | 0.718 (0.428-1.205) | 0.210 |
| Age | 1.017 (0.991-1.043) | 0.184 |
| Sex | 0.930 (0.569-1.519) | 0.773 |

## P122

### Ventricular assist devices and heart transplant access in Switzerland

Simon Schwab[1,2], Carla Müller[1,3], Julius Weiss[1], Andreas Elmer[1], Lisa Straumann[1], Franz Immer[1,4]

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**Introduction:** Introduction: We assessed whether ventricular assist devices (VADs) affect heart transplant (HT) waitlist outcomes, including transplant likelihood and waiting time, compared with candidates without a VAD as controls.

**Material & Methods:** We analyzed a national multi-center cohort of 613 patients listed for HT in Switzerland from 2015–2025. Cumulative incidence of transplant was estimated using the Aalen-Johansen method, and the impact of VADs on waitlist outcomes was assessed with a cause-specific proportional hazards model adjusted for relevant confounders (blood type, urgency, weight, age, gender, heart pathology, inactive status, and listing year). No exclusion criteria were applied, and no data were missing.

**Results:** From 613 HT candidates, 202 (33%) had a VAD and 411 (67%) were controls; the median age (IQR) was 51 (36-58), 455 (74.2%) were male, and 59 (9.6%) were children (<16 years). Overall, 428 were transplanted, 85 died, 53 were delisted, and 47 were censored. The 1-year transplant probability was 34.1% for patients with VAD and 55.7% for controls; 2-year probabilities were 49.8% and 65.2%, respectively (Fig. 1A). Median time to transplant (50% probability of a transplant) was 2.08 years (95% CI, 1.63–2.36) for VAD and 0.78 years (95% CI, 0.61–0.87) for controls. The adjusted effect of VAD had a hazard ratio of 0.70 (95%-CI, 0.56-0.88), demonstrating strong evidence of a 30% reduction in transplant rate among patients with VADs. The strongest associations with transplant outcomes were urgency, blood type, and listing year, with the latter associated with a more than 3-fold increase in the transplant rate from 2020 to 2025 (hazard ratio 3.39; 95% CI 2.47–4.64; Fig. 1B).

**Conclusion:** Patients with VADs were less likely to receive an HT, even after adjusting for confounders. Nevertheless, the likelihood of receiving an HT has substantially increased over the past 5 years, including for candidates with a VAD.

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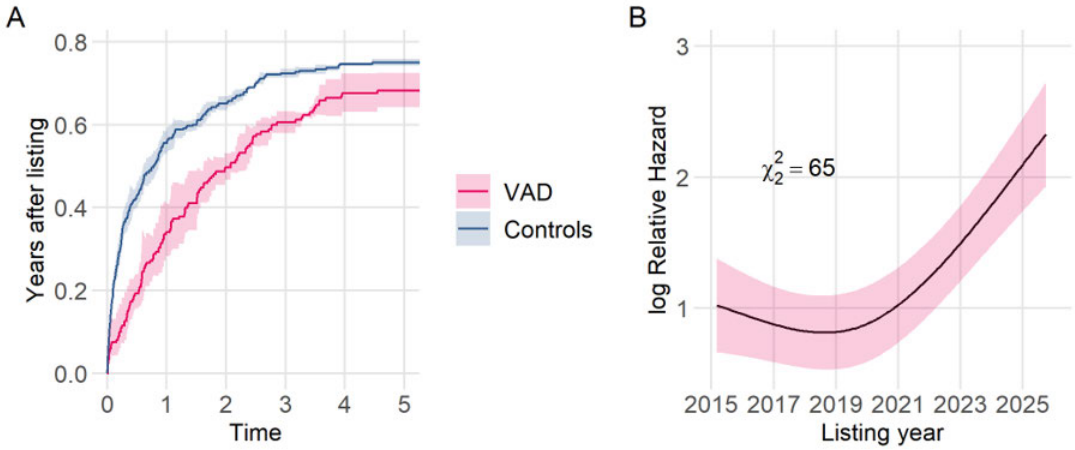



**Figure 1: (A)** Cumulative incidence curves (with 95% confidence bands) for heart transplantation for VAD and controls. **(B)** Effect of listing year on transplant rates for all candidates, demonstrating a positive trend since 2020.

## P123

### Diagnostic performance of H2FPEF and HFpEF-ABA scores in patients with preserved ejection fraction and structural hallmarks of HFpEF

Angela Rocca[1,1], Charlotte Ryan[1], Jonas Richiardi[1], Ruud van Heeswijk[1], Jaume Banus Cobo[1], Costa Georgantas[1], Philippe Meyer[2], Ambra Masi[1], Panagiotis Antiochos[1], Pierre Monney[1], Henri Lu[1], Jürg Schwitter[1], Roger Hullin[1]

*[1]Lausanne University Hospital (CHUV), University of Lausanne, Lausanne, Switzerland, [2]University Hospital of Geneva (HUG), University of Geneva, Geneva, Switzerland*

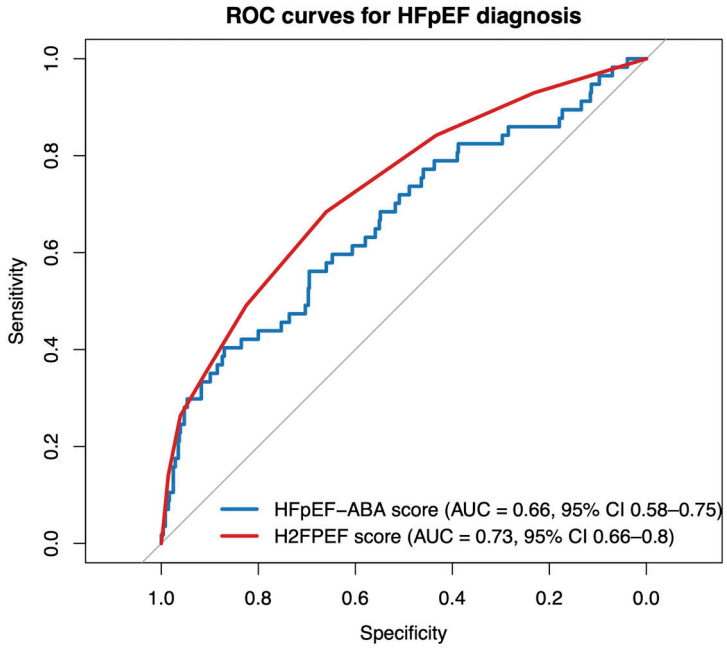
**Introduction:** The HFpEF-ABA and $H_2$FPEF scores estimate the probability of HFpEF in dyspneic patients with preserved left ventricular ejection fraction (LVEF). Their performance in individuals with structural HFpEF hallmarks but without overt heart failure signs or symptoms is unclear. We aimed to evaluate the diagnostic accuracy of these scores in patients with LVEF ≥50% and increased left ventricular mass index (LVMI ≥70 g/m²) measured by cardiac magnetic resonance (CMR), using clinically diagnosed HFpEF as the reference standard, in a monocentric Lausanne University Hospital cohort.

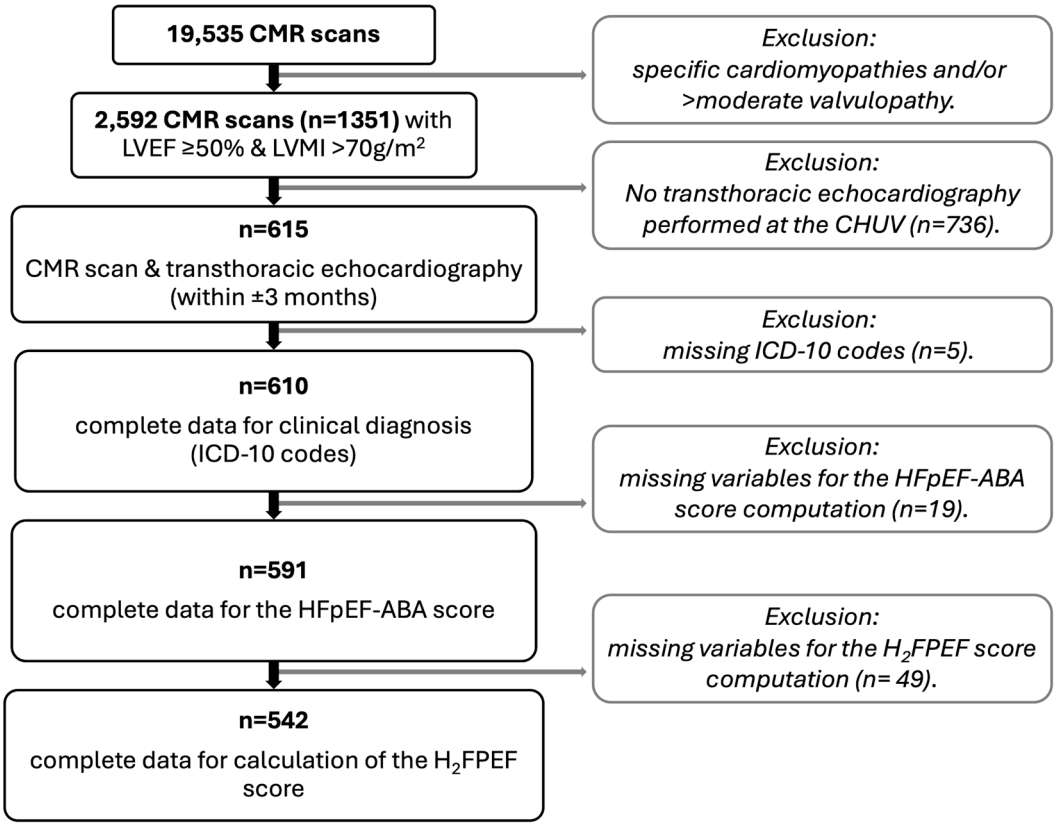
**Material & Methods:** Among 19,535 CMR exams performed between 2010 and 2024, 542 patients with preserved LVEF, increased LVMI, and echocardiography within 3 months of CMR were included. Patients with infiltrative or hypertrophic cardiomyopathy, severe valvular disease, or missing data were excluded.

**Results:** Dyspnea of cardiac origin was present in 61.1% of patients; 10.5% had clinically diagnosed HFpEF. The HFpEF-ABA and $H_2$FPEF scores showed high specificity (87.6% and 96.1%) but low sensitivity (36.8% and 26.3%), with modest discrimination (AUC 0.66 and 0.73; DeLong p = 0.011).

**Conclusion:** In patients with structural HFpEF hallmarks on CMR but without overt heart failure, the HFpEF-ABA and $H_2$FPEF scores reliably identify true negatives but have limited sensitivity, restricting their utility for HFpEF detection in this population. These findings highlight the need for refined diagnostic approaches in early-stage or subclinical HFpEF.

**COI:** No



## P124

### Clinical Outcomes of HeartMate 3 LVAD Therapy in a Real-World Cohort: The Lausanne Experience

Anna Nowacka[1], Roger Hullin[1], Patrick Yerly[1], Tamila Abdurashidova[1], Valentina Rancatti[1], François Verdy[1], Philippe Meyer[2], Zied Ltaief[1], Matthias Kirsch[1], Henri Lu[1]

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**Introduction:** HeartMate 3 (HM3) left ventricular assist devices (LVADs) are an established therapy for patients with advanced heart failure. While outcomes from clinical trials and large registries are well-described, contemporary real-world data from European cohorts remain limited. We aimed to describe the characteristics, management, and clinical outcomes of patients undergoing HM3 LVAD implantation at a Swiss tertiary referral center.

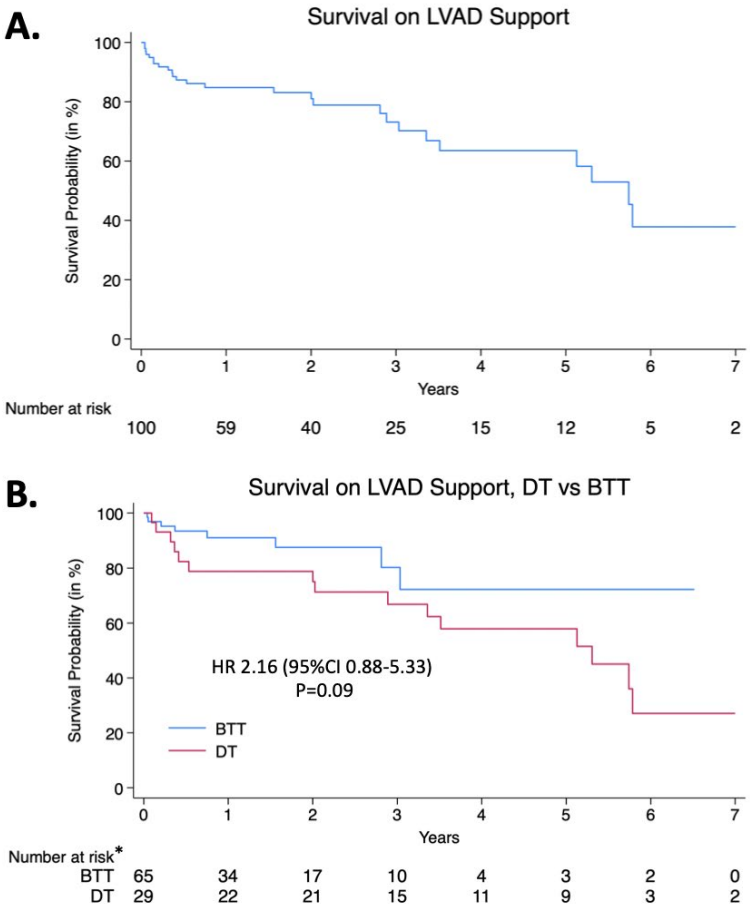
**Material & Methods:** We conducted an observational study including consecutive adult patients who underwent HM3 LVAD implantation at Lausanne University Hospital between November 2015 and January 2026. Baseline demographic and clinical characteristics, heart failure etiology, and INTERMACS profile were collected. Perioperative and postoperative data, LVAD-related complications, and survival outcomes were assessed. Survival analyses on VAD support with heart transplantation (HTx) or LVAD explantation treated as censoring events were reported. Analyses were descriptive.

**Results:** A total of 100 patients (mean age 58±12 years, 84% male, 26% destination therapy) underwent HM3 LVAD implantation. Ischemic heart disease was the most common etiology (69%), and most patients (68%) were INTERMACS 3–4 at the time of implantation. Over a median follow-up of 1.5 (IQR 0.5–3) years, 27 deaths occurred on LVAD support (incidence rate [IR] 13.5 per 100 py, 95%CI 9.2–19.6), and 51 patients underwent HTx (IR 25.4 per 100 py, 95%CI 19.3–33.5). Five-year survival on LVAD support was ≈65%, with patients censored at the time of explantation for recovery or HTx (Panel A). LVAD-related complications included major bleeding (47%), infection (51%), ischemic stroke (12%), and right heart failure (39%). Exploratory analyses revealed no significant differences in survival according to LVAD indication (destination therapy vs bridge-to-transplant, p = 0.09; Panel B).

**Conclusion:** In this large, contemporary, real-world cohort, HM3 LVAD therapy provided durable long-term support across a broad spectrum of advanced heart failure patients, with outcomes comparable to those described in randomized trials and large registry studies.

**COI:** Travel support from Abbott

**Figure**. Survival on LVAD support, (A) Overall cohort, (B) According to indication (destination therapy vs bridge-to-transplant), Lausanne University Hospital (n=100)




Patients who were explanted for heart transplantation or left ventricular function recovery (n=52) were censored.
*94 patients included (6 categorized as other than BTT or DT).
Abbreviations: BTT = bridge-to-transplant; DT = destination therapy; LVAD = left ventricular assist device.

## P125

### Impact of the introduction of Organ Care System heart perfusion on the national heart transplant waiting list

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**Introduction:** In 2023, ex vivo heart perfusion (Organ Care System heart (OCS)) was introduced in Switzerland by the three heart transplant centres. This made it possible to evaluate hearts from donors after cardiocirculatory death (DCD) for transplantation and to extend transport times from 4 hours on cold storage to over 12 hours. Our study aims to evaluate the impact of this new technology on transplantation activity and on the heart waiting list.

**Material & Methods:** Heart transplant activity and the development of the national heart waiting list from 1 January 2023 to 31 December 2025 were evaluated. The data was extracted from the Swiss Organ Allocation System. The donor type (donation after brain death (DBD) or DCD), the origin of the organ (from Switzerland or abroad) and the development of the heart waiting list were evaluated.

**Results:** From 2023 to 2025, a total of 158 hearts were transplanted in Switzerland (Figure 1). The proportion of hearts from DCD donors amounted to 19.0% (n = 30). Of all transplants, 38 hearts (24.1%) were imported via the international organ exchange platform FOEDUS, whereof 2 DCD hearts (in 2025). Out of these 38 hearts, 24 (63.2%) were imported on OCS, allowing to extend transport times. 29 (96.7%) of the total 30 DCD hearts transplanted were on OCS, and one paediatric DCD heart has been imported without OCS due to weight limits of 50 kg. The number of patients on the heart waiting list decreased from 64 at the beginning of 2023 to 37 at the end of 2025 (–42.2%), and the waiting time to transplantation also decreased.

**Conclusion:** The implementation of OCS heart perfusion in Switzerland has substantially increased the availability of donor organs and thus greatly improved access to heart transplants in Switzerland.

**COI:** No

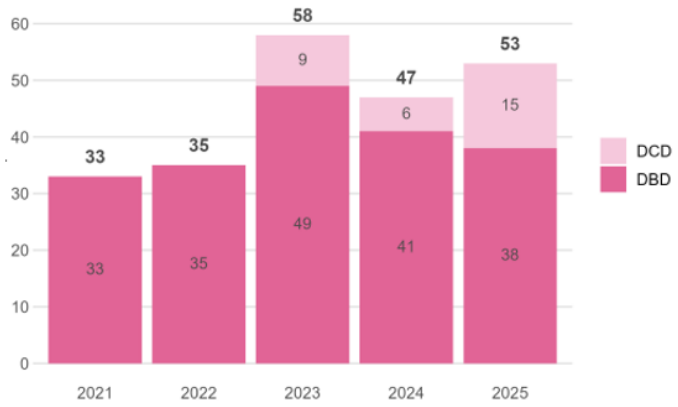


**Figure 1:** Number of heart transplants per year by donor type (DCD, donation after cardiocirculatory death; DBD, donation after brain death)

## P126

### Epigenetic control of renal dysfunction in HFpEF: chromatin remodeling as a driver of cardio-renal maladaptation

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**Introduction:** Heart failure with preserved ejection fraction (HFpEF) represents a major and growing global health burden driven by ageing, obesity, and cardiometabolic comorbidities.Lifestyle and environmental exposures are central to HFpEF pathogenesis and are known to exert their long-term effects through epigenetic mechanisms. However, how epigenetic regulation contributes to renal dysfunction, a key determinant of outcome in HFpEF, remains largely unexplored.

**Material & Methods:** A two-hit mouse model of HFpEF was generated by combining a high-fat diet and L-NAME for 15 weeks.Controls received normal diet and vehicle.Renal phenotyping included: (i)functional assessment via plasma creatinine, cystatin C, and galectin-3; (ii)structural analysis by H&E, Masson's Trichrome,and PAS staining; (iii)RNA-seq and proteomics; and (iv)epigenetic mapping using CUT&RUN to define chromatin accessibility and BET-protein occupancy.

**Results:** HFpEF mice exhibited a significant reduction in transdermal GFR compared with controls, indicating renal functional impairment.This was accompanied by increased plasma levels of renal dysfunction markers, including cystatin C, creatinine,and galectin-3.Histological analyses revealed marked kidney injury characterized by tubular damage and glomerular hypertrophy. Integrated transcriptomic and proteomic profiling of renal tissue demonstrated coordinated activation of pro-inflammatory and pro-fibrotic pathways, together with suppression of metabolic and mitochondrial programs, specifically fatty acid oxidation and peroxisome-related pathways. Chromatin profiling identified increased BRD2- and BRD4-associated occupancy at regulatory regions of genes governing these maladaptive pathways, providing a direct epigenetic link between cardiometabolic stress and renal remodeling.

**Conclusion:** HFpEF-associated renal dysfunction represents a lifestyle-driven, epigenetically programmed form of kidney injury rather than an inevitable consequence of ageing or hemodynamic stress.By integrating functional, structural, and multiomic profiling, we identify bromodomain-dependent regulatory networks as central drivers of renal damage, providing a mechanistic bridge between cardiometabolic risk and kidney failure. These findings support epigenetic modulation as a clinically translatable strategy to preserve renal function and improve outcomes in patients with HFpEF.

**COI:** No

P127

## Delay in seeking care and symptom experience of people with heart failure and their informal caregivers: a qualitative study

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**Introduction:** Delay in seeking care when experiencing symptoms of worsening heart failure (HF) is common in people with HF and associated with increased morbidity and mortality. Few people with HF report seeking care when experiencing symptoms of worsening HF. This study aimed to explore how people with HF and their informal caregivers experience worsening symptoms and how these experiences influence care-seeking behaviour.

**Material & Methods:** Qualitative study including 30 French- or German-speaking patients hospitalized for heart failure exacerbation (mean age 77 years) and 10 informal caregivers (mean age 72 years), recruited from internal medicine units of two hospital centres between February 2025 and February 2026. The duration between perceived symptom worsening and hospital admission for HF exacerbation was used to quantify delay in seeking care. We conducted narrative interviews using an open-ended question to elicit participants' experiences, completed by semi-structured probing guided by an interview guide. The interviews were recorded via video and/or audio, verbatim transcribed in full and analysed using reflexive thematic analysis with Atlas.ti. Ethical approval and written informed consent were obtained.

**Results:** Participants reported a median delay of 92 hours (IQR 204 hours, range 1.5 hours to 90 days). Some people with HF reported having consulted healthcare professionals prior to hospitalization, either in response to worsening symptoms or as part of routine management of chronic symptoms. Thematic analysis revealed key patterns influencing care-seeking behaviour: problem recognition through bodily sensations; uncertainty in symptom interpretation and attribution to HF; difficulties linking symptoms to HF worsening; and severe breathlessness as a reason for urgent care seeking.

**Conclusion:** This study in a Swiss context highlights challenges in symptom interpretation and response among people with HF and their informal caregivers. Interventions grounded in symptom experience and related care-seeking behaviours are needed to support timely management.

**COI:** No

 

## AUTHOR INDEX

The numbers refer to the numbers of the abstracts. Bold = presenting author.
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