Supplementum 183  
ad Swiss Med Wkly  
2010;140  
September 18, 2010

Annual meeting of the  
Swiss Society of Gastroenterology  
Swiss Society for Visceral Surgery  
Swiss Association for the Study of the Liver  
Swiss Association of Clinical Nutrition  
Interlaken (Switzerland), September 23–24, 2010

Nexium® i.v. and Nexium® MUPS® Tabletten  
as erster und einziger Protonenpumpenblocker zugelassen zur Vorbeugung von erneuter Blutung bei blutenden peptischen Ulzera nach endoskopischer Blutstillung

Supported by the Swiss Academy of Medical Sciences (SAMS),  
the FMH (Swiss Medical Association) and by Schwabe AG,  
the long-established scientific publishing house founded in 1488

Official journal of the Swiss Society of Infectious Diseases,  
the Swiss Society of Internal Medicine and the Swiss Respiratory Society
Table of contents

Free communications 3 S

Posters Gastroenterology 13 S

Posters Hepatology 19 S

Posters Visceral Surgery 22 S

Additional abstracts 26 S

Index of first authors 32 S

Abstracted / indexed in
Index Medicus / MEDLINE
Web of science
Current Contents
Science Citation Index
EMBASE

Guidelines for authors
The Guidelines for authors are published on our website www.smw.ch
Submission to this journal proceeds totally on-line:
www.smw.ch → For Authors

© EMH Swiss Medical Publishers Ltd. (EMH), 2010. The Swiss Medical Weekly is an open access publication of EMH. Accordingly, EMH grants to all users on the basis of the Creative Commons license “Attribution – Non commercial – No Derivative Works” for an unlimited period the right to copy, distribute, display, and perform the work as well as to make it publicly available on condition that (1) the work is clearly attributed to the author or licensor (2) the work is not used for commercial purposes and (3) the work is not altered, transformed, or built upon. Any use of the work for commercial purposes needs the explicit prior authorisation of EMH on the basis of a written agreement.
Creative Commons summary: http://creativecommons.org/licenses/by-nc-nd/2.5/ch/deed.en_GB; full licence: http://creativecommons.org/licenses/by-nc-nd/2.5/ch/legalcode.de

All communications to:
EMH Swiss Medical Publishers Ltd.
Swiss Medical Weekly
Farnburgerstrasse 8
CH-4132 Muttenz, Switzerland
Phone +41 61 467 85 55
Fax +41 61 467 85 56
office@smw.ch

Managing editor
Natalie Marty, MD (nmarty@smw.ch)
Papers administrator
Gisela Wagner (gwagner@smw.ch)

Language editors
Thomas Brink, MD; Kirsten Dobson; Judith Lutz-Burns, MD; Roy Turnill, MA

ISSN printed version: 1424-7860
ISSN online version: 1424–3997

Regular subscription price for 2010: CHF 150.– (shipping not included)
12 issues per year

EMH Editores Medicorum Helveticorum, CH-4010 Basel
Schweizerischer Ärzteverlag AG, Editions médicales suisses SA, Edizioni mediche svizzere SA, Swiss Medical Publishers Ltd.
A randomized trial comparing cost & effectiveness of bipolar vessel sealers versus clips and vascular staplers in laparoscopic colectomy

M. Adamini1,2, B.J. Champagne2, L. Hoffman2, C.P. Delaney2
1Klinik für Chirurgie, Kantonsspital St.Gallen, St.Gallen
2Division of Colorectal Surgery, UHMC, Cleveland, Ohio, USA

Background: A variety of vascular control devices are used in spite of limited comparative data. This study assesses cost & effectiveness of 2 standard techniques for vascular control in laparoscopic colectomy.

Methods: Patients were randomized to bipolar vessel sealer (BVS: Ligasure Atlas, Covidien) or clips or vascular staplers (CVS: EndoClip & EndoGIA, Covidien). Time and ability to control vessels, as well as instruments costs were evaluated. Diagnosis, duration of procedure, body mass index (BMI), presence of adhesions, abscess or phlegmon, as well as estimated blood loss (EBL) were used to adjust multivariate models.

Results: Of 114 patients randomized, 5 and 9 were excluded and 100 patients were analyzed, of which 55 were operated with BVS and 45 with CVS. Forty-one right colectomies, 50 left colectomies and 9 total colectomies were performed for neoplasia (60), diverticulitis (26), and colitis (14). Diagnosis, procedure, occurrence and severity of adhesions and abscess, median BMI (27.7kg/m2), operative time (157min), EBL (50mL), and length of stay (3 days) were similar between groups. An average of 1.6 vascular staplers and 1.2 clip applicators were used per procedure. Ten instruments failed, 5 in the CVS arm and 5 in the BVS arm. Overall, there was a borderline significant cost saving of $120.9 in favor of the ligature (p=0.05). In multivariate analysis, the type of procedure influenced operative time (p=0.0001), while randomization group (p=0.03), procedure time (p=0.01), and surgical time (p=0.001) influenced the cost of surgery. For total colectomies, BVS reduced operative time by 96 min. (182 min. vs. 278 min., p = 0.04) and reducing cost by $159 (p=0.04) in left colectomies. There were no differences for right colectomies.

Conclusions: BVS reduce instrument costs for laparoscopic colectomies. This gain in cost-effectiveness is prominent in total and left colectomies.

Therapy response in chronic hepatitis C patients is affected by common Vitamin D Receptor (NR 1I1) polymorphisms

Katharina Bauer1, Joachim C. Mertens1, Johannes Schmitt1, Rika Iwata1, Bruno Stiegler1, Pascal Frei1, Julia Braun1 Beat Müllhaup1 and Andreas Geier1,2,3 Swiss Hepatitis C Cohort Study Group
1) University Hospital Zurich; 2) Biostatistics Unit, Institute of Social and Preventive Medicine, UZH; 3) ZHIMP, University of Zurich

Background: Chronic hepatitis C virus (HCV) infection represents a leading cause of end stage liver disease. Non-parenchymal hepatic mediators of inflammation and fibrogenesis such as sinusoidal endothelial cells, Kupffer cells and hepatic stellate cells express VDR mRNA and functionally active VDR protein. Given the mediators of inflammation and fibrogenesis such as sinusoidal endothelial cells, Kupffer cells and hepatic stellate cells express VDR mRNA and functionally active VDR protein. Given the established role of vitamin D as an immunomodulator, we investigated a potential effect of common polymorphisms (SNP) in the VDR (NR1I1) gene on hepatic inflammation & therapy response in a large Swiss cohort of HCV-patients.

Methods: Between 7/2005 and 2/2010 110 patients (39 females, 71 males) with locally advanced rectal cancer were treated by preoperative CRT in a prospective study. A18F-FDG-PET scan was performed in 98 patients before and 4 weeks after CRT. For each scan SUVmax was measured in the tumor. Surgical approach was a sphincter saving total mesorectal excision or an abdominoperineal amputation 6 weeks after CRT. SUVmax at re-staging was correlated with pathologic response and tumor regression grade.

Results: Mean tumor uptake was 12.2 ± 0.7 before and 3.8 ± 0.4 after CRT (p<0.001). 31 % of patients showed a complete metabolic response in the 18F-FDG-PET with a SUVmax of 0. 19 % of patients had a complete pathologic response with a tumorstage ypT0 ypN0. 69% of patients without metabolic uptake still had viable tumor cells in the specimen. Accuracy for 18F-FDG-PET for prediction of a complete pathologic response was 48%. Sensitivity for 18F-FDG-PET in re-staging was 33%.

Conclusion: 18F-FDG-PET does not seem to be a good method for prediction of complete tumor response after CRT for locally advanced rectal cancer. A “watch-and-wait” strategy should absolutely not be performed in patients with a negative PET.

Impact of 18F-FDG-PET on Re-Staging and Prediction of Tumor Response of Patients with Locally Advanced Rectal Cancer

K. Baumann, B. Kern, F. Jüngling, MO. Guenin, R. Peterli, C. Ackermann, M. von Filie

Objective: Neoadjuvant chemoradiotherapy (CRT) has become a standard practice for locally advanced rectal cancer. Complete pathologic response can be achieved in up to 20% and discussions about a “watch-and-wait” strategy in these patients are going on. Reliable methods to detect patients with a complete pathologic response after CRT are not known. One possible method may be the 18F-FDG-PET. The aim of this study was to evaluate the change in tumor maximum standardized uptake value (SUVmax) before and after CRT and to correlate the change with the pathologic response.

Methods: Between 7/2005 and 2/2010 110 patients (39 females, 71 males) with locally advanced rectal cancer were treated by preoperative CRT in a prospective study. A18F-FDG-PET scan was performed in 98 patients before and 4 weeks after CRT. For each scan SUVmax was measured in the tumor. Surgical approach was a sphincter saving total mesorectal excision or an abdominoperineal amputation 6 weeks after CRT. SUVmax at re-staging was correlated with pathologic response and tumor regression grade.

Results: Mean tumor uptake was 12.2 ± 0.7 before and 3.8 ± 0.4 after CRT (p<0.001). 31 % of patients showed a complete metabolic response in the 18F-FDG-PET with a SUVmax of 0. 19 % of patients had a complete pathologic response with a tumorstage ypT0 ypN0. 69% of patients without metabolic uptake still had viable tumor cells in the specimen. Accuracy for 18F-FDG-PET for prediction of a complete pathologic response was 48%. Sensitivity for 18F-FDG-PET in re-staging was 33%.

Conclusion: 18F-FDG-PET does not seem to be a good method for prediction of complete tumor response after CRT for locally advanced rectal cancer. A “watch-and-wait” strategy should absolutely not be performed in patients with a negative PET.

Dysregulation of the Myeloid Cell Response Exacerabates Acute Colitis by Impairing Mucosal Healing

Eric Bernasconi (1), Michel H Maillard (1), Fabrizia D’Angelo (1), Daniel Bachmann (1), Catherine Pythoud (1), Hanifa Bouzoure (2), Reto Schwendener (3), Pierre Michetti (1,4) and Dominique Vén (1)
(1) Division of Gastroenterology and Hepatology, CHUV, University of Lausanne, (2) Institute of Pathology, CHUV, University of Lausanne, (3) Institute of Molecular Cancer Research, University of Zurich, (4) Gastro-entérologie La Source-Beaulieu, Lausanne.

Background: Granulocyte/macrophage colony-stimulating factor (GM-CSF) therapy elicits myeloid cells that promote mucosal healing during acute colitis in the mouse. We hypothesized that a dysregulation of the myeloid cell response results in defective repair functions and increases susceptibility to acute colitis. Methods: Dextran sulfate sodium (DSS) colitis was induced in either untreated or clodronate liposome-treated wild-type mice, or in chimeric mice harboring myeloid cells devoid of GM-CSF receptor (GM-CSFR). Clinical parameters of colitis were scored. Mucosal damage and epithelial repair were analyzed on histological sections after BrDU incorporation. Spleen and colon CD11b cells were tested for their propensity to promote in vitro wound closure in epithelial cell monolayers.

Results: Mice with dysregulated myeloid cell responses, due either to phagocyte depletion or absence of GM-CSFR-driven activation, displayed a higher susceptibility to DSS colitis, with a marked increase in fecal blood score and extent of mucosal ulceration, compared to untreated wild-type mice. Dysregulation of the myeloid cell response was associated with a strong reduction in numbers of proliferative epithelial cells in ulcer-adjacent crypts, suggesting defective repair functions. Accordingly, spleen and colon CD11b cells isolated from mice with defective myeloid cells were clearly inferior in promoting in vitro wound closure, compared to wild-type counterparts.

Conclusions: A tightly regulated myeloid cell mobilization in the colonic mucosa is mandatory for an efficient response to acute colitis including mucosal healing. Defective acute inflammation may predispose Crohn’s disease patients to defective mucosal repair and to subsequent chronic activation of immune responses.
Novel and Simple Preoperative Score Predicting Complications Following Liver Resection
Stefan Breitenstein, Michelle L. DeOliveira, Dimitri A. Rapits, Ksenija Siankamanac, Patryk Kambakamba, Jakob Neri, MD, Pierre-Alain Clavel
Swiss HPB (Hepato-Pancreato-Biliary) Center, Department of Surgery, University Hospital of Zurich, Switzerland

Background: While liver surgery has enjoyed major development, the incidence of non-renal, complications remain high. No scoring system is available to identify those patients at higher risk for a complicated course. Methods: Complications were prospectively assessed in 615 consecutive non-cirrhotic patients undergoing liver resection at one institution. In randomly selected 60% of the population, multivariate-logistic-regression analysis was used to develop a score to predict severe complications defined as complications grade III, IV and mortality (grade V) (Dindo classification). The score was validated within the remaining 40% of the patients. Results: Grade III-V complications occurred in 26% of the patients (159/615) after liver resection, 15% (90) were grade III, 8% (48) grade IV, and 0% (21) grade V. Four preoperative parameters were identified as independent predictors including ASA category, transaminases levels (AST), extend of liver resection (>3 vs. <3 segments) and the need for an additional hepatico-jejunostomy or colon resection. A prediction score was calculated ranging from 0 to 10 points. The risk to develop serious postoperative complications was 16% in “low risk” patients (0-2 pts), 37% in “intermediate risk” patients (3-5 pts) and 60% in “high risk” patients (6-10 pts). The validation of the score showed a high similarity of the calculated and the observed risk distribution across the different risk categories (Hosmer-Lemeshow = 0.8). The score was significantly associated with hospital stay as well as costs. Conclusions: This novel and simple score accurately predicts postoperative complications after liver resection. Early identification of patients at risk may impact not only on decision-making for surgical intervention, but also on quality assessment and reimbursement.

Macrophages from Cronh’s disease patients exhibit deficient pro- repair functions
Fabrizia D’Angelo1, Eric Bernasconi1, Michel H Maillard1, Catherine Andriamahay1, Daniel Bachmann1, Pierre Michetti2, Dominique Velin1
1 Department of Gastroenterology and Hepatology, CHUV and University of Lausanne, Lausanne, Switzerland
2 Gastro-enterologue La Source-Beaulieu, Lausanne, Switzerland

Background: We previously reported that myeloid cells can induce mucosal healing in a mouse model of acute colitis. Promotion of mucosal repair is becoming a major goal in the treatment of Cronh’s disease. Our aim in this study is to investigate the pro-repair function of myeloid cells in healthy donor (HD) and Cronh’s disease patients (CD).

Methods: Periperal blood mononuclear cells (PBMC) from HD and CD patients were isolated from blood samples by Ficoll density gradient. Monocytic CD14+ cells were positively selected by Macs procedure and then differentiated ex-vivo into macrophages (Mφ). The repair function of PBMC, CD14+ monocyctic cells and macrophages were evaluated in an in vitro wound healing assay.

Results: PBMC and CD14+ myeloid cells from HD and CD were not able to repair at any tested cell concentration. Remarkably, HD Mφ were able to induce wound healing only at high concentration (105 added Mφ), but, if activated with heat killed bacteria, they were able to repair even at very low concentration. On the contrary, not activated CD Mφ were not able to promote healing at any rate, but this function was restored upon activation.

Conclusion: We showed that CD Mφ in their steady state, unlike HD Mφ, are defective in promoting wound healing. Our results are in keeping with the current theory of CD as an innate immunodeficiency. Defective Mφ may be responsible for the mucosal repair defects in CD patients and to the subsequent chronic activation of the adaptive immune response.

IFN Stimulated Gene Expression in the Liver is a Better Predictor of Treatment Response in Chronic Hepatitis C Than the IL28B (IFNα3) Genotype
Michael P. Del1,2, François H.T. Duong1, Ji Jie E. Vogt1, Stéphanie Bibet1, Pierre-Yves Bochud1, Lyop Terciarciano1, Andrew Papaioannou1, Volker Roth1 and Markus H. Hiem1
1 Department of Biomedicine, Hepatology Laboratory, University of Basel, Basel
2 Division of Gastroenterology and Hepatology, University Hospital Basel, Basel
3 Computer Science Department, University of Basel, Basel
4 Infectious Disease Service, Department of Medicine and Institute of Microbiology, University Hospital and University of Lausanne, Lausanne

Background: Therapy of chronic hepatitis C (CHC) with pegIFNα2b/ribavirin achieves a sustained virologic response (SVR) in ~55%. Pre-activation of the endogenous interferon system in the liver is associated with non-responder (NR). Recently, genome-wide association studies described associations of allelic variants near the IL28B (IFNα3) gene with treatment response and with spontaneous clearance of the virus. We investigated if the IL28B genotype determines the constitutive expression of IFN stimulated genes (ISGs) in the liver of patients with CHC.

Methods: We genotyped 93 patients with CHC for 3 IL28B single nucleotide polymorphisms (SNPs, rs1298082, rs8099917, rs12980275), extracted RNA from their liver biopsies and quantified the expression of IL28B and of 6 previously identified classifier genes which discriminate between SVR and NR (IFN44, RSAD2, ISG15, IFI22, LAMP3, OAS3, LGALS3BP and HTATIP2). Decision tree ensembles in the form of a random forest classifier were used to calculate the relative predictive power of these different variables in a multivariate analysis.

Results: The minor IL28B allele (bad risk for treatment response) was significantly associated with increased expression of ISGs, and, unexpectedly, with decreased expression of IL28B. Stratification of the patients into SVR and NR revealed that ISG expression was conditionally independent from the IL28B genotype, i.e. there was an increased expression of ISGs in NR compared to SVR irrespective of the IL28B genotype. The random forest feature score (RFFS) identified IFI22 (RFFS = 21234), RSAD2 (1188) and HTATIP2 (1150) expression and the HCV genotype (1162) as the strongest predictors of treatment response. ROC curves of the IL28B SNPs showed an AUC of 0.66 with an error rate (ERR) of 0.22% and a classifier with the 3 best classifier genes showed excellent test performance with an AUC of 0.94 and ERR of 0.15. The addition of IL28B genotype information did not improve the predictive power of the 3 gene classifier.

Conclusions: IL28B genotype and hepatic ISG expression are conditionally independent predictors of treatment response in CHC. There is no direct link between altered IFNα3 expression and the pre-activation of the endogenous system in the liver. Hepatic ISG expression is far by the better predictor for treatment response than IL28B genotype.

Sequence-Based Hepatitis B Virus Antiviral Resistance Testing in Switzerland
Christopher Doro1, Roland Sahli2, Amallo Telenti5 and Darius Moradpour1
1 Division of Gastroenterology and Hepatology and 2 Institute of Microbiology, CHUV, Lausanne

Background: A growing number of patients with chronic hepatitis B is being treated for extended periods with nucleoside and/or nucleotide analogs. In this context, antiviral resistance represents an increasingly common and complex issue.

Methods: Mutations in the hepatitis B virus (HBV) reverse transcriptase (rt) gene and viral genotypes were determined by direct sequencing of PCR products and alignment with reference sequences deposited in GenBank.

Results: Plasma samples from 60 patients with chronic hepatitis B were analyzed since March 2009. The predominant mutation pattern identified in patients with virological breakthrough was rtM204VI ± different compensatory mutations, conferring resistance to L-nucleosides (lamivudine, telbivudine, emtricitabine) and predisposing to entecavir resistance (n = 18). Complex mutation patterns with a potential for multidrug resistance were identified in 2 patients. Selection of a fully entecavir resistant strain was observed in a patient exposed to lamivudine alone. Novel mutations were identified in 1 patient. Wild-type HBV was identified in 9 patients with suspected virological breakthrough, raising concerns about treatment adherence. No preexisting resistance mutations were identified in treatment-naïve patients (n = 13). Viral genome amplification and sequencing failed in 16 patients, of which only 2 had a documented HBV DNA > 1000 IU/ml. HBV genotypes were D in 28, A in 6, B in 4, C in 3 and E in 3 patients. Results will be updated in August 2010 and therapeutic implications discussed.

Conclusions: With expanding treatment options and a growing number of patients exposed to nucleoside and/or nucleotide analogs, sequence-based HBV antiviral resistance testing is expected to become a cornerstone in the management of chronic hepatitis B.
Short-term individual nutritional care as part of routine clinical setting improves outcome and quality of life in malnourished medical patients

Juliane Drommer, Heinz Schneider, Birgit Alteheld, Peter Stehle, Rémy Meier

1Department of Gastroenterology, Hepatology and Nutrition, Kantonsspital Liestal/Switzerland; 2HealthECon AG, Basel/Switzerland; 3Department of Nutrition and Food Sciences, University of Bonn, Bonn/Germany

Background: Strategies to treat malnutrition lack practicability in the hospital setting. The present study aimed at developing and evaluating a routinely manageable concept for an improved nutritional care of malnourished in-hospital patients.

Methods: A randomized controlled intervention study was conducted. 132 risk patients defined by Nutritional Risk Screening 2002 were randomised to individualised nutrition support (intervention group, n=66) or standard hospital care (control group, n=66). Body weight, plasma vitamin levels, quality of life (SF-36), complications, antibiotic therapies, readmissions and mortality were assessed.

Results: Nutrition interventions led to higher intakes (mean [standard deviation]) in energy (1553 [341] kcal vs. 1115 [381] kcal, p<0.001) and protein (65.4 [14] g vs. 43.9 [17.2] g, p<0.001). Intervention patients kept their bodyweight in comparison to control patients (0.0 [2.9] kg vs. -1.4 [3.2] kg, p=0.008). Positive effects on plasma ascorbic acid level (46.7 [26.7] μmol/l vs. 34.1 [24.2] μmol/l, p=0.010). SF-36 function summary scale (37.1 [11] % vs. 32 [9] %, p=0.030), number of complications (4/66 vs. 13/66, p=0.035), antibiotic therapies (1/66 vs. 8/66, p=0.033) and readmissions (17/64 vs. 28/61, p=0.027) were recorded.

Conclusions: Malnourished patients profit from nutrition support regarding nutrition status and quality of life. They have fewer complications, need fewer antibiotics and are less often re-hospitalised.

Unsedated transnasal esophago-gastro-duodenoscopy at 4559m – Endoscopic findings in healthy mountaineers after rapid ascent to high altitude

Heiko Fruehauf, Annina Erb, Marco Maggiorini, Thomas Lutz, Werner Schweizer, Michael Fried, Mark R. Fox, Oliver Goethe

1Div. of Gastroenterology, University Hospital Zurich, 2Dep. of Food Sciences, ETH Zurich, 3Dep. of Internal Medicine, University Hospital Zurich, 4Center for Integrative Human Physiology and 5Inst. of Veterinary Physiology, University Zurich

Background: The causes of gastrointestinal (GI) symptoms of acute mountain sickness (AMS) are uncertain. We aimed to assess the incidence of mucosal lesions of the upper GI tract in healthy mountaineers following rapid ascent to high altitude and their association with GI symptoms.

Methods: 26 healthy mountaineers (16m, 22-60y, 8 with a history of high altitude pulmonary edema (HAPE)) underwent unsedated transnasal fiberoptic esophago-gastro-duodenoscopy (UFT-EGD, Pentax FG-16V, 5.3mm) under lidocaine nasal analgesia and 2 oxygen supplement in Zurich (400m) and on two test days (d2-d4) at Capanna Regina Margherita high altitude laboratory in the Alps (4559m), where they spent four days after rapid ascent from 1130m. On each test day arterial oxygen saturation (ΔSO2) was measured and preapendal AMS scores were assessed by self assessment questionnaires (Lake Louise Score (LLSAS), AMS-C). Gastroparasis cardinal symptom index (GCSI), dyspeptic symptoms and hunger scores (10cm visual analogue scale) were recorded. Mucosal lesions were treated with high doses of a proton pump inhibitor (PPI). Desamethasone 8mg bid was administered if LLSAS in the evening of d2 was >4 or >2 in HAPE susceptible individuals.

Results: Of those that underwent UFT-EGD at ground level at least one endoscopy at 4559m (d4) 18/23 also had UFT-EGD on d2. The procedure was generally well tolerated and safe. Arterial ΔSO2 was lower on d2 and d4 than in Zurich (75±1 and 80±1 vs. 96±1, p=0.001). One mild reflex esophagitis was observed at background level. Of those that underwent UFT-EGD on d2, 5/18 (28%) had peptic mucosal lesions: duodenal erosions/ulcers (4), hemorrhagic gastritis after 500mg aspirin intake (1). On d4 lesions were found in 4/23 (17%) (ΔSO2 was measured and preapendal AMS scores were assessed by self assessment questionnaires (Lake Louise Score (LLSAS), AMS-C). Gastroparasis cardinal symptom index (GCSI), dyspeptic symptoms and hunger scores (10cm visual analogue scale) were recorded. Mucosal lesions were treated with high doses of a proton pump inhibitor (PPI). Desamethasone 8mg bid was administered if LLSAS in the evening of d2 was >4 or >2 in HAPE susceptible individuals.

Conclusions: GI mucosal lesions are common findings in healthy mountaineers after rapid ascent to high altitude independent of desamethasone use. The presence of mucosal disease was associated with the loss of appetite – a key symptom of AMS. Patho-physiological mechanisms might include hypoxia and disturbed GI microcirculation in a hostile environment.


Percutaneous Tibial Nerve Stimulation – A new treatment for fecal incontinence

Objective: Percutaneous Tibial Nerve Stimulation (PTNS) is a new treatment option for patients with fecal incontinence, especially for patients complaining of urge-incontinence. Up to now few studies addressed this technique. We present our first experience with this promising approach.

Methods: We performed the PTNS by insertion of a small needle (34 gauge) adjacent to the tibial nerve in the ankle and stimulation over 30 min. The initial sessions were done weekly for 12 weeks. We then continued the therapy when patients improved their incontinence and started a maintenance therapy. Fecal incontinence was monitored at baseline, 6 weeks and 12 weeks by using the Wiener and Vaijay Score. Well-being was assessed by the Visual Analogue Scale (VAS). Patient satisfaction was assessed at 12 weeks.

Results: From August to December 2009 13 patients (12 female) median age 65.7(range 38.4-85.6) were included into the study. Ten patients complained of faecal urgency and 2 of passive fecal incontinence. Median Wiener Score before ptNS was 11(7-13) and median Vaijay Score was 14(15-17). After 6 weeks of PTNS, the Wiener Score significantly decreased to 6(4-10) (p=0.0078), while the Vaijay Score declined to 10(4-13),(p<0.0039). VAS was 5(2.5-6.3) before treatment, and it improved at 6 weeks 2(0.4-5.8) (p=0.0029). No complications or side effects occurred. Five patients completed the initial therapy sessions with a subjective success rate of 100% and started a maintenance therapy. No recurrence of the urge symptoms was reported.

Conclusion: PTNS may be a safe and effective treatment for patients with fecal incontinence and involuntary stool lost. It is a simple to perform and minimal invasive approach lacking a frustrating disorder.

Genetic and Functional Analysis of Intestinal Organic Cation / L-Carnitine Transporter (OCTN) in Crohn’s Disease


Department of Nutrition and Food Sciences, Geneva University Hospital, 1Laboratory in Genetics of Inflammation, Université de Montréal, Canada. 2IBD Lab, McGill University Health Centre, Montreal, Canada.

Background: The IBD locus has been repeatedly implicated as a genetic risk factor for Crohn’s Disease (CD). This locus codes for the organic cation/carnitine transporters (OCTN1 & 2) that transport carnitine. Two variants of OCTN have been associated with susceptibility to CD and a modified function of OCTN1 & 2 was shown in vivo. Aims: To investigate the function of intestinal OCTNs in inflammatory bowel disease (IBD) in relation to genetic polymorphisms. Methods: Intestinal tissue was obtained from endoscopic biopics (n=58) and surgical resections (n=28) in consenting IBD and control patients. OCTN protein levels were measured by Western Blot. Carnitine transport was measured on brush border membrane vesicles from intestinal resections using 1H radiolabeled substrate. Common OCTN1 & 2 polymorphisms were carried out using leukocytes. Results: OCTN1 & 2 were shown at 65 KDa in IBD and controls. OCTN1 protein levels were significantly higher in ileum compared to colon (2.3±0.4 vs 0.7±0.2, p<0.0002). OCTN1 expression was higher in CD patients with homo or heterozygous mutations (0.6±0.1 vs 3% ± 0.8, p<0.02). No difference in carnitine transport was found comparing CD and control groups (0.45±0.12 vs 0.51±0.12 nm carnitine/mg prot/min). Carnitine transport tended to be higher, but not significantly, in tissue from patients with homo or heterozygous OCTN1 mutations (0.19±0.03 vs 0.59±0.12). Conclusions: The present data reveal the presence of higher OCTN protein levels in intestinal tissue from IBD patients. Our results suggest that ileal carnitine transport is similar in CD and control groups. However, there was a trend towards higher carnitine transport in patients with OCTN1 mutations.
Gastric emptying, dyspeptic symptoms and eating behavior in healthy mountain climbers after rapid ascent to 4559 m

Goetze O 1, Ett E 1, Heinrich H, Maggiorini M 1, Lutz T 2, Schneider W 2, Fried M 1, Freuhaf H 2

1 Division of Gastroenterology and Hepatology, University Hospital Zurich
2 Institute of Human Nutrition, University of Zurich

Background: Loss of appetite and nausea are frequent symptoms of acute mountain sickness (AMS). It is hypothesized, that direct effects of hypoxia on gastrointestinal (GI) motor and sensory function may be the origin of these symptoms. Therefore our aims were to assess gastric emptying (GE), dyspeptic symptoms and appetite in healthy mountain climbers after rapid ascent to 4559 m.

Methods: 15 participants (15m, 20-65y, 8 with a history of high altitude pulmonary edema (HAPE)) were studied at ground level (GL) in Zurich (490 m) and on two occasions (d2/d4) at Capanna Regina Margherita in the Apls (4559 m), where they spent four days after a rapid ascent from 1130 m. On each occasion we recorded AMS symptoms by self assessment questionnaires [Lake Louise Score (LLSAS), gastroparesis cardinal symptom index (GCSI) and combination with exhaled methane before the participants had a simple lunch meal (400 kcal) labelled with 100 mg 13C-octanoate for a GE breath test. Samples were obtained at regular time intervals over 4 h. 13C-isotopic ratio was determined by a spectrophotometric method (Wagner, Germany) and gastric emptying coefficient (GEC) and half emptying time (T50) were calculated.

Postprandial dyspeptic symptoms (fullness, nausea, bloating, pain) and appetite scores were assessed by a 10cm visual analogue scale and analysed as AUC0-t and AUC0-∞. Dexamethasone 8 mg bid was administered if LLSAS in the evening of d2 was >4 or >2 in HAPE susceptible.

Results: LLSAS was highest at d2 and d4 (6.6±0.7 and 5.8±0.7 vs GL: 1.2±0.5, p<0.001). Compared to ground level GE increased at high altitude at d4 (GEC: 3.6±0.1 vs 4.0±0.1, p=0.06; T50: 146±7min vs 111±8min, p<0.001). GE increased further from d2 to d4 (GEC: 3.9±0.2 vs 4.0±0.1, p=0.06; T50: 134±6min vs 111±8min, p<0.01) and was lower on d4 compared to d2 (GEO: 6.3±0.2 vs 7.0±0.1, p<0.05) and to baseline to GL (4.4±0.1). GCSI was not associated with GE parameters. Dyspeptic symptoms were increased at high altitude at d2 (for all AUC<0.05) and returned to baseline at d4. Two hours after meal intake appetite scores increased but were lower on d2 compared to GL (for all AUC<0.05) and returned to baseline at d4. No differences were found in the d2/d4 comparisons between LLSAS, GCSI, dyspeptic symptoms and appetite (p>0.2).

Conclusions: This study is the first description of GE and GI sensory responses to feeding during the acclimatization phase at high altitude. Higher initial dyspeptic symptoms and lower appetite scores return rapidly to baseline independent of dexamethasone use. In addition accelerated solid GE counterbalances the well known increase in energy expenditure at high altitude.

Expression of Thymidin phosphorylase (TP), Dihydropyrimidine dehydrogenase (DPD) and Thymidylate synthase (TS) in Pretherapeutic Rectal Cancer and Correlation with Tumor Stage and Regression Grade

Beatrice Kern1, Andreas Zettt 1, Marc-Olivier Guerin1, Ralph Peterli1, Christoph Ackermann1, Markku von Fyss1

1 Chirurgische Klinik, St. Claraspital, Basel
2 Institut für Pathologie, ViUCCESS, Basel

Background: Neoadjuvant chemoradiotherapy (CRT) has become a standard practice for locally advanced rectal cancer. Complete pathologic response can be achieved in 20-25%. Molecular markers can be helpful to detect responders from non-responders prior to CRT. The aim of the study was to examine the correlation between TP, DPD and TS expression and histopathologic tumor regression grade.

Methods: Neoadjuvant CRT was investigated. Total RNA from paraffin-embedded tissue was isolated. Quantification of TP, DPD and TS was performed by RT-PCR. Results were correlated with the tumor regression grade according to Dworak. Patients with complete histopathologic response (ypT0 ypN0 Dworak 4) were considered "responders", patients with Dworak 0-3 "non-responders".

Results: Histopathologic examination revealed 9 responders (39%) and 38 non-responders (61%). Median expression of TP, DPD and TS were found in responders prior to CRT. The expected results should enhance our understanding of the functional architecture of the HCV replication complex and may provide new opportunities for antiviral intervention in the future.
Zinc salts provide a novel, prolonged and rapid inhibition of gastric acid secretion
Philipp Kirchhoff1,2, Thenal Socrates1, Tobias Breidhards1, Christian Grob1, Carsten T. Viehl2, Christoph Beglinger1, Daniel Oertli1, John P. Geibel3
1) Department of Surgery, Yale University School of Medicine, New Haven, USA
2) Department of Surgery, University of Basel, Basel, Switzerland
3) Department of Internal Medicine, University of Basel, Switzerland

Background: The overproduction of acid and the associated illnesses linked to hypersecretion affects approximately 25 million patients per year. Although a variety of pharmaceutical agents have been employed to reduce the production of acid, alarming new evidence questions the long term efficacy and safety of the agents. These issues coupled with the delayed onset of action and the return of symptoms to over 60% of the patients is less than satisfactory.

Aim: The purpose of the present study was to determine if administration of a zinc salt could lead to a rapid and sustained increase in gastric pH in both animals and in humans and provide a new rapid acid suppression therapy.

Methods: Intracellular pH was measured with BCECF both in human and rat gastric glands following an acid load +/- a secretagogue. In a separate series of studies whole stomach acid secretion was monitored in rats. A final study used healthy human volunteers while monitoring with a gastric pH measurement received either: placebo, zinc salt, or a zinc salt and PPI.

Results: We demonstrate that exposure to ZnCl2 immediately abolished secretagogue induced acid secretion in isolated human and rat gastric glands, and in intact rat stomachs. Chronic low dose zinc exposure effectively inhibited acid secretion in whole stomachs and isolated glands. In a randomized cross-over study in 12 volunteers exposure to a single dose of ZnCl2 raised intragastric pH for over 3 hours including a fast onset of effect.

Conclusion: Our findings demonstrate that zinc offers a novel rapid and prolonged therapy to inhibit gastric acid secretion in human and rat models.

Vitamin D deficiency and a CYP27B1-1260 promoter polymorphism are associated with chronic hepatitis C and poor response to interferon-alfa based therapy
Christian M. Lange1,2, Jörg Bojunga3, Elizabeth Ramos-Lopez2, Michael von Wagner2, Angela Hassler2, Johannes Vemrrehren2, Eva Herrmann2, Klaus Badenhoop2, Stefan Zeuzem2, Christof Sarradin2
1. Department of Gastroenterology and Hepatology, CHUV, Rue Bugnon 46, 1011 Lausanne, Switzerland
2. Johann Wolfgang Goethe University Hospital, Department of Medicine 1, Theodor-Stern-Kai 7, 60590 Frankfurt am Main, Germany

Background: Vitamin D is an important immune modulator and preliminary data indicated an association between vitamin D deficiency and sustained virallogic response (SVR) rates in patients with chronic hepatitis C. We therefore performed a comprehensive analysis on the impact of vitamin D serum levels and of genetic polymorphisms within the vitamin D cascade on chronic hepatitis C and its treatment. Methods: Vitamin D serum levels, genetic polymorphisms within the vitamin D receptor and the 1α-hydroxylase were determined in a cohort of 468 HCV genotype 1, 2 and 3 infected patients who were treated with interferon-alfa based regimens. Results: Chronic hepatitis C was associated with a high incidence of severe vitamin D deficiency compared to controls (25[OH]D<10 ng/mL in 25% versus 12%, p<0.0001), which was in part reversible after HCV eradication, 25(OH)D deficiency correlated with SVR in HCV genotype 2 and 3 patients (63% and 83% SVR for patients with and without severe vitamin D deficiency, respectively, p=0.001). In addition, the CYP2B7-1260 promoter polymorphism rs10877012 had substantial impact on 1-25-dihydroxyvitamin D serum levels and SVR rates in HCV genotype 1,2 and 3 infected patients.

Conclusions: Chronic hepatitis C virus infection is associated with vitamin D deficiency. Reduced 25-hydroxyvitamin D levels and CYP2B7-1260 promoter polymorphism are associated with failure to achieve SVR in HCV genotype 1,2,3 infected patients.

Effect of gastric secretion on measurement of liquid gastric emptying by 13C-Acetate breath test in humans – a combined magnetic resonance imaging (MRI) and 13C breath test study
Kupunis1, Tieser2, Stangl3, Andreas3, Reiter1, Robb1, Boeiger2, Peter2, Fried1, Michael2, Schwaier1, Werner1, Geist2, Olivia1
1. Division of Gastroenterology & Hepatology, University Hospital Zurich, Zurich, Switzerland
2. Institute for Biomedical Engineering, University and ETH Zurich, Zurich, Switzerland

Background: Previous intraduodenal validation studies of 13C-Acetate (Ac) labelled meals (Neumgartneret al Motil 2009) have shown that, theoretically, the flow rate of gastric emptying (GE) can be derived from 13CO2 excretion curves. However, in higher caloric meals gastric secretion may dilute the GE marker, which could result in lower 13CO2 exhalation irrespective of the actual rate of GE. To assess the effect of gastric secretion on 13CO2 exhalation, we applied in parallel a newly developed MRI technique allowing the assessment of the gastric secretion rate and the dilution of a test meal (MRR 2007).

Methods: After ingestion of a glucose drink (500ml, 200cal) homogeneously labelled with 1200µmol Gd-DOTA and 100mg Ac, 12 healthy volunteers were treated with pentagastrin (0.6µg/kg/h i.v.) and placebo (0.6% NaCl i.v.) over a period of 60min on two different days in double-blind randomised order. MRE (1.5T Achieva, Philips Healthcare) assessed gastric content volume [GCV = meal (MV) + secretion volume (SV)] and Gd-DOTA concentration within the meal every 5min over a period of 90min. Antral Ac concentrations (cAc) were identified in individual anatomical maps of Gd-DOTA concentrations. MV and SV were calculated from total gastric Gd-DOTA concentration and GCV.

13C in breath was measured by a spectroscopic method and expressed as maximal and cumulative percentage dose rate (PDmax, PDcum). Gastric secretion and excretion were expressed as maximal SV (SVmax), minimal cAc (cAcmin) as well as area under the curve (AUC) of cAc and MV. A multiple linear regression model was applied to assess the effect (weighted by partial correlations of predictors) of gastric secretion and antral meal dilution on 13CO2 excretion during treatment. Effects of treatment were compared by Wilcoxon test. Results: Pentagastrin increased SVmax and AUC and reduced antral cAc and AUC-cAc, respectively (all p<0.05): cPD and PDcum were smaller under pentagastrin (all p<0.01). Regression analysis showed that cPD and PDcum were influenced by intragastric AC dilution and delayed meal emptying whereas AC dilution had only a minor association with 13CO2 excretion. (PDmax: R2=0.72, p<0.001, partial correlations: AUC-MV: r=0.86, p<0.001, cAcmin; r=0.58, p=0.012, AUC-cAc: r=0.50, p=0.013; cPD: R2=0.56, p<0.001; AUC-MV: 0.78, p<0.001; cAcmin: 0.98, p=0.002; AUC-cAc: r=0.67, p=0.003).

Summary: Gastric secretion delays meal emptying and dilutes 13C-Acetate in the gastric antrum. This is reflected by lower 13CO2 exhalation irrespective of the actual rate of GE. To assess the delayed meal emptying rather than marker dilution is the main effector of this phenomenon. Conclusion: Gastric emptying rates are assessed by stable isotope breath tests and are likely to be underestimated by marker dilution, especially for high caloric meals. Underlying mechanisms need to be assessed for an experimental onset in which gastric secretion is induced by physiological meals.

Toll-Interacting Protein Deficiency Leads to Increased Susceptibility to Acute and Chronic Colitis.
M. Maillard1, E. Bernason3,1, Bernh Ulting2, C. Pythoud3,1, Bachmann1,2, Bouzourene1, K. Burns2, P. Michetti1,3, D. Velin1
1. Service de gastroentérologie et d’hépatologie, CHUV-UNIL, Lausanne.
2. Kindergastroenterologie, Leipzig, Germany.
3. Institute for Biomedical Engineering, University and ETH Zurich, Switzerland.

Background: Sensing of bacterial products via Toller-like receptors is critical to maintain gut immune homeostasis. The Toll-Interacting Protein (Tollip) inhibits downstream signaling though the IL-1 receptor, TLR-2 and TLR-4. Here, we aimed to address the role of Tollip in acute and chronic inflammatory responses in the gut.

Material and methods: WT or Tollip-deficient mice were exposed to dextran sulfate sodium (DSS) 1.5% in the drinking water during 7 days. To generate bone-marrow chimeras, WT or Tollip-deficient mice were 900-rads irradiated, transplanted with WT or Tollip deficient bone-marrow cells and challenged with DSS 2-3 months after transplantation. IL-10 deficient mice were bred with Tollip deficient mice and chimeras were generated.

Results: Upon DSS exposure, Tollip-deficient mice had increased body weight loss and increased pro-inflammatory cytokine expression compared to WT controls. Challenge of bone-marrow chimeras showed that colitis susceptibility was also increased when Tollip deficiency was restricted to non-hematopoietic cells. DSS-exposure lead to a disorganized distribution of zona-ocludens-1, a tight junction marker and increased number of apoptotic, cleaved caspase 3 positive, epithelial cells in Tollip-deficient compared to WT mice. Chronic colitis was also affected by Tollip deficiency as Tollip/-/- deficient mice had more severe histological stigmata of colitis and higher IL-17 expression than IL-10 deficient controls.

Conclusion: Tollip in non-hematopoietic cells is critical for adequate response to a chemical-induced stress in the gut and to hamper chronic bacteria-driven colitis. Modulation of epithelial cell integrity via Tollip likely contributes to the observed defects.
Common Vitamin D Receptor (NR 111) gene polymorphisms promote fibrosis progression in chronic hepatitis C patients
Joachim C. Mertens*, Katharina Baur*, Johannes Schmitt†, Rika Iwata†, Bruno Steiger†, Pascal Frei†, Aner Al-Debi†, Burkhardt Seifert‡, Beat Mühlhaup‡, Andreas Gasser‡, Andreas Kettenbach‡, Monika Ladenmann‡, Sarah Mertens‡, Jean-François Dufour‡, Andreas Geier‡, Andreas Kummer‡, Hans E. Wagner‡, Markus Naef‡, Oliver Kummer‡, Barbara E. Wildhaber‡, Marco Kummer‡, Christian Toos‡, Hans E. Wagner‡, Markus Naef‡, Oliver Kummer‡, Barbara E. Wildhaber‡, Marco Kummer‡, Christian Toos‡

1 Transplantation Division, Department of Surgery, Division of Gastroenterology and Hepatology, Paediatric Surgery Division, Department of Paediatric, Division of Infectious Diseases, University of Geneva Hospitals, Geneva, Switzerland

Abstract
Herpes simplex virus (HSV) hepatitis is a rare, but severe disease, thus far only documented by case reports and short series. The present study was based on the SRTR registry, and included all listed patients for liver transplantation from 1985 to 2009 with a diagnosis of HSV hepatitis. We assessed demographics and outcome of all listed patients, and further conducted a case-control study, matching each transplant patient with 10 controls.

Matching criteria included: transplant status, Model for End-Stage Liver Disease score ≥ 5, transplant date ≥ 6 months and age at transplant ≥ 5 years. During the study period, 30 patients were listed for HSV hepatitis. Patients were distributed into two groups, young children (with most ≤ 5 months) and adults. Twelve listed patients were not transplanted, including seven spontaneous recoveries and five deaths. The chance of recovery was significantly higher in children than in adults (7/9 vs. 0/12, p = 0.02). Ten children and eight adults were transplanted. In children, survival was similar between HSV patients and the matched controls (5-year survival 89 vs. 84%, log-rank p = 0.38). Conservatively, survival was poor in adult HSV recipients (5-year survival 38 vs. 65%, log-rank p = 0.008), with 62% of them dying within the first 12 months. In addition, all three reported post-transplant deaths in children were independent from HSV, while 47% adults deaths were infection-related.

Conclusion: Children listed for HSV hepatitis have a significantly better survival than adults both prior and after liver transplantation. While HSV fulminant hepatitis is an appropriate indication for liver transplantation in children, it should only be performed in selected adult patients in otherwise good condition.

Demographics and outcomes of severe Herpes simplex virus hepatitis: a registry-based study
Bogdan Moldovan1, Gilles Menthia, Pietro Majos1, Thierry Berny2, Isabelle Meron2, Emilie Gissi1, Barbara E. Wildhaber3, Christian Van Delften1, Philippe More1, Christian Toos1

1 University of Geneva Hospitals, Geneva, Switzerland
2 Transplantation Division, Department of Surgery, Division of Gastroenterology and Hepatology, Paediatric Surgery Division, Department of Paediatric, Division of Infectious Diseases, University of Geneva Hospitals, Geneva, Switzerland
3 Department of Medicine, Spital STSA AG, Thun, 3600 Thun, Switzerland

Background: Laparoscopic adjustable gastric banding (LAGB) has been considered by many as the treatment of choice for morbid obesity, because of its simplicity and encouraging early results. The aim of this prospective study was to critically assess the effects, complications and outcome after LAGB in the long term, based on a 12-year experience. Methods: Between June 1998 and June 2009 all patients with implantation of a LAGB have been enrolled in a prospective clinical trial. Results were recorded and classified, with special regard to long term complications, re-operation rate and graft survival. Results: LAGB was performed in 167 patients (120 female, 47 male) with a mean age of 40.1±5.2 years. Operative mortality was 0%, overall 1.2% (not band-related). Overall patient follow-up was 94.0%. Mean excess weight loss (EWL) after 2, 5, 8 and 10 years was 31.1±7.5% (p<0.005), 44.2±6.5% (p<0.001), 50.3±5.9% (p<0.001), 51.7±4.3% (p<0.001) and 48.8±6.0% (p<0.001). The non-responder rate (EWL<30%) after 2, 5, 8 and 10 years was 24.5%, 18.3%, 12.5% and 16.6%. The early complication rate (<30 days) was 7.8% (13/167), with 10 minor and 3 major complications. Late complications (>30 days) occurred in 40.1% (67/167), of whom 7 were minor and 60 were major complications (3 band infections, 2 band migrations, 11 band leakages, 2 slippings/pouch dilations, 2 band intolerances and 4 esophageal dilations). The overall re-operation rate was 20.4% (34/167). The graft survival of the implanted band after 2, 5, 8, 10 and 12 years was 98.8%, 94.0%, 88.8%, 85.0%, 85.0% and 85.0%. The failure rate of the procedure after 2, 5, 8 and 10 years was 25.7%, 24.3%, 25.7% and 31.6%. Conclusions: In the present long term high participation follow-up study LAGB is a safe and effective surgical treatment for morbid obesity. However, the high complication, re-operation and long term failure rates lead to the conclusion, that LAGB should be performed in selected cases only, until reliable criteria for patients at low risk for long term complications are developed.

Effects of Radiofrequency Ablation (RFA) in combination with Sorafenib in a 2-Tumor Rat Model of Hepatocellular Carcinoma.
Caroline Hora1, Joachim F. Mertens2, Bettina Sa1, Joachim Kettenbach3, Monika Ladenmann1, Sarah Mertens2, Jean-François Dufour2, Andreas Geier2

1 Institute of Clinical Pharmacology and Visceral Research, Inselspital, University of Bern, Division of Gastroenterology & Hepatology, University Hospital Zürich
2 Department of Diagnostic, Interventional and Pediatric Radiology, Inselspital, University of Bern
3 CHUV, University of Lausanne, Switzerland

Background: Radiofrequency ablation (RFA) is a widely employed local ablative therapy for hepatocellular carcinoma (HCC). Moreover, sorafenib prolongs survival of advanced-stage HCC patients and is currently under investigation for adjuvant treatment in clinical trials. We examined the effects of RFA in combination with sorafenib in a two-tumor rat model of HCC.

Methods: Morris Hepatoma cells (MH) were injected subcutaneously into donor ACh rats. After 14 days the resulting tumors were removed and dissected into 1 mm cubes. Tumor cubes were subsequently implanted into the right and left liver lobe of syngeneic ACh rats. Animals were randomized into four treatment groups and administered sorafenib (7.5 mg/kg) or its vehicle (placebo) p.o., starting day 12 after tumor implantation. RFA of the left liver tumor or sham-operation was performed on day 15 after tumor implantation. Group 1 was subjected to vehicle treatment and a sham operation. Group 2 had vehicle treatment and RFA therapy. Group 3 had sorafenib treatment and a sham operation. Group 4 had sorafenib treatment and RFA therapy.

MRI scans were performed at day 14 and day 20 post-implant for volumetric assessment of tumor size. Tumor samples were analyzed at 2 time points: day 18 and 30 post-implantation (10 per group). Tumor samples, surrounding liver tissue and blood samples were collected at harvest.

Results: Most animals developed two distinct tumors. When comparing the size of the unilaterally right lobe tumors at day 30, the largest tumor volumes were observed in the control group (851 ± 264 mm3). In the RFA-only group, right lobe tumors were significantly smaller (580 ± 129 mm3, p<0.05). Sorafenib treatment alone further reduced tumor growth when compared to controls (367 ± 177 mm3, p<0.001) and to the RFA-only group (p<0.05). Finally, combined sorafenib treatment and RFA therapy resulted in maximal tumor growth inhibition (282 ± 118 mm3 vs control group, p<0.001). vs RFA-only group, p<0.001).

There were no significant differences in tumor volume between the 4 groups for the animals harvested 3 days after RFA (day 18 post-implant).

Conclusions: Radiofrequency ablation therapy and sorafenib treatment alone both result in a significant reduction of the unilateral right tumor volume, with a significant promise for the sorafenib treatment. The smallest right lobe tumors developed under combination of sorafenib treatment and RFA therapy, suggesting a beneficial effect of combining the 2 modalities in HCC patients scheduled for local ablative therapy.
COLOX: a new blood-based test for colorectal cancer (CRC) screening

Cristina Nichita1, Sylvain Monnier-Benoit2, Clarion Laura2, Hosseinián Sahar3, Natsuko Imaizumi4, Naik Vietti-Violi5, Rüegg Curzio6, Dorta Gian7

1Centre Hospitalier Universitaire Vaudois (CHUV), Rue du Bugnon, 46, Lausanne; 2DAGNIOLEX S.A, Chemin de la Vulliette, 4, Lausanne; 3 Centre Fluidisciplinary d’Oncologie (CEPO), Chemin des Boveresses, 155, Epalinges

Background: The objective is to develop a cost-effective, reliable and non invasive screening test able to detect early CRCs and adenomas. This is done on a nucleic acids multi-gene assay performed on peripheral mononuclear cells (PBMCs). Methods: A colonoscopy-controlled study was conducted on 179 subjects. 92 subjects (21 CRC, 30 adenoma >1 cm and 41 controls) were used as training set to generate a signature. 48 subjects (except blinded (controls, CRC and polyps) were used as a test set. To determine organ and disease specificity 38 subjects were used: 24 with inflammatory bowel disease (IBD), 14 with other cancers (OC). Blood samples were taken and PBMCs were purified. After the RNA extraction, multiplex RT-qPCR was applied on 92 different candidate twoCOLOX tests demonstrated a high Se and Sp to detect the biomarkers with significant p-values (<0.01) were selected. Two COLOX CRC and POL tests successfully separate patients without lesions from those with CRC (Se 67%, Sp 93%, AUC 0.87), and from those with adenoma > 1 cm (Se 63%, Sp 83%, AUC 0.77). 6/24 patients in the IBD group and 1/14 patients in the OC group have a positive COLOX CRC. Conclusion: The two COLOX tests demonstrated a high Se and Sp to detect the presence of CRCs and adenomas > 1 cm. A prospective, multicenter, pivotal study is underway in order to confirm these promising results in a larger cohort.

Effects of weight loss after bariatric surgery on adipokines and metabolic parameters: Comparison of laparoscopic Roux-en-Y gastric bypass (LRYGB) with laparoscopic sleeve gastrectomy (LSG) - a prospective randomized trial

Ralph Peteri1, Robert Steinert2, Bettina Wöhrnerhanssen3, Yves Borbély1, Thomas Peters4, Beatrice Kern5, Caroline Christoffel-Courtin6, Markus von Flüe7, and Christoph Beglinger8,9

1Department of Surgery and 2Department of Medicine, St. Claraspital, Basel; 3Clinical Research Center, Department of Research, and 4 Department of Gastroenterology, University Hospital, Basel

Background: Adipokines are closely linked to obesity and insulin-resistance. Both LRYGB and LSG improve insulin-sensitivity. Objective: In this prospective, parallel-group study, we sought to compare the one-year follow-up results of LRYGB with LSG on weight loss, metabolic control and fasting adipokine levels. Methods: 12 non-diabetic morbidly obese patients were randomized to LRYGB and 11 to LSG. Patients were investigated before, 1 week, 3 months, and 12 months after surgery. Fasting levels of glucose, insulin, triglycerides, cholesterol (total, HDL and LDL), and adipokines (leptin, adiponectin, and fibroblast growth factor 21 (FGF21)) were analyzed. The adipokines were correlated to weight loss and fat mass measured by DEXA. Results: Body weight and BMI decreased markedly (P < 0.001) after either procedure corresponding to % weight loss of 16.4 ± 1.3% at 3 months, 24.8 ± 1.7% at 6, and 30.6 ± 2.7% at 12 months after LRYGB and 13.1 ± 1.1%, 20.7 ± 1.5%, and 27.9 ± 2.6% respectively after LSG. HOMA index declined from prep 8.0 ± 1.5 to 5.8 ± 0.4 at 1 week and 3.4 ± 0.3 after 3 and 2.9 ± 0.2 at 12 months in both groups. Lipid profiles were normalized. Concentration of circulating leptin levels dropped almost 50% as early as one week and continued to decrease until 12 months postop. Leptin per kg fat mass decreased by 36% after 12 months. Adiponectin increased progressively with weight loss after surgery and adiponectin/kg fat mass increased three fold after weight loss. FGF2-1 levels did not change over time. There was no difference found between LRYGB and LSG. Conclusion: Both procedures were followed by a marked reduction in body weight associated with resolution of the metabolic syndrome. Serum leptin levels decreased and adiponectin levels increased with weight loss, paralleled by improved insulin sensitivity. No change was found for FGF21.

Improved glucose metabolism 1 year after bariatric surgery: Comparison of laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic sleeve gastrectomy (LSG) - a prospective randomized trial

Ralph Peteri1, Robert Steinert2, Bettina Wöhrnerhanssen3, Yves Borbély1, Thomas Peters4, Beatrice Kern5, Caroline Christoffel-Courtin6, Markus von Flüe7, and Christoph Beglinger8,9

1Department of Surgery and 2Department of Medicine, St. Claraspital, Basel; 3Clinical Research Center, Department of Research, and 4 Department of Gastroenterology, University Hospital, Basel

Background: Bypass of the foregut is thought to play a major role in the rapid improvement in the metabolic control of diabetes after gastric bypass. Objective. In this randomized, prospective, parallel group study, we sought compare the effects of LRYGB with those of LSG on fasting, and meal-stimulated insulin, glucose levels as well as gut hormone levels of the foregut (Ghrelin, CCK) and the hindgut (GLP-1, PYY). Methods. Thirteen morbidly patients were randomized to LRYGB and 14 patients to LSG. The mostly non-diabetic patients were evaluated before, 1 week, 3 months, and 1 year after surgery. A standard test meal was given after an overnight fast, and blood samples were collected before and after food intake in both groups. Results. Body weight decreased markedly (P<0.0002) and comparably after either procedure. Excess BMI loss was similar at 3 months (35.1±0.4% for LRYGB and 31.4±1.8% for LSG) and at 12 months 79.2±3% and 64.2±0% (P<0.08). After surgery, patients had markedly increased postprandial plasma insulin and GLP-1 levels, respectively, (p<0.01), resulting in an improvement of the HOMA-index early as 1 week post-op. After 3 months and 1 year, no significant difference was observed with respect to insulin and GLP-1 secretion between the two procedures. GLP-1, decrease was decreased and CCK increased significantly more after LSG. Conclusion. Both procedures markedly improved glucose homeostasis: insulin, GLP-1 and PYY levels increased similarly after either procedure, however ghrelin decreased and CCK increased significantly more after LSG. Bypass of the foregut does not seem to be the only mechanism in glucose homeostasis.

Notch1 Signaling Through Ephrin B3/EphB4 Pathway Maintains Ultrastructure, Differentiation and Function of Liver Sinusoidal Endothelial Cells

Sahar Rotwielger1, Michael Dill1, Valentina Djojos2, Rusan Hlushchuk2, Luigi Tomillo3, Luigi Terracciano3, Markus Hein4 (1) and David Semela5 (1,4)

1 (1) Department of Biomedicine, University Basel (2) Institute of Anatomy, University Fribourg (3) Institute of Pathology, University Hospital Basel (4) Division of Gastroenterology and Hepatology, University Hospital Basel

Background: Notch signaling plays a pivotal role in embryonic vascular development as well as in normal vascular remodeling. We have reported that Notch KO in mice leads to nodular regenerative hyperplasia (NRH). The pathogenesis of NRH is still unclear; several clinical reports have linked NRH to vascular injury of the sinusoids. The aim of our study is to elucidate the role of Notch1 signaling in NRH focusing on liver sinusoidal endothelial cells (LSECs).

Methods: We used McrCre Notch1lox/lox mice as a tissue-specific conditional KO mouse model. A hepatocyte-specific KO was created by crossing Notch1lox/lox with AcrCre-ER+ mice. Morphological analysis of the liver was performed (polarization by Brott/HIC, hepatic stellate cell (HSC) activation by alpha-SMA IHC). Morphology of hepatic vasculature was assessed by scanning electron microscopy (SEM). Portal vein pressure was measured in anesthetized KO mice. In vitro angiogenesis was studied using LSECs on matrigel with primary hepatocyte conditioned medium (CM) from either Notch1 KO mice or control mice.

Results: McrCre induced KO mice developed NRH within 14 days after deletion of Notch1 in the absence of Bsis or HSC activation. Brott staining showed a persistently increased LSEC proliferation rate in McrCre Notch1 KO mice (p=0.0058, day 6 up to week 14). SEM of vascular casts showed that loss of Notch1 leads to de-differentiation and dramatic vascular remodeling of the hepatic sinusoidal microvasculature with increased branching and diameter (p<0.001) as well as active intussusceptive angiogenesis. Fenestrate and sieve plates of LSEC were strongly reduced (p=0.005). Expression analysis of Notch1 key targets in liver homogenates (RT-PCR, WB) showed upregulation of EphB4 and downregulation of EphrinB2. Further, McrCre Notch1 KO mice developed portal hypertension (p=0.0043) and unregulated endothelial CD31 as markers of capillarisation. In contrast, hepatic vasculature of Notch1 KO mice were phenotypically normal. Accordingly, no difference was found in LSEC proliferation and tube formation with Notch1 CM compared to control CM.

Conclusions: Notch signaling through EphrinB2/EphB4 is required for vascular homeostasis of hepatic sinusoids by inducing quiescence and differentiation of LSEC in adult mice. Disruption of Notch1 pathway leads to LSEC proliferation, loss of fenestrance vascular remodeling and portal hypertension without fibrosis or HSC activation. The lack of phenotypic changes in hepatocyte-specific Notch1 KO mice suggests that the development of NRH in our model is secondary to vascular remodeling induced by loss of Notch signaling in LSEC.
**Ficolin-2 as a possible new serum marker for disease activity in CD patients**

Thomas Schaffer, Stefan Müller and Frank Seibold

Department of Clinical Research, Division of Gastroenterology, Insel-
spital Bern, Switzerland

**Background and Aims:** The ficolins represent microbial pattern recog-
nition receptors that can activate the lectin pathway of complement. We found that in the sera of IB patients, especially in Crohn’s disease (CD), ficolin-2 (L-ficolin) had an acute-phase like expression pattern. With the present study we further investigated the acute-phase like expression of ficolin-2 in CD patients including a possible corre-
lation with disease activity.

**Methods:** Ficolin-2 concentrations were measured in the sera of IB patients by ELISA. For the same patients also C-reactive protein (CRP) and local complement protein concentrations were determined. Harvey-Bradshaw index, Mayo score and medication were assessed at the time point of sample collection. Sera and stool samples were collected in a prospective manner from 48 patients of our local IBD cohort.

**Results:** In our IBD cohort serum concentrations of ficolin-2 were significantly increased in CD patients compared to healthy controls. It was also increased in UC patients compared to HC but this was not statistically significant. The increase of ficolin-2 was higher than 40% compared to healthy controls and a moderate but significant correla-
tion with CRP concentration was measured. Furthermore, CD patients with a higher Harvey-Bradshaw index (HBI) >3 had significantly higher fi-
colin-2 concentrations than patients with a HBI ≤3.

**Conclusion:** Ficolin-2 in CD showed an expression pattern like an acute-phase protein. Ficolin-2 was the only marker in this study that was significantly correlated with disease activity represented by the HBI. Therefore, ficolin-2 may represent a new, easy measurable se-
rum marker, to objectively assess disease activity of CD patients.

**Efficiency of Tacrolimus Rescue Therapy in Severe Treatment-Resistant Ulcerative Colitis**

Frank Seibold, Bruno Balsiger, Alain Schoepfer, Marijana Prokeš

Dept. of Gastroenterology, Inselspital/University Hospital Bern and Spitalnetz Bern, Spital Tiefenau, Lindenhofspital Bern

**Background:** Ulcerative colitis (UC) patients refractory to steroids and immunomodulators (Azathioprine, 6-
mercaptopurine) are under increased risk for undergoing colectomy. Several rescue treatments such as cyclosporine, tacrolimus and anti-TNF-α agents are available for these cases. We aimed to investigate the efficacy of tacrolimus in treatment-resistant UC patients during a severe flare-up.

**Methods:** UC patients treated with tacrolimus between January 2008 and April 2010 were retrospectively analysed. Clinical response was defined as a >3 point decrease in the Mayo score.

**Results:** Thirteen patients (10 male/ 3female) were included. Co-medication: all patients were under either azathioprine or 6-
MP and additionally steroids. Infliximab was given in 7/13 (54%). Overall, 8/13 (62%) showed a clinical response under tacrolimus. Five out of 6 patients (83%) that were naive to infliximab (IFX) responded to tacrolimus, whereas the response rate in the IFX pre-treated group was 3/7 (43%, P = 0.138). One IFX-naïve patient unresponsive to tacrolimus later responded to IFX. Tacrolimus had to be applied as maintenance therapy in three of the responders (37%) because of worsening of disease activity upon termination of tacrolimus rescue therapy. Four patients that did not respond to tacrolimus treatment required colectomy at a later time. No side effects of tacrolimus were observed.

**Discussion:** Tacrolimus is an effective treatment in a subgroup of steroid/immunomodulator- or anti-TNF treatment-resistant UC patients. A subgroup of patients that failed anti-TNF therapy still responded to tacrolimus rescue therapy.
Effects of Pentoxifylline on Liver Regeneration: A Double-Blinded Randomized Controlled Trial in 101 Patients

Undergoing Major Liver Resection

Ksenija Slankamenac,1 Stefan Breitenstein,1 Henrik Petrovsky,1 Diana Vetter,1 Kuno Lehmann,1 Stefan Heinrich,1 Michelle L. DeOliveira1, Wolfram Jochum2, Dominik Weihaupt3, Thomas Frauenfelder,4 Rolf Graf5 and Pierre-Alain Clavien6

Swiss HPB Center, Departments of Surgery,1 Pathology,3 and Radiology,4 University Hospital Zurich, Switzerland

Background: Recent experimental data suggest that Pentoxifylline (PTX), a TNFα inhibitor, enhances liver regeneration and reduces ischemic injury through activation of the IL-6 signaling pathway. However, the clinical impact of PTX in patient undergoing major liver surgery is unknown. Methods: 101 consecutive non-cirrhotic patients undergoing major liver surgery with inflow occlusion were included in a double-blinded RCT at a single tertiary care center (2006–2009). 51 patients received intravenous PTX starting 12 hours before and ending 72 hours after surgery, while 50 control patients received a placebo infusion. Primary endpoint was liver regeneration as assessed by 3D-volume based on MR tomography at POD8 and compared by preoperative images. Secondary endpoints were transaminases, cytokines and postoperative complications. Treatment with PTX resulted in significantly better volume recovery compared by high-resolution endosonography (EUS). The primary endpoint was the therapy’s ability to maintain EoE in histologic remission. Secondary endpoints were the efficacy in symptom control and in preventing tissue remodeling.

Results: Despite treatment of quiescent EoE with low-dose budesonide, the esophageal eosinophilic load increased considerably during a 50-week period, from 0.4 to 31.8 eosinophils/hpf, nevertheless, with placebo, the increase was even significantly larger, from 0.7 to 65.0 eosinophils/hpf (P=0.024). At the end of the study period, 39.7% (51/121) of the budesonide patients were still in complete, and 14.3% (17/121) in partial, histologic remission, whereas under placebo, no patient was in complete, but 28.6% (34/121) were in partial, histologic remission (P=0.0467). Similarly to eosinophils, other biomarkers indicating inflammation were also elevated in eosinophilic tissues in spite of budesonide therapy, but usually less dramatic when compared with placebo. In parallel, the symptom score increased under budesonide (P=0.79 to 2.29 points), but was markedly less severe under placebo (P=0.71 to 4.05) (P=0.8703). When compared to healthy controls, patients with active EoE had a significantly thickened esophageal wall, as measured by EUS (3.05 mm vs. 2.18 mm; P<0.0001). Budesonide therapy was associated with a significantly reduced thickness of the mucosa (0.75 mm to 0.45 mm; P=0.025). Histomorphometric determination of the epithelial thickness did not reveal any signs of atrophy under the influence of budesonide (261.2 ± 277.23 μm, P<0.733).

Conclusions: After therapy-induced remission, low-dose budesonide maintained histologic and clinical remission in half of the patients, whereas under placebo, inflammation and symptoms flared up in the majority of patients. Signs of remodeling showed a trend toward normalization. Long-term administration of topical corticosteroids was well-tolerated and did not induce epithelial atrophy. (ClinicalTrials.gov number: NCT00713481)

Efficacy and Safety of Certolizumab Pegol in an Unselected Crohn’s Disease Population: 26 Week Data of the FACTS II Survey.

Yavricka SR1, Schroepfer AM2, Bansky G2, Binek J, Felley C1, Geyer M1, Manz M1, Rogler G1, de Sauvage P2, Sauter S2, Schart M1, Seibold F1, Straumann A1, Michetti P3, for the Swiss IBDnet.1 University Hospital Zurich, 2Inselhospital Bern, 3Private practice, Zurich, 4Kantonsspital St. Gallen, 5CHUV, Lausanne, 6Private practice, Wettingen, 7University Hospital Basel, 8Private practice, Geneva, 9Hirslanden Clinic, Zurich

Background: Certolizumab pegol (Cimzia®, CZP) was approved for the treatment of Crohn’s disease (CD) patients in 2007 in Switzerland as first country worldwide. This prospective phase IV study aimed to evaluate the efficacy and safety of CZP over 26 weeks in a multicenter cohort of practice-based patients. Methods: Evaluation questionnaires at baseline, week 6 and 26 were completed by gastroenterologists in hospitals and private practices. Results: Sixty patients (38F/22M) were included, 53% had complicated disease (stricturing or penetrating), 45% had undergone prior CD related surgery. All patients had prior exposure to systemic steroids, 98% to immunomodulators, 73% to infliximab, and 43% to adalimumab. A significant decrease of Harvey Bradshaw Index (HBI) was observed under CZP therapy (12.2±4.9 at week 0 vs 6.3±4.7 at week 6 and 6.7±5.3 at week 26). Complete maintenance of response and remission rates were 70% and 40% (week 6) and 67% and 36% respectively (week 26). The complete perianal fistula closure rate was 36% at week 6 and 55% at week 26. The frequency of adverse drug reactions attributed to CZP was 5%. CZP was continued in 88% of patients beyond week 6 and in 67% beyond week 26. Conclusions: In a population of CD patients with predominantly complicated disease behaviour, CZP proved to be effective in inducing and maintaining clinical response and remission. This series provides the first evidence of CZP’s effectiveness in perianal fistulizing CD in clinical practice.
Role of Protease-activated receptor in vaccine-induced protection against Helicobacter infection

Dominique Velin,1 Shamal Narayan,2 Eric Bernasconi,1 Nathalie Busso,3 Giancarlo Ramelli,4 Michel H Maillard,1 Daniel Bachmann,1 Catherine Pythoud,5 Hanifa Bouzourene,3 Pierre Michetti,2 Alexander So6
1Department of Gastroenterology and Hepatology, Centre Hospitalier Universitaire Vaudois (CHUV) and University of Lausanne, 2Service of Rheumatology, CHUV and University of Lausanne, 3Institute of Pathology, CHUV and University of Lausanne, 4Gastro-enterologie La Source-Beaulieu, Lausanne

Background & Aims: Despite the proven ability of immunization to reduce Helicobacter infection in mouse models, the precise mechanism of protection has remained elusive. Protease-activated receptor (PAR2) has been implicated in inflammatory responses as well as in modulating of various gastric functions. This study explores the role of PAR2 in vaccine-induced protection against Helicobacter infection. Methods: Immune responses and vaccine-induced protection to Helicobacter were assessed in PAR2 deficient mice (PAR2−/) and wild type (WT) mice that were previously immunized with H. pylori urease. Infection persistence, cellular responses and gastric pathology were assessed by the rapid urease test (RUT), qPCR, flow cytometry and histology. Results: Vaccinated PAR2−/ mice were unable to reduce Helicobacter burden following infection. This observation correlated with a reduction in inflammation-induced stomach tissue damage and lower recruitment of CD4+IL-17+ T cells into the gastric mucosa of vaccinated PAR2−/ mice post bacterial challenge. Interestingly, splenic dendritic cells (DC) from vaccinated PAR2−/ mice at day 14 post Helicobacter infection exhibited a weaker activated phenotype in comparison to their WT counterparts. Finally, adoptive transfer of WT DCs into vaccinated PAR2−/ mice prior to Helicobacter challenge was able to enhance vaccine-induced protection. Conclusion: Signaling pathway initiated following PAR2 activation on DCs appear to be critical in the generation of vaccine-induced protection against Helicobacter infection.

Alcohol withdrawal promotes regression of pancreatic fibrosis via induction of pancreatic stellate cell (PSC) apoptosis. Alain Vonlaufen1,2, Phoebe A Phillips2, Zhihong Xu2, Xuguo Zhang3, Lu Yang4, Romano C Pirola5, Jeremy S Wilson6, Minoti V Apte6,1 Servie de Gastroenterologie, University Hospital, Geneva, Switzerland and 2Pancreatic Research Group, The University of New South Wales, Sydney, Australia.

Background: The administration of alcohol and repeated iv endotoxin leads to significant pancreatic fibrosis in rats. Whether fibrosis is reversible upon alcohol withdrawal remains unknown.

Aims: 1) To compare the effects of alcohol withdrawal and alcohol continuation on pancreatic fibrosis and PSC apoptosis. 2) To assess the effects of alcohol ± LPS on PSC apoptosis in vitro.

Methods: 1) SD rats fed isocaloric Lieber-DeCarli diets ± alcohol for 10 weeks were challenged with LPS (3 mg/kg; 1 IV injection / week x 3 weeks). Alcohol-fed rats were switched to a non-alcohol (control) diet or continued on alcohol for 7 days. Pancreatic sections and homogenates were assessed for i) fibrosis / collagen deposition; ii) PSC apoptosis and iii) presence of activated PSCs. 2) Cultured rat PSCs were exposed to ethanol 10mM (E10) ± LPS 1µg/ml (L1) for 48h and effects on induced apoptosis assessed.

Results: 1) Withdrawal of alcohol led to resolution of pancreatic fibrosis via increased PSC apoptosis / loss of activated PSCs. Both alcohol and LPS significantly inhibited PSC apoptosis in vitro: Annexin V staining -% of control (mean±SEM); E10 73.6±8.1; L1 45.4±8.9; E10+L1 36.2±5.5; p<0.05 vs Control and E10+L1 vs E10; n=6 separate PSC preparations. Similar results were obtained for caspase-3 and TUNEL.

Conclusions: 1) Withdrawal of alcohol reverses pancreatic fibrosis via increased PSC apoptosis in vivo. 2) Alcohol and LPS inhibit PSC apoptosis in vitro. Induction of PSC apoptosis is a key mechanism mediating the resolution of pathological fibrosis in the pancreas.

The Fc Fragment of Infliximab Modulates Its Inhibitory Activity in Fibroblasts and Monocytes via Interaction with Fc Receptors

Kacper A. Wojtal1, Gerhard Rogler1, Michael Fried1, Jyrki J. Eloranta2, Gerd A. Kullak-Ublick2,3
1Division of Gastroenterology and Hepatology, University Hospital Zurich, Switzerland; 2Division of Clinical Pharmacology and Toxicology, University Hospital Zurich, Switzerland; 3Division of Gastroenterology and Hepatology, Triemli Hospital, Zurich, Switzerland

Background: One of the most important cytokines in the pathogenesis of IBD is tumor necrosis factor (TNF). The aim of this project was to evaluate the efficacy of anti-TNF drugs in blocking TNF- mediated responses in different cell types of the intestinal wall.

Methods: As a model system we used Caco2os, CCD-18Co, and THP-1 cell lines. Signal transduction and mRNA production were investigated by Western Blot and RT-PCR, respectively. Interaction of anti-TNF drugs with cells was studied by fluorescent microscopy.

Results: TNF activated p38 MAPK, NF-kB and increased mRNA expression levels of IL-8, TNF and ICAM-1 in all cell lines tested. All anti-TNF drugs were efficient in intestinal epithelial cells. Infliximab had limited inhibitory capacity in fibroblasts and monocytes. Fluorescently labeled infliximab, but not adalimumab, accumulated at the surface of fibroblasts. Blocking Fc fragments and isolation of Fab fragments of infliximab partially restored its inhibitory efficacy.

Conclusions: Anti-TNF drugs prevent TNF-mediated responses in intestinal epithelial cells. Infliximab has limited inhibitory capacity in fibroblasts and monocytes, most likely due to the interaction with Fc receptor(s). This mechanism may modulate the bioavailability and effectiveness of anti-TNF drugs when administered in IBD patients.
Equivalency of conventional and high-resolution manometry analysis parameters to quantifying esophageal motility

Nicola Patuto, Daniel Pohl, Donald O Castell, Radu Tutuian

Background: The evaluation of esophageal motility using high-resolution manometry (HRM) involves a series of novel parameters. While HRM recordings provide more intuitive representations of esophageal peristalsis, there is no information on the advantages of the new analysis parameters over conventional manometry analysis.

Aim: Evaluate the correlation between conventional and high resolution esophageal manometry parameters.

Methods: Consecutive patients referred for esophageal testing underwent HRM included 10 x 5 ml liquid swallows 20-30 seconds apart. For each contraction the software (MMS Solar) calculated distal esophageal amplitude (DEA) as contraction average at 5 and 10 cm above the LES, lower esophageal sphincter residual pressure (LESRP) as the lowest pressure during a relaxation relative to the baseline, distal contractile integral (DCI) as the integral of pressures between the transition zone and proximal LES border and integrated residual pressure (IRP4sec) as the integral of the lowest residual pressure during 4 seconds. Esophageal body parameters (DEA vs. DCI) and lower esophageal sphincter parameters (LESRP and IRP4sec) were correlated.

Results: Data from 60 patients (N=52, age range 18-72) presenting with dysphagia (N=13), chest pain (N=20) and heartburn/regurgitation (N=27) were reviewed. The correlation was very good (r=0.85) between DEA and DCI and excellent (r=0.93) between LESRP and IRP4sec.

Conclusions: The excellent correlation between conventional and high-resolution manometry parameters indicates their equivalency to quantify esophageal motility.

Multiple rapid swallowing testing in patients with esophageal symptoms: a study using high-resolution manometry

Nicolai Patuto, Daniel Pohl, Donald O Castell, Radu Tutuian

Background: High resolution manometry offers more detailed analysis of esophageal peristalsis. Multiple rapid swallows (MRS) have been proposed as physiologic challenges for patients with mild or no esophageal motility abnormalities.

Aims: Evaluate esophageal peristalsis during standard and multiple rapid swallows in patients with dysphagia, chest pain and GERD symptoms. Assess the reproducibility of measurements during MRS.

Methods: Consecutive patients referred for esophageal testing were asked to rate the intensity and frequency of heartburn, regurgitation, chest pain and dysphagia on a 100 mm VAS scale. Primary symptoms were defined by highest intensity x severity score. High-resolution manometry included 10 x 5 ml liquid swallows 20-30 seconds apart and 2 sets of 4 rapid swallows 2-3 seconds apart. Swallowing was evaluated by averaging DCI values of individual 10 single swallows. For each MRS sequence the DCI of the final primary contraction at the end of the swallow series was measured.

Results: The interim analysis found lower DCI values during standard and multiple rapid swallows. Table: DCI distal contractile integral (mmHg/cm) of standard swallows and following multiple rapid swallows: Data are expressed as mean ± SEM.

Conclusions: Evaluating multiple rapid swallows by high-resolution manometry might uncover abnormalities overlooked by standard testing. Still, the reproducibility of measurements during MRS warrants caution in interpreting these findings.

Extraintestinal manifestations in inflammatory bowel disease: frequency and associated risk factors in the nationwide Swiss IBD cohort study (SIBDCS)

Vavricka SR1, Brun L1, Ballabeni P2, Pittet V1, Manz M7, Prinz Vavricka M7, Michetti P1, Beglinger C7, Fried M2, Rogler G1, Schoepfer AM1, and the SwissIBDCS group. University Hospital Zurich, 1ISPM, Lausanne, 2University Hospital Basel, 3Private Practice, Dermatology, Zurich, 4Cohn and Collits Center, Clinique La Source, Lausanne, 5University of Bern/Inselspin

Background: Data on the frequency of extraintestinal manifestations (EIM) in Crohn’s disease (CD) and ulcerative colitis (UC) are scarce. Goal: to evaluate prevalences, forms of EIM and risk factors in a large nationwide IBD cohort. Methods: Data from validated physician enrolment questionnaires of the adult Swiss IBD cohort were analyzed. Logistic regression models were used to identify EIM risk factors. Results: 950 patients were included, 580 (61%) with CD (mean age 43yrs) and 370 (39%) with UC (mean age 49yrs), of these, 249 (43%) of CD and 113 (31%) of UC patients had one to five EIM. The following EIM were found: arthritis (CD 33%, UC 21%), aphthous stomatitis (CD 10%, UC 4%), uveitis (CD 6%, UC 4%), erythema nodosum (CD 6%, UC 3%), anklyosing spondylitis (CD 6%, UC 2%), psoriasis (CD 2%, UC 1%), ptyalderic gangrenosum (CD and UC each 2%), primary sclerosing cholangitis (CD 1%, UC 4%). Logistic regression in CD identified the following items as risk factors for ongoing EIM: active disease (OR 1.95, 95% CI 1.17-3.23, P<0.01), positive IBD family history (OR 1.77, 95% CI 1.07-2.92, P=0.025), no risk factors were identified in UC patients. Conclusions: EIM are a frequent problem in CD and UC patients. Active disease and positive IBD family history are associated with ongoing EIM in CD patients. Identification of EIM prevalence and associated risk factors may result in increased awareness for this problem and thereby facilitate their diagnosis and management.

Development of an Activity Index for adult Eosinophilic Esophagitis Patients (ad-EEsAI): International Experts propose Dysphagia, whitish Exudates on endoscopy, and intraepithelial Eosinophil Counts as Items with Closest Association to EoE Activity

Schoepfer AM1, Maurer E2, Kuehni C2, Zwahlen M7, Schibli S7, Mueller P1, Bussmann CM7, Jost C1, Ohrer MA1, Macpherson A, Strassmann A7, EEsAI study group, University of Bern/Inselspital, 2ISPM, University of Bern, 3Kantonsspital St. Gallen, 4Kantonsspital Luzern, 5University Hospital Basel

Background and Aims: The international EEsAI study group aims to develop, validate and evaluate the first adult EoE activity index (ad-EEsAI). We report on results of phase 1, which aims to generate candidate items. Methods: This study involves 3 phases: (1) item generation, (2) item derivation and testing on a first patient cohort, and (3) validation in a second cohort. In phase 1, item generation, weighting and reduction are achieved through a Delphi process with an international EoE expert group. The experts proposed and ranked candidate items on a 7-point Likert scale (0 = no, 6 = perfect relationship with EoE activity). Results: 23 international EoE experts proposed and ranked 37 items (18 clinical, 6 endoscopic, 8 histologic, 5 laboratory items). Rank order for clinical items: dysphagia related to food consistencies (median 6, range 2-6), severity of dysphagia (5, 0-6), duration of dysphagia episodes (5, 0-6), frequency of dysphagia episodes (4, 0-6), swallowing-associated pain (3, 1-5), response to dietary restrictions (3, 0-6), endoscopic items: whitish exudates (6, 3-6), furrowing (4, 2-6), corrugated rings (4, 2-6), linear shearing (4, 2-6), strictures (4, 1-6); histologic items: intraepithelial eosinophil count (5, 4-6), lamina propria eosinophils (3, 2-6), basal layer enlargement (3, 1-6); laboratory items: % blood eosinophils (2, 0-5), total IgE (1, 0-3). Interleukin-5 (0, 0-3). Conclusions: These items will now be reduced in further Delphi rounds, tested on a cohort of 100 EoE patients and validated in a second independent cohort resulting in a robust, broadly accepted disease activity index for use in clinical trials and daily care.
Prospective Validation of the Glasgow-Blatchford Bleeding Score to Identify Patients with Upper GI Bleeds who need Clinical Intervention, Marc Girardin, Saskia Dlislehin, Alain Vonlaufen, David Bertolino, Isabelle Morard, Thai Nguyen, Emiliano Gisstra, Antonie Hadengue, Laurent Spahr, Jean-Louis Frossard, Jean-Marc Dumonceau. Gastroenterology and Hepatology Service, Geneva University Hospital.

Background: Upper gastrointestinal (UGI) bleeding is a frequent cause of hospital admission worldwide. The Glasgow-Blatchford bleeding score (GBS) can easily be calculated without endoscopy and has been validated to identify patients who will need clinical intervention, allowing outpatient management and cost reduction for those at low risk (GBS=0).

Aim: To prospectively validate the GBS for identifying patients admitted for UGI bleeding in Geneva, who will need clinical intervention. Methods: Consecutive consenting patients with UGI bleeding were included (10/09-03/10). The GBS was calculated, UGI endoscopy was performed and follow-up at 7 and 30 days to evaluate the need for clinical intervention was done in all patients. A clinical intervention was defined as performance of endoscopic haemostasis, blood transfusion or surgery. Results: Eighty-one patients were recruited: 68 included, 13 had missing consent or data. The GBS varied from 0 to 17, with 9 (13%) patients having a GBS = 0. For identifying patients who would need clinical intervention, the GBS had a sensitivity of 100% (40/40), a specificity of 32.1% (9/28), a positive predictive value of 67.8% (40/59), a negative predictive value of 100% (9/9) and an accuracy of 72% (49/68). In the GBS > 0 group, more normal endoscopies were found (44% vs 8%, P<0.02) and no intervention was needed (0% vs 74%, P<0.0001).

The length of hospital stay was significantly longer for patients with UGI bleeding who will need clinical intervention. Methods: Consecutive consenting patients with UGI bleeding were included (10/09-03/10). The GBS>0 (8.3 vs 0.5 d., P<0.0001). Conclusions: The GBS allowed identifying patients admitted with UGI bleeding who needed intervention with a high sensitivity but low specificity (32%). Two thirds of patients who did not require a clinical intervention could not be identified based on the GBS.

The Visual Dysphagia Questionnaire: Piloting a New Tool for Assessing Food Consistency-Dependent Dysphagia in Esophageal Esophagitis

Schoepfer AM1, Maurer E2, Eulanti C3, Zwahlen M2, Schibli S3, Mueller P1, Bussmann C, Straumann A4, EEsAI study group. University of Bern, Bern; Inselspital, Institute of Social and Preventive Medicine, University of Bern, Bern; Kantonsspital St. Gallen, Kantonsspital Luzern; University of Bern.

Background and Aims: The international EEsAI EEsAI study group is currently developing the first activity index specific for Esophageal Esophagitis (EEoE). None of the existing dysphagia questionnaires takes into account the consistency of the ingested food that considerably impacts the symptom presentation. Goal: To develop an EEoE-specific questionnaire assessing dysphagia associated with different food consistencies.

Methods: Based on patient chart reviews, an expert panel (EEsAI study group) identified internationally standardized food prototypes typically associated with EEoE-related dysphagia. Food consistencies were correlated with EEoE-related dysphagia, also considering potential food avoidance. This Visual Dysphagia Questionnaire (VDQ) was then tested, as a pilot, in 10 EEoE patients.

Results: The following 9 food consistency prototypes were identified: water, soft foods (pudding, jelly), grits, toast bread, French fries, dry rice, ground meat, raw fibrous foods (eg, apple, carrot), solid meat. Dysphagia was ranked on a 5-point Likert scale (0=no difficulties, 5=very severe difficulties, food will not pass). Severity of dysphagia in the 10 EEoE patients was related to the eosinophil load and presence of esophageal strictures.

Conclusions: The VDQ will be the first EEoE-specific tool for assessing dysphagia related to internationally defined food consistencies. It performed well in a pilot study and will now be further evaluated in a cohort study including 100 adult and 100 pediatric EEoE patients.
Comparative Socio-economic Evaluation of IBD Patients with and without Infliximab Maintenance Therapy

Aqtashi B1, Schoepfer AM2, Seibold F2
1University of Bern, 2Inselspital, Bern University Hospital

Background: The anti-TNFα agent Infliximab (IFX) is used for the treatment of moderate to severe inflammatory bowel disease (IBD) with insufficient response to conventional immunomodulator therapy. IFX maintenance therapy is expensive and it is unknown if indirect costs (eg. by loss of work productivity) can be reduced by this therapy. Goal: to evaluate the direct and indirect costs of an IBD patient cohort under maintenance IFX compared to a cohort under “conventional” immunomodulator therapy.

Methods: Direct and indirect costs of an IBD cohort under IFX and a reference cohort (similar disease activity and location) under conventional immunomodulator therapy (methotrexate, or 6-MP, or MTX) were retrospectively evaluated over 12 months (January to December 2008). Results: 54 IFX-patients (24f/30m, 37 CD, 10 UC, 7 IC) and 71 non-IFX-patients (38f/33m, 56 CD, 12 UC, 3 IC) were included. IFX patients were younger than non-IFX patients (36 vs. 47 years, P = 0.0003). The mean duration of inpatient stay in hospital (23 vs. 21 days for non-IFX, P = 0.909) and the hospitalization costs (7,692 in IFX vs. 4,179 SFr for non-IFX, P = 0.4540) did not differ. IFX-patients had significantly more frequently specialist outpatient consultations (8 vs. 4, P = 0.001) and outinpatient-related costs (3,633 vs. 2,186 SFr, P = 0.0004). Total costs for all diagnostic procedures (blood work, endoscopies, radiology) were higher in the IFX-cohort (2,265 vs. 1,164 SFr, P < 0.001). Sixty-five percent of costs were related to maintenance IFX-treated IBD patients are higher compared with IBD under conventional immunomodulators. Care should be taken not only to judge the costs as the IFX treated population may represent a cohort with more aggressive disease phenotype, furthermore, quality of life aspects were not assessed.

Lack of transketolase-like (TKTL1) aggravates murine experimental colitis

Susanne Bentz (1), Theresa Pesch (1), Isabelle Frey-Wagner (1), Lutz Wolfram (1), Cheryll de Vallière (1), Katharina Leucht (1), Michael Freud (1), Johannes F. Cey (2), Martin Hausmann (1), Gerhard Rogler (1)
(1) Gastroenterology and Hepatology, University Hospital of Zurich (2) Tavergenix GmbH, Darmstadt, Germany

Background: TKTL1 is involved in the pentose phosphate pathway which provides the cells with the reducing molecule NADPH. NADPH detoxifies reactive oxygen species (ROS) which contribute to tissue damage during mucosal inflammation. We investigated the role of TKT1 during experimental dextran sodium sulfate (DSS) induced colitis and its potential function in ROS detoxification.

Methods: Acute DSS colitis was induced in knock out mice (TKTL1-/-) and wild type mice (WT). mRNA levels of interferon (IFN)-γ, inducible nitric oxide synthase (iNOS), interleukin (IL)-6 and tumor-necrosis-factor (TNF) were determined by quantitative real-time RT-PCR. iNOS protein expression was confirmed by Western blotting. Myeloperoxidase (MPO) was determined in colon tissue for evaluation of anti-ROS neutralizing mechanisms.

Results: DSS colitis was significantly more severe in TKTL1-/- mice and wild type mice (WT). mRNA levels of interferon (IFN)-γ, inducible nitric oxide synthase (iNOS), interleukin (IL)-6 and tumor-necrosis-factor (TNF) were determined by quantitative real-time RT-PCR. iNOS protein expression was confirmed by Western blotting. Myeloperoxidase (MPO) was determined in colon tissue for evaluation of anti-ROS neutralizing mechanisms.

Conclusion: DSS induced colitis was more severe in TKTL1 deficient mice as compared to WT mice. We conclude that the loss of function of TKTL1 leads to a higher susceptibility to DSS. Detoxification mechanisms against ROS are enhanced.

Loss Of Heat Shock Protein gp96 Does Not Impair Toll-Like Receptor Signalling In Vitro

Anne Fischbeck, Lutz Wolfram, Isabelle Frey-Wagner, Silvia Kellermeier, Martin Hausmann, Michael Fried, Gerhard Rogler

Gastroenterology and Hepatology, University Hospital of Zurich

Background: The heat shock protein gp96 is an endoplasmic reticulum chaperone for multiple protein substrates. We showed that a lack of gp96 in intestinal macrophages of Crohn’s Disease (CD) patients is correlated with loss of tolerance against the host gut flora, leading to chronic inflammation. A recent manuscript suggested gp96 to be the major chaperone for TLRS. Therefore, we studied the impact of gp96 knockdown on TLR function.

Methods: For stable gp96 knockdown a lentiviral system was used. Stimulations were performed with lipopolysaccharide (LPS), a ligand of TLR 4. TLR folding and functionality was investigated by Western blotting and flow cytometric analysis.

Results: Flow cytometric analysis of TLR 2 and 4 showed similar patterns on the cell surface of gp96 knockdown cells as well as the mock transduced MM6 cells. Western blot analysis of phospho-1b/c/Ieb and phospho-NFkB/NFkB ratios did also not reveal a significant difference in TLR mediated NFkB signalling in these cells.

Conclusion: In contrast to recent reports loss of gp96 does not have pivotal effects on functionality of TLRs in human MM6 cells. These findings indicate that the loss of tolerance against commensal gut flora is caused by different mechanisms yet to be investigated.

Swiss Case Series of Autoimmune Pancreatitis

Christine N. Manser, Christoph Gubler, Peter Bauerfeind
University Hospital Zurich

Background: Autoimmune pancreatitis (AIP) is a chronic inflammatory disease of the pancreas induced by auto-immunological mechanisms. In most case series an elevation of serum IgG, especially IgG4, is reported in up to 92%. As in most other autoimmune diseases AIP responds to steroid therapy. Histologically two different entities can be differed, one with a mainly lymphocytic infiltration, particularly occurring in Asian and older individuals and one with mainly granulocytic infiltration, occurring more often in Western and younger individuals. Clinically, patients mainly complain of jaundice, abdominal pain or diabetic symptoms. Most patients are referred to additional diagnostics because of tumor in the pancreas head, less often because of calcification or pseudocyst.

As there has been less information on AIP from European countries the aim of this study was to analyse the demographic data, clinical presentation, histological findings, imaging and laboratory results and response to therapy.

Methods: We prospectively collected data of 16 patients with AIP between December 2007 and April 2010 concerning demographic data, clinical presentation, histological findings, imaging and laboratory results and response to therapy.

Results: 75% of patients were men, median age was 45.4years. 88% reported of abdominal pain, 50% were cholestatic, 43.8% had weight loss. Radiologic findings when apparent were a tumor of the pancreas head (50%), calcifications (25%) and pseudocyst (25%). IgG4 was elevated in 81.3%, total IgG in 21.3%, CA 19-9 in 18.8%. 43.8% had a diabetes. 75% responded to steroid therapy, 25% showed a relapse after initial respond though.

Conclusion: As well as in other countries AIP is a rare disease in Switzerland. The results of our study correlate with results of current literature. In most patients pancreatic cancer, chronic pancreatitis or cystic tumors are suspected. To avoid unnecessary surgery, in all patients IgG4 should be measured and, if negative, tentative prednisone treatment should be considered.
Effect of music on patients undergoing endoscopy with propofol-sedation

Alexander Sendensky 1, Nicolas Netzer 2, Werner Inauen 3, Peter Netzer 4

1 University Clinic for Visceral Surgery and Medicine, Inselspital Bern, Switzerland
2 Gastroenterology Unit, Lindenhofspital Bern, Switzerland
3 Gastroenterology Center, Bürgerspital Solothurn and University of Berne, Switzerland

Abstract

Background: To assess the effects of music in patients under staff-administered propofol-related analgosedation while undergoing gastroenterologic endoscopic procedures in terms of comfort, dosage and efficiency. Methods: 70 consecutive outpatients were randomized for having music or no music related analgosedation for gastroscopy and colonoscopy. The amount of required propofol and the procedure time were recorded while patient comfort and satisfaction were assessed by interview with standardized items. Results: 70 patients were examined in two groups (gastroscopy/colonoscopy). The amount of required propofol was significantly lower by 39% in gastroscopy with music (p<0.001) and 39.5% in colonoscopy with music (p<0.001). Procedure comfort and overall satisfaction were significantly higher with music than without music (p=0.042 and p=0.011). Mean duration of the procedure was shortened with music in gastroscopy and colonoscopy, but the difference did not reach significance. Conclusion: Music decreases the required amount of medication in patients receiving staff-administered propofol-related analgosedation for gastroscopy and colonoscopy.

<table>
<thead>
<tr>
<th>Gastroscopy group</th>
<th>Gastro total</th>
<th>Gastro with music</th>
<th>Gastro w/o music</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in yrs</td>
<td>47.1</td>
<td>47.73</td>
<td>46.47</td>
<td>0.853</td>
</tr>
<tr>
<td>Height in cm</td>
<td>168.4</td>
<td>166.8</td>
<td>170</td>
<td>0.184</td>
</tr>
<tr>
<td>Weight in kg</td>
<td>68.435</td>
<td>64.6</td>
<td>72.27</td>
<td>0.054</td>
</tr>
<tr>
<td>Previous Examination</td>
<td>14 yes</td>
<td>16 no</td>
<td>7 yes</td>
<td>not done</td>
</tr>
<tr>
<td>No of difficult examinations</td>
<td>0</td>
<td>0</td>
<td>14 yes</td>
<td>not done</td>
</tr>
<tr>
<td>No of pts with biopsies</td>
<td>29 yes</td>
<td>15 yes</td>
<td>14 yes</td>
<td>not done</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Colonoscopy group</th>
<th>Colo total</th>
<th>Colo w/o music</th>
<th>Colo with music</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in yrs</td>
<td>56.575</td>
<td>59.4</td>
<td>53.75</td>
<td>0.187</td>
</tr>
<tr>
<td>Height in cm</td>
<td>171.765</td>
<td>171.1</td>
<td>172.43</td>
<td>0.649</td>
</tr>
<tr>
<td>Weight in kg</td>
<td>74.45</td>
<td>73.65</td>
<td>75.25</td>
<td>0.890</td>
</tr>
</tbody>
</table>
Protein tyrosine phosphatase N2 regulates TNF-induced signalling and cytokine secretion in T\textsubscript{h}, intestinal epithelial cells

Michael Scharl\textsuperscript{1}, Declan F. McCole\textsuperscript{2}, Michael Fried\textsuperscript{3}, Gerhard Rogler\textsuperscript{4}

\textsuperscript{1}Division of Gastroenterology and Hepatology, University Hospital Zurich, 8091 Zurich, Switzerland \textsuperscript{2}Division of Gastroenterology, University of California, San Diego, La Jolla, 92039, USA

Background: We have previously shown that the Crohn’s disease (CD) candidate gene, protein tyrosine phosphatase N2 (PTPN2), regulates IFN\textgamma-induced signalling and effects in intestinal epithelial cells (IEC). Here, we investigated whether PTPN2 is regulated by TNF and controls TNF-induced signalling and effects in IEC.

Methods: T\textsubscript{h} IEC were used for all studies. Protein analysis was performed by Western blotting, mRNA analysis by RT-PCR. PTPN2 knock-down was induced by siRNA and cytokine levels were measured by ELISA.

Results: TNF treatment elevated PTPN2 mRNA as well as nuclear and cytoplasmic protein levels and caused cytoplasmic accumulation of PTPN2. Pharmacological NF-\kappaB inhibition completely prevented the TNF-induced rise in PTPN2 protein. Knock-down of PTPN2 resulted in elevated TNF-induced ERK1/2 and p38 activity. Loss of PTPN2 potentiated TNF-induced secretion of IL-6 and IL-8. In TNF and IFN\textgamma co-treated cells, loss of PTPN2 enhanced the expression of iNOS and apoptosis as assessed by the amount of cleaved caspases-3 and 7 as well as the number of fragmented nuclei in DAPI-stained cells.

Conclusions: We demonstrate that TNF induces PTPN2 expression in T\textsubscript{h} IEC, and loss of PTPN2 promotes TNF-induced expression of pro-inflammatory mediators. These data indicate that PTPN2 activity may play an important role in the establishment of chronic inflammatory conditions in the intestine, such as CD.

Dying in Yoghurt – The number of living bacteria in probiotic yoghurt decreases under exposure to room temperature

Michael Scharl, Steffen Geisel, Stephan R. Vavricka, Gerhard Rogler

Division of Gastroenterology and Hepatology, University Hospital Zurich, 8091 Zurich

Background: There are rising numbers of probiotic foods that are commercially available and excessively advertised. They are supposed to beneficially modulate the communal gut flora and various immune responses. Here, we study whether the number of probiotic bacteria in yoghurts is altered by an interruption of the cold chain.

Methods: Three commercially available probiotic yoghurts from three different companies were either kept on 4°C or put at room temperature (RT) for 6 h or 24 h before analysis. The yoghurts were diluted in PBS and incubated on MRS agar plates at 37 °C for 48 h. Then, colony forming units (CFU) were counted by microscopy.

Results: The first investigated yoghurt contained Lactobacillae johnsonii as a probiotic component. The agar plates containing the yoghurt dilutions that had been at RT for 6 h showed a significant decrease in CFU (n=4 for all analyses), which was further pronounced when kept at RT for 24 h. The number of CFU of the second yoghurt, containing Lactobacillae GG, was also decreased by 6 h and further diminished by 24 h at RT. The third yoghurt contained Lactobacillae acidophilus. In the yoghurt samples that had been at RT for 6 h, 53.8 % CFU remained and in the 24 h RT samples were just about one fourth of all CFU as compared to control samples.

Conclusions: We demonstrate that the survival of probiotic bacteria in commercially available products is critically dependent on the conditions the products are stored. This represents an important information for the consumers of such probiotic yogurts.
TiO₂ microparticles activate the inflammasome in intestinal epithelial cells

Helen Becker¹, Kacper A. Wojtal¹ Martin Hausmann¹, Urs Ziegler², Michael Fried³, Gerhard Rogler (1)
(1) Division of Gastroenterology and Hepatology, University Hospital Zurich, Switzerland
(2) Center for Microscopy and Image Analysis, University of Zurich, Switzerland

Background: Microparticles are small, non-biological particles that are used as food additives. The most commonly ingested compound is titanium dioxide (TiO₂). The inflammasome is a multiprotein complex containing NALP3 and caspase-1, which activates pro-inflammatory cytokines IL-1β and IL-18. With regard to recent findings identifying asbestos and monosodium urate as inflammasome activators, we questioned whether TiO₂ might trigger similar effects.

Methods: TiO₂-microparticles were applied to THP-1 cells and to the intestinal epithelial cell (IEC) line Caco-2. Inflammasome assembly was confirmed by Co-IP with caspase-1 antibody and subsequent Western blot for NALP3. IL-1β and IL-18 secretion was determined by ELISA. Electron microscopy and element analysis (EDX) was used to confirm uptake of TiO₂.

Results: Incubation of cells with 5 and 20 μg/ml TiO₂ resulted in assembly of the NALP3-inflammasome, which correlated with increased secretion of IL-1β and IL-18, representing an inflammatory reaction. Electron microscopy with element analysis recognized intracellular particles to contain almost exclusively titanium.

Conclusion: TiO₂ microparticles are taken up by macrophages and IEC, activate the inflammasome and induce IL-1β and IL-18 secretion. In a situation of an impaired mucus barrier as it is the case in IBD patients those food additives could aggravate or perpetuate mucosal inflammation and represent a link between the increasing incidence of IBD and Western diet.
Expression of the G protein-coupled receptor 68 (OGR1) is regulated by the inflammatory cytokine TNF-α

Cheryl de Vallière,1 Yjiri J. Eloranta,2 Gerd A. Kullak-Ublick,2 Carsten A. Wagner,3 Michael Fried,1 Klaus Seuwen,7 and Gerhard Rogler1

1Division of Gastroenterology and Hepatology, 2Division of Clinical Pharmacology and Toxicology, University Hospital Zurich, 3Institute of Physiology, University of Zurich, and 7Novartis Institutes for Biomedical Research, Basel.

Introduction: Inflammatory bowel disease (IBD) is associated with acidification of intestinal mucosal tissue. The increase in local proton concentration is linked to subsequent inflammatory cytokine release. The G protein-coupled receptor 68 (GPR68; also known as OGR1) functions as a sensor for extracellular protons/pH, thus stimulating inositol phosphate pathways. We studied whether cytokines affect OGR1 expression in the human monocyte cell line Mono Mac 6 (MM6).

Methods: RNA was isolated from cells treated with cytokines IFN-γ, IL-1β, IL-6, TNF-α, or TGF-β, or the differentiating agent PMA. Expression levels were quantified by real-time PCR.

Oral glutamine challenge and capillary blood ammonia to detect hepatic encephalopathy : a study in 57 patients with cirrhosis


Hepatic encephalopathy (HE) is a serious complication of cirrhosis that may be improved by medical therapy. Ammonia (NH3) is central to the pathogenesis of HE, but determination of NH3 in venous blood performs poorly for the diagnosis. Determination of NH3 in capillary (partially arterialized) blood after amino-acid challenge could improve the diagnostic performance of HE. Patients/Methods: 57 patients (age: 56yrs) with cirrhosis (MELD score: 13.5 [7-12]) and portal hypertension (esophageal varices: n=38; HVPG: 16 mmHg), and 13 controls (age: 54yrs) were included. Psychometric tests + capillary blood NH3 (Blood Ammonia Checker Arkray) were performed at T0, T30’, T60’ after 20 gr oral glutamine load. Diagnostic performance of capillary NH3: higher levelsin patientsthan controls (0’,30’,60’: 75,117,169 vs 52,59,78 umol/l, respectively, p<0.05).

Results: Treatment of MM6 cells (6 and 24 h) with TNF-α, but none of the other cytokines, led to significant upregulation of OGR1 mRNA. Dose-dependence of TNF-α (0-100 ng/ml) induction of OGR1 mRNA was confirmed at the time points 4 and 8 h. Maximal OGR1 induction was reached at a TNF-α concentration 50 ng/ml. Macrophagic differentiation of MM6 cells with PMA led to a highly significant increase in OGR1 expression. We are further studying whether the same signalling pathways are involved in TNF-α and PMA-mediated induction of OGR1 expression and the functional consequences of this regulation.

Conclusion: OGR1 mRNA expression is induced in cells of human macrophage lineage by TNF-α. TNF-α stimulation of OGR1 expression and of its pH-sensing activity may play a role in the molecular pathogenesis of IBD.

Diagnostic value of faecal calprotectin in patients with liver cirrhosis

Emanuel Burri1, Michael Manz2, Simone Rieder3, Claude Rothen2, Christoph Beglinger1 1Gastroenterology & Hepatology, University Hospital Basel, 2Rothen Laboratories, Basel

Background. Faecal calprotectin (FC) reliably distinguishes organic disease and functional bowel disorder throughout the intestinal tract. In liver cirrhosis, FC has been reported to correlate with disease severity (1). However, its value to identify organic intestinal disease in patients with liver cirrhosis is unknown.

Methods. In 55 consecutive outpatients with liver cirrhosis (25 alcoholic, 16 viral, 8 NAFLD, 6 others; 43 Child A, 12 Child B) who were referred for upper endoscopy, FC levels were measured in stool samples collected within 24 hours before the investigation using an enzyme-linked immunosorbent assay (Bühlmann AG, Schönchenbuch). The final diagnosis was adjudicated in a blinded fashion using all available medical records. Reflux esophagitis Los Angeles grade A and mucosal erythema without erosions were not considered relevant pathological lesions. The presence of a relevant finding in the upper GI tract was the primary endpoint.

Results. Patients with relevant findings (acid-related mucosal damage, including ulcers, n=25) had higher FC levels (median 125µg/g, IQR 83-192) than patients without (n=30, 43µg/g, IQR 14-110, p<0.02). The area under the receiver operating characteristics curve to identify a relevant finding was 0.69 (95% CI 0.55-0.80). At the optimal cut-off point (64µg/g), FC provided 80% sensitivity and 67% specificity with a positive and negative likelihood ratio of 2.4 and 0.33, respectively. The overall test accuracy was 73%.

Conclusion. In contrast to patients with normal liver function, the diagnostic value of faecal calprotectin to identify organic upper intestinal disease is limited in patients with liver cirrhosis.

Incidence, management, and outcome of incidental gallbladder carcinoma: analysis of the database of the Swiss association of laparoscopic and thoracoscopic surgery (SALTS)

Philippe M Glauser, Samuel A Kläser, Paolo Abitabile, Christoph A Maurer
Department of Surgery, Hospital of Liestal, Liestal, Switzerland

Background: Little is known about the long-term survival of patients with incidental gallbladder carcinoma (IGBC). The role of radical resection for this disease is discussed controversially in the literature.

Methods: Eighty-nine patients with histologically confirmed carcinoma of the gallbladder were identified out of 30,960 patients undergoing laparoscopic cholecystectomy. Sixty-nine patients were included in our study. Long-term survival by different T-stage and comparison of patients with extended resection versus simple cholecystectomy were calculated using the log-rank test. The time-to-event data will be demonstrated by Kaplan–Meier curves.

Results: The overall incidence of IGBC in patients who underwent laparoscopic cholecystectomy was 0.28. The comparison of simple cholecystectomy versus extended resection of the gallbladder bed and regional lymph node resections showed a significant benefit in overall survival for the pT2 and pT3 group. The pT1b group showed no significant benefit in overall survival (p = 0.34).

Conclusion: IGBC has a low incidence (0.28%). We present a large study of patients with IGBC, comparing the overall survival by different histological findings. We observed a significant benefit for the group with pT2 and pT3. Therefore we recommend extended resection of the gallbladder bed and the regional lymph nodes for patient with incidental histologically confirmed pT2 and pT3 carcinoma of the gallbladder after performance of laparoscopic cholecystectomy. For patients with pT1b stage no recommendations can be given based on this study.

Liver resection for hepatocellular carcinoma in patients with normal, non-normal non-cirrhotic and cirrhotic liver

Zanella MC1, Tosò C1, Rubbia-Brandt L2, Girsto E2, Terraz S1, Majno P1, Mentha G3
Departments of Surgery1, Pathology2, Gastroenterology3 and Radiology4, University Hospitals of Geneva, Geneva, Switzerland

Background: The aim of this study was to assess factors predicting post-resection disease-free survival, specifically looking at the presence or absence of underlying liver disease. Methods: From 1/1983 to 3/2010, 93 patients underwent a liver resection for HCC. Clinical, biological and pathological data were retrospectively assessed, and compared between patients with normal (n=5), non-normal non-cirrhotic (n=34) and cirrhotic (n=54) liver. Disease-free survival (DFS) was the only outcome variable considered.

Results: The three groups were similar regarding age, alcohol consumption, HBV and HCV infection, AFP, number of HCC nodules, micro- and macro-vascular invasions and preoperative HCC treatment. However, patients with cirrhosis demonstrated significantly higher ASA scores, smaller HCCs, but of more advanced grade (p<0.05 in all cases). Patients with normal liver had higher DFS (63 months) compared to patients with non-normal non-cirrhotic (47 m) and with cirrhotic livers (30 m), with a trend towards significance (p=0.136, 0.076, log-rank). DFS was similar between patients with cirrhosis and with non-normal non-cirrhotic livers (p=0.328). Of all variables, alkaline phosphatase, GGT and AFP, HCV infection, presence of satellite nodule, and extrahepatic disease independently predicted DFS (multivariate Cox analysis).

Conclusions: According to this study, post-HCC resection DFS is both linked to tumor (AFP, satellite nodules, extra-hepatic disease) and patient factors (alkaline phosphatase, GGT, HCV infection). Patients at increased risk should undergo closer post-resection monitoring.

Recurrent Hepatitis C After Liver Transplantation - H04
Experience of the First 21 Patients Treated in Lausanne

Anca T. Antonino1,2, Massimiliano Fontana1,2, Emiliano Giostra3, Manuel Rascau2 and Darius Moradpour4
Division of Gastroenterology and Hepatology and 4Transplantation Center, CHUV, Lausanne and 3Division of Gastroenterology and Hepatology, HUG, Geneva.

Background and aim: Recurrent hepatitis C is a major cause of morbidity and mortality after liver transplantation (LT), and optimal treatment algorithms have yet to be defined. Here, we present our experience of the first 21 patients with recurrent hepatitis C treated in Lausanne.

Patients and methods: Twenty-one patients with histology-proven recurrent hepatitis C after LT were treated since 2003. Treatment was initiated with pegylated interferon-a2a 135 μg per week and ribavirin 400 mg per day in the majority of patients, and subsequent doses were adapted individually based on on-treatment virological responses and clinical and/or biochemical side effects.

Results: On an intention-to-treat basis, sustained virological response (SVR) was achieved in 12/21 (57%) patients (5/11 [45%], 2/3 [67%], 4/5 [80%] and 1/2 [50%] of patients infected with genotypes 1, 2, 3 and 4, respectively). Two patients experienced relapse and 6 did not respond to treatment (NR). Treatment duration ranged from 24 to 90 weeks. It was stopped prematurely due to adverse events in 5/21 (24%) patients (with SVR achieved in 2 patients, NR in 2 patients, and death of one patient awaiting re-transplantation). Of note, SVR was achieved in a patient with combined liver and kidney transplantation. Importantly, SVR was achieved in some patients despite the lack of an early virological response or HCV RNA negativity at week 24. Darbepoetin α and filgrastim were used in 33% and 14%, respectively.

Conclusion: Individually adapted treatment of recurrent hepatitis C can achieve SVR in a substantial proportion of LT patients. Conventional stopping rules do not apply in this setting so that prolonged therapy may be useful in selected patients.

Atypical and anatomical liver resections without Pringle’s maneuver are feasible, safe and without major blood loss

P. Abitabile, S. A. Käser, P. Glauser, D. Mattiello, C. A. Maurer
Department of General, Visceral, Thoracic and Vascular Surgery, Hospital of Liestal

Objective
Pringle’s maneuver is performed to reduce blood loss during liver resections. However, this can lead to potentially irreversible cellular ischemia and lethal liver failure.

Methods
From 9/2002 to 4/2010 122 consecutive atypical (specimens > 5 cm) and anatomical liver resections were performed in 94 patients, without Pringle’s maneuver. Data, including functional liver tests, were collected prospectively. Water-jet dissection of the liver parenchyma was used.

Results
122 liver resections were performed during 113 operations. Preoperative chemotherapy was used in 37.2%. Blood loss was median 500 ml (range 50-6000). The median weight of the resected parenchyma was 553g (range 109-1850). The median time spent in the intensive care unit was 2 days (range 1-44).

No mortality occurred. Morbidity was 8%. Bilary leakage (n=5) was treated conservatively. Liver failure only occurred in one patient suffering from portal vein thrombosis after right heinepatectomy. However his liver function recovered completely after interventional recanalization.

Conclusions
Atypical and anatomical liver resections without Pringle’s maneuver are feasible, safe and accompanied by only moderate blood loss. Performing liver resections without Pringle’s maneuver might help to avoid liver failure in the postoperative course.
Acute Liver Failure Requiring Liver Transplantation Due To Accidental Heme Arginate Overdose In A Patient With Acute Intermittent Porphyria

Pascal Frei1, Elisabeth Minder2, Natascha Corti3, Beat Müllhaup1, Andreas Geier1, Joachim C. Mertens3, Heiner Adams1, Philipp Dutkowski1, Jean-Paul Dutertre2, Marco Maggiorini1, Christoph C. Ganter1

1 Universitätsklinik Zürich, 2 Stadtspital Triemli, 3 Orphan Europe, Futeaux, France

Background: Acute intermittent porphyria (AIP) is the most common of the acute porphyrias. The mainstay of treatment is glucose and heme arginate which inhibit hepatic ALA synthase and improve clinical symptoms and biochemical abnormalities.

Methods: Case report of a patient with acute liver failure requiring urgent liver transplantation due to liver failure after erroneous 6-fold overdose of heme arginate.

Results: A 58-year old patient with AIP since 34 years accidentally received a 6-fold overdose of heme arginate (10mg/kg instead of the recommended dose of 3mg/kg) during an acute attack. As recommended in the product information, albumin and charcoal were administered and hemo dialfiltration was started. Albumin binds free heme, charcoal reduces enterohemeric recirculation of heme and hemo dialfiltration eliminates propylene glycol, the solvent in Normosang®. Transaminases and INR rose within one day. After 2 days, coagulation factor V was <10%. After 2.5 days, transaminases peaked (GOT 4571 UI) and the patient got anuric. After short-term improvement of liver failure, it deteriorated again on day 5. Factor V fell to 17%, lactate was rising, anuric renal failure persisted, and the patient got hypoglycaemic and had to be intubated due to encephalopathy. The patient was listed for super-urgent liver transplantation and was transplanted six days after the overdose. The explanted liver showed no preexisting liver cirrhosis, but signs of subacute liver injury and starting regeneration. The patient recovered within a short time. She was asymptomatic in relation to liver injury and porphyria, however, still on hemodialfiltration.

Conclusions: To our knowledge, this is the first published case report of acute liver failure requiring urgent liver transplantation after accidental heme arginate overdose. Knowledge of a potentially fatal course is important for the correct management of future cases including early referral to a transplantation center. This case enlarges the limited experience that AIP is cured by liver transplantation, which already has been performed in patients with otherwise untreatable symptoms of AIP.

TREATMENT OF CHRONIC HEPATITIS C IN 3 PATIENTS WITH HCV-INDUCED SEVERE THROMBOCYTOPENIA

Isabelle Pache1, Thanh Dang2, Martine Monnat2, Matthias Cavassin2, Darius Moradpour2

1Service de Gastroentérologie et d’Hépatologie, 2Service des Maladies Infectieuses, 3Unité de Toxicodépendance, Service de Psychiatrie Communautaire, CHUV, Lausanne

Background: Thrombocytopenia has been described in HCV infection even in the absence of cirrhosis and splenomegaly. Different mechanisms have been proposed, including immune-mediated platelet (p) destruction. Here, we report on the treatment of 3 patients with HCV-HIV coinfection and HCV-induced severe thrombocytopenia.

Patients and treatment: All patients had an infection with HCV genotype 3, an intermediate fibrosis stage (Metavir F2 or F3), HIV infection controlled by antiretroviral combination therapy, and severe, steroid-refractory thrombocytopenia. Pegylated interferon-α2a (PEG-IFN-α2a) was started at 45 or 90 µg per week and doses were rapidly increased in the following, while ribavirin (RBV) was prescribed at standard doses. Treatment was pursued for 48 weeks. Two patients received intravenous immunoglobulins (IVIG) during the first weeks of PEG-IFN-α2a and RBV combination therapy.

Results: A significant increase in platelet counts (from 17, 39 and 37 G/L, respectively, to > 100 G/L) was observed in the 3 patients while they experienced a virological response. Thrombocytopenia relapsed in one patient together with a relapse of chronic hepatitis C. The other 2 patients achieved a sustained virological response (SVR), with normal platelet counts at follow-up in one and persistent mild thrombocytopenia in the other.

Conclusions: Carefully titrated PEG-IFN-α2a and RBV combination therapy may be performed safely in this difficult-to-treat patient population, with close monitoring and eventually concomitant IVIG during the first weeks. SVR can lead to normalization or significant improvement of platelet counts, suggesting a causative role of HCV in this condition.
Predictive risk factors for intra- and postoperative complications in 526 laparoscopic sigmoid resections due to recurrent diverticulitis: A multivariate analysis.

Philipp Kirchhoff1,2, Daniel Matz3, Selim Dincer4, Peter Buchmann1
1) Department of Surgery, City Hospital Waid, Zürich
2) Department of Surgery, University of Basel, Basel

Background: Laparoscopic sigmoid resection is a feasible and frequent operation in patients suffering from recurrent diverticulitis. There is still an ongoing debate about the optimal timing for surgery in patients suffering from recurrent diverticulitis episodes. In elective situations the complication rate for this procedure is moderate, but there are patients at high risk for perioperative complications. The few identified risk factors so far refer to open surgery. Data for the elective laparoscopic approach is still rare. The objective of this study is to identify potential predictive risk factors for intra- and postoperative complications in patients undergoing laparoscopic sigmoid resection due to diverticular disease.

Material and Methods: Uni- and multivariate analyses of a prospectively gathered database (1993-2006) were performed on a consecutive series of 526 patients undergoing laparoscopic sigmoid resection due to recurrent diverticulitis in a single institution. Patients were assessed for demographic data, operative indications, and intra- and postoperative complications. Altogether, we analyzed 17 potential risk factors to identify significant influence on the intra- and postoperative outcome including timing of surgery.

Results: Statistical analysis of specific medical and surgical complications revealed anaemia, prior myocardial infarction, heart failure, experience of the surgeon and rotating night shifts as independent predictive risk factors for postoperative complications.

Patients age >75 years was the only independent risk factor for intraoperative complications in a multiple logistic regression model. Early elective surgery led to increased conversion rate but did not influence the postoperative complication rate.

Conclusion: This large single center study provides first evidence of the significance of predictive risk factors for intra- and postoperative complications in laparoscopic sigmoid resection.

The sphincter’s fate in low lying rectum cancer: a decision analysis

M. Adamina1,2, K. Wolff1, F.H. Hetzer1, J. Stulberg3, B. Champagne2, C. P. Delaney1, J. Lange4
1) Klinik für Chirurgie, Kantonsspital St.Gallen, St.Gallen
2) Division of Colorectal Surgery, University Hospitals Case Medical Center, Cleveland, Ohio, USA

Background: Abdominoperineal resection (APR) is the standard of care for a rectal cancer located within 5 cm from the anal verge. APR entails a permanent colostomy. Intersphincteric resection (ISR) is a preferred strategy for resection of a low-lying rectal cancer, when technically feasible.

From a patient’s perspective, ISR is the preferred strategy for resection of a low-lying rectal cancer, when technically feasible. Through the model, incontinence had marginal influence on the preference of patients for ISR (94%, respectively). On the other hand, the occurrence of fecal recurrence following ISR were modelled higher than 1%, 60%, or 94% (ISR 70.1% Vs. APR 69.4%, TNM stage II cancer). APR became the preferred procedure when the mortality, morbidity, or risk of local recurrence following ISR were modelled higher than 11%, 60%, or 94%, respectively. On the other hand, the occurrence of fecal incontinence had marginal influence on the preference of patients for ISR. Overall, the disability of a colostomy drove the preference for ISR through the model.

Conclusion: From a patient’s perspective, ISR is the preferred strategy for resection of a low lying rectal cancer, when technically feasible.

Long-term follow-up of open and laparoscopic repair of large incisional hernia

Anita Kurmann, Guido Beldi, Eva Visth, Daniel Candinas
Department of Visceral Surgery and Medicine, Bern University Hospital, University of Bern, Bern, Switzerland

Background: Long-term results after laparoscopic repair of large incisional hernia remain to be determined. The aim of this prospective study was to compare early and late complications between laparoscopic repair and open repair in patients with large incisional hernia.

Methods: A total of 428 consecutive patients underwent incisional hernia repair at our institution between February 2003 and June 2009 and were prospectively followed. Only patients with a hernia diameter of ≥ 5cm were included in this study. We compared 56 patients who underwent open incisional hernia repair with 69 patients who underwent laparoscopic repair.

Results: The demographic parameters were not significantly different between the two groups. Conversion to open surgery occurred in seven patients (10%). Median hospital stay (6.0 days, range 1-23 days vs. 7.0 days, range 1-67 days; p=0.14) and incidence of surgical site infections (SSI) (5.8% vs. 26.8%; p=0.001) were significantly lower in the laparoscopic group compared with open surgery. Bulging of the implanted mesh was observed in 17.4% in the laparoscopic group and in 52.5% in the open group. (p=0.001) Long-term follow-up of 65 months (range 1-80 months) in the open group and 33 months (range 1-62 months) in the laparoscopic group, a recurrence rate of 18% in the open group and 16% in the laparoscopic group was found (p= n.s.). Multivariate analysis revealed that width of the hernia ≥ 10cm,SSI, and BMI ≥ 30kg/m2 as significant risk factors for hernia recurrence.

Conclusions: The incidence of SSI is significantly lower after laparoscopic incisional hernia repair. At long-term follow-up, the recurrence rate is not different between the two techniques. Abdominal bulging is a specific problem associated with laparoscopic repair of large incisional hernia. Size of the hernia, BMI, and SSI are risk factors for hernia recurrence irrespective of the technique.

Esophageal dysmotility and dilatation following laparoscopic gastric banding – An underestimated long term complication.

Markus Naef1, Wolfgang G. Mouton1, Ursula Naef1, Boudewijn van der Weg2, Guy J. Maddern3, Hans E. Wagnert1
1) Department of Surgery, 2)Spital STS AG Thun, 3800 Thun, Switzerland; 2)Department of Surgery, University of Adelaide, The Queen Elizabeth Hospital, Woodville, South Australia 5011, Australia

Background: Esophageal motility disorders and dilatation after laparoscopic adjustable gastric banding (LAGB) have been reported. However, only a few studies present long term follow-up data. The aim of this study was to evaluate the effects of LAGB on esophageal dysfunction over the long term in a prospective study.

Methods: Between June 1998 and June 2009 all patients with implantation of a LAGB were enrolled in a prospective clinical trial including a yearly barium swallow. Esophageal motility disorders were recorded and classified over the period. An esophageal diameter of 35 mm or greater was considered dilated.

Results: LAGB was performed in 167 patients (120 female, 47 male) with a mean age of 40.1±5.2 years. Overall patient follow-up was 94%. Esophageal dysmotility disorders were found in 108 patients (68.8% of patients followed). Esophageal dilatation occurred in 40 patients (25.5%) with a mean esophageal diameter of 47.3±6.9 mm (35.0-94.6) after a follow-up of 73.8±6.8 months (38-120), compared to 22.5±2.8 mm (18.5-34.2) in patients without dilatation (p<0.01). 34 patients suffered from stage III dilatation (band-deflation necessary) and 6 from stage IV (major achalasia-like dilatation; band removal mandatory). In 29 patients upper endoscopy was carried out because of heartburn/dysphagia. In 18 patients the endoscopy was normal, 9 suffered from GERD, one from a stenosis and one from a hiatus hernia.

Conclusions: This study demonstrates that esophageal motility disorders after LAGB are frequent, poorly appreciated long term complications. Despite adequate excess weight loss LAGB should probably not be considered the procedure of first choice and should only be performed in selected cases, until reliable criteria for patients with a low risk for the procedures long term complications are developed.
Operative time and BMI are significant risk factors for surgical site infections in laparoscopic sigmoid resection
Anita Kurmann, Guido Beldi, Stephan A. Vorburger, Daniel Candinas
Department of Visceral Surgery and Medicine, Bern University Hospital, University of Bern, Bern, Switzerland

Background: Surgical site infection (SSI) in patients undergoing colorectal surgery is a common complication and associated with increased costs. The aim of this study was to assess risk factors for SSI in laparoscopic sigmoid resection for benign disease.

Methods: 4488 patients undergoing laparoscopic colorectal surgery were collected in a prospective multicenter SALTS-database between 2/1995 and 2/2008. 2571 patients underwent sigmoid resection for benign disease and were included in this study. Uni- and multivariate analysis was used to determine risk factors for SSI.

Results: The incidence of SSI in the observed population was 3.5% (90/2571). Among these patients incisional superficial infections was found in 71%, incisional deep infections in 22% and organ-space infections in 7%. In univariate analysis, patients age, underlying disease, type of operation (sigmoid and recto-sigmoid resection), and surgeons experience has no impact on SSI (p= n.s.). Univariate and multivariate analysis showed that operation time >240min. (Odds ratio (OR) 1.7; Confidence interval (CI) 1.0-2.8), BMI ≥ 27 kg/m² (OR 2.3 (1.3-4.5)), organ lesions (OR 7.9 (2.0-31.8)) and male gender (OR 2.3 (1.2-4.5) are significant risk factors for SSI. Reoperation rate in the SSI group was significantly higher compared to the No SSI group (30% vs. 3%; p<0.001). SSI is associated with a significant longer median hospital stay (15 days, range 2-69 vs. 8 days, range 1-69; p<0.001) and higher mortality rate (2.2% vs. 0.4%; p= 0.019).

Conclusion: Significant risk factors for SSI are operation time > 240min, BMI ≥ 27 kg/m², organ lesions, and male gender. SSI is associated with a significant higher reoperation rate, longer hospital stay, and higher mortality rate.

Intrapancreatic accessory spleen misdiagnosed as a non-secreting endocrine tumour: case report and review of the literature
Anita Kurmann, Jean-Marie Michel, Edouard Stauffer, Bernhard Egger
Department of Surgery, HFR Fribourg – Cantonal Hospital, 1708 Fribourg, Switzerland

Introduction: An intrapancreatic accessory spleen may be misdiagnosed as a non-secreting neuroendocrine tumour of the pancreas. We report a case of an intrapancreatic accessory spleen with review of the literature.

Case report: A 67-year-old woman in good general conditions with a family history positive for pancreatic cancer underwent a routine health check. Her personal history was completely uneventful without any symptoms present. Physical examination was normal and laboratory tests revealed normal AFP, CEA but a slightly elevated CA 19-9. Additional laboratory test as Chromogranine A, NSE, 5-HIA, PP and Substance-P, were ordered and beside of a slightly elevated PP was normal. The patient underwent CT-Scan investigation which showed a 18 x15 x15mm lesion in the tail of the pancreas without any contrast enhancement. An additional Octreotide-Scan was normal. A neuroendocrine tumour was suspected. The patient underwent a left-sided splenopancreatectomy. Intraoperatively, a dark red but soft tumour was found in the tail of the pancreas. Postoperative histo-pathological examination revealed an intrapancreatic accessory spleen without any signs of a tumour.

Results: In a large series of non-selected autopsy investigations an accessory spleen was found in 10-30%. The second most common site is the pancreatic tail (17%). Pancreatic endocrine tumours are rare tumours (< 10%). However, 50% of these non-secreting endocrine tumours are malignant and require surgical resection. The only possibility to differentiate an accessory spleen from a neuroendocrine tumour are nuclear scintigraphic investigations as 99mTc-sulphur colloid or Tc-tagged heat-damaged red blood cells scintigraphies. These are investigations which are non-invasive, sensitive and specific tests for detecting splenic tissue.

Conclusion: Nuclear Scintigraphy may provide the definitive diagnosis of an intrapancreatic spleen and therefore prevent patients from unnecessary major surgery.

Comparative Study of emergency vs elective Colon Cancer Surgery
seraina k faes, annelies schneider, urs metzger
department of surgery, city hospital triemli, zurich, switzerland

Background: Approximately 20% of colon cancer patients present with conditions requiring emergent operative resection. The aim of this study was to assess differences in preoperative state (age, BMI, weight loss, nutritional risk score, ASA score), extent of resection, in-hospital morbidity/mortality and tumor stage (pTNM) between emergent and elective operations.

Methods: All patients requiring operative resection for adenocarcinoma of the colon between 01/01/2000 and 12/31/2009 were reviewed.

Results: 124 of 529 (23.4%) patients presented with an emergency situation (bowel obstruction 71 (13.4%), perforation 25 (4.7%), obstruction and perforation 18 (3.4%), bleeding 10 (1.9%). There was no difference in age (median 75.5 for emergency vs 74 for elective) or BMI (median 24.0 vs 24.8), but a significant difference in preoperative weight loss (mean 3.3kg vs 2.55kg), nutritional risk score (median 3 vs 2) and ASA score (ASA 3-5 50% vs 42%) between emergent and elective operations. Extent of resection was significantly higher in the emergency group (extended/subtotal/total colectomy 21% vs 9.4%). In-hospital morbidity (Dindo II-IV 26.6% vs 17.8%) and mortality (10.5% vs 3.7%) was higher in the emergency group. Emergency operations had more advanced tumor stages (UICC III 44.3%, UICC IV 55.7%) than elective operations (UICC III 55.8%, UICC IV 44.2%). The number of positive lymph node (mean 2.18 vs 1.15) and the lymph node ratio (mean 0.11 vs 0.06) was higher in the emergency group.

Conclusion: Emergencies presented with higher ASA and nutritional risk score, had more advanced tumor stages and resulted in higher morbidity and mortality. There is an urgent need for better screening of colon cancer.

Eosophageal perforation: non-operative treatment is more than an option
Roman Inglin, Yves Borbély, Daniel Candinas, Christian A. Seller
Clinic of Visceral Surgery and Medicine, Bern University Hospital, University of Bern, Switzerland

Background: Esophageal perforation (EP) is a life-threatening situation with a high mortality (up to 40%). The role of conservative treatment for EP remains controversial. We want to evaluate the non-operative approach with aggressive interventional drainage of collections, insertion of oesophageal, gastric and mediastinal drainage, and the administration of broad-spectrum antibiotics.

Methods: From 2002 to 2009, 28 patients (18 male, 10 females) with EP were treated at our institution and reviewed retrospectively. Diagnosis of EP was confirmed by CT-scan, contrast studies and/or endoscopy.

Results: Mean age was 61 years (range 26-85). The etiology of EP was “spontaneous” in 10, iatrogenic in 10, ingestion of foreign body or acid in 6 and traumatic in 2 patients. Rupture was proximal in 4 (14%), in the mid esophagus in 6 (22%) and distal in 18 patients (64%). Median delay from rupture to treatment was 1.46 days (range 0-8). In 16 (57%) of 28 patients treatment was nonoperative. 12 patients (43%) underwent operative treatment. (6 primary repairs, 4 transhiatal resections, and 2 surgical drainage). Overall mortality was 10.7% (3 patients, 2 of them in the non-operative group, in both cases, however, the patients refused further treatment). In all patients, closure of EP was documented by esophagogram and/or upper endoscopy. Mean hospital stay was 41.9 days (range 5-175) for operated patients and 20.3 days (9-53) for conservatively treated patients.

Conclusion: These results support the concept of a proactive treatment strategy in high-risk patients with EP, yielding a good outcome. While Boerhaave’s perforation may rather be treated surgically, conservative treatment of EP from other etiologies using comprehensive drainage can safely be considered in semi-stable patients.
**Risk Factors for Delayed Gastric Emptying after Pancreaticoduodenectomy**

*Tobias Haltmeier, Guido Beldi, Eliane Angst, Beat Gloor,*

Daniel Candinas

Department of Visceral Surgery and Medicine, Inselspital, University Hospital, University Bern, 3010 Bern, Switzerland

**Background:** Delayed gastric emptying (DGE) after partial pancreaticoduodenectomy (PD) is associated with a longer hospitalization and higher costs. The objective of our study was to assess risk factors for DGE after PD.

**Methods:** Retrospective analysis of a prospective database including 194 consecutive patients who underwent PD between 2002 and 2009. Three grades of DGE were distinguished: Grade A: gastric tube (GT) for 4-7 postoperative days (POD) and delay of solid food diet (DSFD) until 7 POD. Grade B: GT for 8-14 POD and/or DSFD until 14 POD. Grade C: GT longer than 14 POD and DSFD for more than 14 POD.

**Results:** 53% of all patients suffered from any grade of DGE. The incidence of DGE grade A was 13.9%, grade B 23.7% and grade C 15.5%. Multivariate analysis revealed a decrease of DGE (all grades) with retrocolic reconstruction (odds ratio (OR) 0.33 (confidence interval 0.12-0.9) p=0.03) and in patients without diabetes mellitus (DM) (OR 0.4 (0.2-0.9) p=0.02). Grade C DGE is significantly associated with age above 70 years (OR 2.6 (1.1-5.7) p=0.02), intraoperative blood loss greater than 1000 ml (OR 2.7 (1.5-4.8) p=0.001) and dissection of more than 20 lymph nodes (OR 2.5 (1.2-5.2) p=0.02). Mean hospitalization was 18 days in DGE grade A, 22 days in grade B, 35 days in grade C and 16 days for patients without DGE.

**Conclusion:** Low grade DGE is associated with DM and antecolic reconstruction. Age above 70 years, increased blood loss and dissection of more than 20 lymph nodes are independent risk factors for high grade DGE. These results allow to improve gastric tube removal in patients undergoing PD. A prospective randomized trial is needed in order to confirm the role of the above mentioned risk factors.

---

**Surgical site infection after ileostomy closure: is it really a problem?**

*Anita Kurmann, Florin Cherbany, Julien Galley, Jean-Marie Michel,*

Bernhard Egger

Department of Surgery, HFR Fribourg – Cantonal Hospital, 1708 Fribourg, Switzerland

**Background:** Surgical site infection (SSI) is the most common complication after closure of an ileostomy and varies between 1.5% and 29%. The aim of this study was to evaluate the SSI rate within 30 days after closure of an ileostomy.

**Methods:** Our study based on 29 consecutive patients who had undergone closure of an ileostomy at our institution between January 2008 and December 2009. SSI was assessed according to the criteria developed by the Centers for Disease Control and Prevention and all patients underwent clinical examination at least 30 days postoperatively.

**Results:** Median age of the patients was 67 years (range 32-83), median BMI 25 kg/m² (range 19-31) and median ASA-score of 2 (range 1-3). Postoperative complications developed in 6 patients (20.7%). Whereas SSI was observed only in 1 patient (3.4%) (incisional superficial). Incisional hernia was found in 4 patients (13.8%) and subcutaneous hematoma in 1 patient (3.4%) after a median follow up of 44.5 days (range 30-237). The median operation time was 90 minutes (range 65-235). Primary closure of the skin was performed in all patients whereas subcutaneous drainage was placed only in 4 patients (13.8%). Median hospital stay was 6 days (range 4-16).

**Discussion:** A low rate of SSI of only 3.4% was observed in our study group. Whereas incisional hernia seems to be a common complication and needs further investigations.

---

**Pelvic floor reconstruction with biomesh after abdominoperineal extended excision for rectal cancer?**

*V. Pioch, K. Wolff, L. Marti, C. Gingert, M. Adamina, FH. Hetzer*

Department of Surgery, Kantonsspital St. Gallen

**Background:** In order to achieve a better oncological outcome, the abdominoperineal extended excision (APE) has been recently described by Holmes for patients with advanced low rectal cancer. We present our first experiences with a biological mesh (Permacol™) for closure of this large defect to the pelvic floor.

**Methods:** The procedure began in supine position: mobilisation of the rectum, transection of the sigmoid colon and performing a permanent descendsotomy. After closing the laparotomy the patient is moved into jack-knife position. An extravesical excision of the anal canal, including the levator ani is performed. The rectosigmoid is removed through the perineum including the resected coccyx’s tip. Reconstruction of the pelvic floor is performed with a 1.5mm thick sheet of Permacol™.

**Results:** From October 2009 to January 2010, 5 patients (4 male) of median age 52 years (range 37-82), underwent extended APE. All patients had a very low rectal cancer, with a range of 2-4cm from the anal verge or with an infiltration of the pelvic floor, one in the context of ulcerative colitis. Four patients had neoadjuvant radiotherapy. Median operation time was 240min. No intraoperative complications occurred. Postoperatively a vaginal wound dehiscence occurred in one patient which required operative closure. Antibiotics for a perineal wound infection were needed in two patients. At last, all perineal wounds healed without removing the biomesh.

**Conclusion:** Reconstruction of the pelvic floor after extended APE with a biomesh is a safe procedure. The perineal wounds healed without removal of the biomesh. Although the five reported cases represent our hospital’s early experience, those results are encouraging and lack of any severe complications.
First Experience with Pudendal Nerve Stimulation for Fecal Incontinence

Patrick Polie, Susanne Bock, Katja Wolff, Michel Adamina, Lukas Marti, Franc H. Hetzer
Dept. of Surgery, Cantonal Hospital St. Gallen

Background: Sacral Nerve Stimulation (SNS) is an established treatment of refractory lower urinary tract and bowel dysfunction. For urological patients not yielding satisfactory results with SNS, Pudendal Nerve Stimulation (PNS) has recently been successfully tested. Given the sometimes unsatisfactory results after SNS in fecal incontinence (FI), we tested PNS for this indication.

Methods: We performed PNS following a two stage technique as originally described by Spinelli et al. During the screening period (implanted tined lead connected to an external neurostimulator), improvement of symptoms of at least 50% was counted as success and lead to implantation of a permanent neurostimulator.

Results: In 2009, we tested PNS in 8 female patients, median age 72 years (range 31–84). FI was due to sphincter defect, pelvic floor surgery or neurogenic factors (some patients with FI of multiple origins). After screening, 7 of 8 (87.5%) patients reported a success (Median reduction of symptoms 70% (range 30–90%)). Six patients had the permanent stimulator implanted; one patient reported paraesthesia and wished explantation of the electrode despite of its very good function. Conclusion: PNS is a successful minimal invasive procedure for patients who failed SNS in FI. Further studies are ongoing for refined patient evaluation and long-term follow-up.

Effective weight loss in morbidly obese patients: comparison between laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic sleeve gastrectomy (LSG)

P. C. Nett, V. Borbély, J. M. Heinicke, D. Candinas, Bern

Laparoscopic sleeve gastrectomy (LSG) is gaining popularity as a procedure for the treatment of morbid obesity. Its indications and long-term results are currently under evaluation. Initially started as a first-stage procedure for superobese patients (BMI>50kg/m²), it is now emerging as a standalone procedure in bariatric surgery. Early results suggest that, at the end of the first year, weight loss and resolution of comorbidities with LSG is comparable to laparoscopic Roux-en-Y gastric bypass (LRYGB). Whether LSG alone can replace LRYGB as a primary procedure is to be compared with the results of comorbidities, and complications between LSG and LRYGB.

A retrospective comparative analysis was done of 20 patients in each arm who underwent LSG and LRYGB. Both groups were matched for age, sex, and body mass index. The resolution of comorbidities, percentage of excess weight loss (EWL), and complications were studied at 6 months and 1 year in our study.

The resolution of most comorbidities such as type 2 diabetes, hypertension, dyslipidemia, sleep apnea, joint pains, and percentage of EWL in both groups was comparable at the end of 6 months and 1 year. Though early resolution of type 2 diabetes was seen to be better in the LRYGB group, the results matched up at 1 year. On the other hand, there was an increased incidence of gastroesophageal reflux disease in LSG patients.

Early experience with laparoscopic sleeve gastrectomy as a single-stage bariatric procedure in high risk and/or superobese patients

P. C. Nett, V. Borbély, J. M. Heinicke, D. Candinas, Bern

Laparoscopic sleeve gastrectomy (LSG) as a single-stage restrictive bariatric procedure is becoming increasingly popular, especially in patients who are high risk and/or superobese (BMI>50kg/m²). The aim of this study was to evaluate the efficacy of LSG as a definitive procedure for morbidly obese patients at our institution.

Prospectively collected data from 20 patients who underwent LSG between July 2007 and December 2009 were reviewed. The average age of the patients was 41±13 years with a preoperative body mass index (BMI) of 51±10 kg/m². Preoperative indications for LSG included morbid obesity (BMI>40 kg/m²), severe coronary artery disease and/or congestive heart failure (n=2), significant liver disease (n=2), and obesity associated comorbidities. LSG was performed using the Endo-GIA stapler to create a lesser curve gastric tube over a 33-French bougie. Operative time, complication rates, and the percentage of excess weight loss (EWL) were calculated.

The operative time was 146±21 min. There was no conversion to open surgery. Complications within the first 30 days after surgery occurred in 7 of 20 patients (24%); gastric tube stenosis (n=2), port site infection (n=1), hematoma (n=1), pneumoperitoneum (n=1), desmotension (n=1), subcutaneous abscess (n=1), large suture line (n=1), and staple line (n=1). There were no mortality, reoperations or readmissions in the first 30 days. In the first year, weight loss was 38±13 kg (53%) and 53±14 kg (70%), respectively, and many patients had improvement or resolution of obesity-related comorbidities. All patients reported significant loss of appetite.

Early review of our data demonstrates that LSG as a single-stage bariatric procedure can be performed safely and with excellent excessive weight loss in high risk and/or superobese patients (BMI>50kg/m²). Additional follow up will be necessary to better define its long-term safety and efficacy.

Results of Distal Gastric Bypass

Philipp Bisang, Barbara Ernst, Bernd Schultes, Martin Thurnheer; Klinik für Chirurgie, Adipositaszentrum, Kantonsspital St. Gallen, Schweiz

Background

Treatment failures of proximal gastric bypass (GBP) procedures in terms of insufficient weight loss (up to 20% for morbid obesity, 40% for superobesity) have inspired us to introduce the distal GBP (dGBP) into our algorithm. The results of our series of primary dGBP will be presented here.

Methods

In a prospective cohort study from 2005-2010 we analyzed all of our primary dGBP regarding weight loss and morbidity. The decision for a primary dGBP was individually made according to certain criteria, e.g. BMI, fat distribution, severity of comorbidities or eating habits. Failure was defined as excess weight loss (EWL) < 50%. The common channel was defined as 10% of total small bowel length. A small pouch of approximately 15-20 ml was created.

Results

From 2005 to 2010 we performed 688 bariatric bypass procedures, of which 319 were primary dGBP. Mean preoperative BMI was 49 kg/m². Mean EWL was 75.4% at 2.4 years follow up. Follow-up rate was 95.6%. Failure rate was 3.1% compared to 8.8% for the proximal GBP and 19.4% in the first series of proximal GBP before 2005. Long term mortality was 0.31% (n=1, lung cancer), there were 2 leaks at the gastrojejunosutomy (0.63%) and 3 staple line ruptures (0.94%). Albumin levels were unchanged pre- and postoperatively. Complete remission rates for diabetes and hypercholesterolemia were 98% and 94%.

Conclusions

Adding dGBP to the bariatric repertoire significantly reduces the failure rate, while the incidence of hypoproteinemia is not increased.

Laparoscopic mesh repair in ventral hernia: Sometimes they come to nothing

Jung M.K., Horisberger K., Schöb O.
Chirurgische Klinik LimmattalplattSchlieren

Background

The biocompatibility properties of meshes are crucially important for minimizing the development of recurrences after laparoscopic hernia repair. We compared the clinical outcome of two different polymethyl polypropylene meshes, the large-pored progride® and the small-pored atrium®.

Methods

We analyzed a total of 120 consecutive patients undergoing laparoscopic hernia repair from 2006 until 2008. Outcome measures were operative time, length of hospital stay, recurrence rate, and reoperation rate.

Results

40 patients received an atrium® mesh, 80 patients received progride® mesh. 2 patients had a recurrence after implantation of a large-pored mesh; 8 patients suffered from recurrence after small-pored mesh implantation (P=0.002). The reason for recurrence after large-pored mesh in both cases was the too small mesh size selected in the primary operation. In all recurrences after small-pored mesh shrinkage of the mesh was supposed to be the direct cause (P<0.001). Bowel adhesions to the mesh were significantly different pronounced (n= 4 in large-pored mesh; n= 9 in small-pored mesh; P=0.004).

Conclusions

We have noted a remarkable shrinkage rate in some of the prosthetic materials. It was astonishing how distinctive the shrinkage in the small-pored meshes was. The recurrence rate associated with laparoscopic hernia repair can be minimized by selecting the correct type of mesh besides its adequate dimension.
Development of a Pediatric Eosinophilic Esophagitis Activity Index (ped-EEAI): International Experts propose Dysphagia, whitish exudates on endopy, and intraepithelial Eosinophil Counts as Major Items related to EoE Activity
Maurer E1, Schoepfer AM2, Kuehni C3, Zawalen M4, Schibbi S2, Mueller P2, Bussmann C1, Macpherson A5, Straumann A2, EESAI study group, IFSM, University of Bern 1University of Bern/Inselspital, 2Kantonsspital St. Gallen, 3Kantonsspital Luzern, 4University Hospital Basel

Background and Aims: The international EESAI study group aims to develop, validate and evaluate the first pediatric EoE activity index (ped-EEAI). We report on results of phase 1, which aims to generate candidate items. Methods: This study involves 3 phases: (1) item generation, (2) index derivation and testing on a first patient cohort, and (3) validation in a second cohort. In phase 1, item generation, weighting and reduction are achieved through a Delphi process with an international EoE expert group. The experts proposed and ranked candidate items on a 7-point Likert scale (0 = no, 6 = perfect relationship with EoE activity). Results: 23 international EoE experts proposed and ranked 39 items (20 clinical, 6 endoscopic, 8 histologic, 5 laboratory items). Rank order for clinical items: dysphagia related to food consistencies (median 5, range 2-6), severity of dysphagia (5, 3-6), frequency of dysphagia episodes (5, 3-6), regurgitation and vomiting (4, 2-6), response to dietary restrictions (4, 1-6), endoscopic items: whitish exudates (5, 3-6), furrowing (4, 3-6), corrugated rings (4, 2-6), linear shearing (4, 2-6), strictures (3, 2-6); histologic items: intraepithelial eosinophil count (5, 4-6), lamina propria fibrosis (3, 2-6), basal layer enlargement (3, 1-5); laboratory items: % blood eosinophils (3, 0-5). Conclusions: These items now will be reduced in further Delphi rounds, tested on a cohort of 100 pediatric EoE patients and validated in a second independent cohort, resulting in a robust, broadly accepted disease activity index for use in clinical trials and daily care.

Anastomose Colo-anale. Quelle qualité de vie ?
Guenin MO, Kern B, von Flüe M
Buter: Évaluer, à l’aide de formulaires standardisés, les résultats pèr-operatoires et la qualité de vie post-opératoires des reconstructions colo-anales.

Patients et méthode: De 2003 à 2009, 104 patients ont subi une résection antérieure basée avec anastomose colon-anal et stôme de protection. Cent-une opérations ont été effectuées pour un Cancer du rectum, deux pour une fistule RECTO-vaginale après résection sigmoidienne et une pour dèesse rectale après résection sigmoïdienne. La mortalité pér-opératoire a été relevée de façon prospective. Le contrôle à long terme a été effectué à l’aide des formulaires standardisés selon “Endoscopy” et Wexner.

Résultats: Le collectif comportait 46 femmes et 59 hommes. Chex 35 patients, un réservoir comme remplacement du rectum a été confectionné, chez 69 patients, seule une anastomose latéro-terminale a été effectuée. La durée opératoire était de 250 min pour les 2 types de reconstructions. La mortalité chirurgicale a été de 3%. 2 patients ont présenté une fœte anastomotique, l’une d’elles ayant nécessité une amputation et 1 patient a dû être réopéré en raison d’une lèche collique. La durée d’hospitalisation était de 17 jours. La létalité a été null. Tous les patients encore en vie à l’heure actuelle ont reçu le formulaire de contrôle avec un taux de retour de 85% (79/92). La durée moyenne entre l’opération et le contrôle était de 2,3 ans. Les scores d’Eypech et de Wexner étaient comparables pour les deux techniques: 110 (Eypech) et 7,5 (Wexner).

Conclusion: L’anastomose colo-anale avec stôme de protection est une technique sûre. La morbidité chirurgicale est faible. Toutefois, la qualité de vie et le score d’inconfort, mesurés à 2 ans, sont clairement plus faibles que dans une population de référence. Une bonne information des patients est donc indispensable et une stôme définitive devra toujours être discutée.

Traumatic injuries of the pancreas: a rare event and a diagnostic challenge but associated with good long-term prognosis
Corina Kim, Eliane Angst, Beat Gloor, Daniel Candinas
Viszeral Chirurgie und Medizin, Inselspital, Bern

Background
Only 1-5% of the patients with blunt abdominal trauma and 8% of the patients with penetrating trauma acquire an injury of the pancreas. Concurrent injuries are present in up to 70% of these patients, explaining the delay in the diagnosis of a pancreatic injuries.

Methods
We performed a retrospective analysis of our prospective trauma database between 2002 - 2009. The primary diagnostic test was a CT scan. Pancreatic injuries were graded according to the Moore classification. Patients were followed by questionnaire, abdominal ultrasonography and measurement of blood glucose and stool elastase.

Results
There were 6 patients (4 male, 2 female) with a traumatic injury of the pancreas, out of how 2148 patients with possible abdominal trauma at the emergency station. The median age was 28 years (19-80). We found an even distribution of the injuries: grade I, III, IV and V: 1 patient each, grad II: 2 patients. 5% patients (83%) suffered concurrent intraabdominal injuries, one patient incurred concurrent rib fractures. We found the following accidents: 2 horseback riding with hoof kick, one skiing, one traffic crash and one scooter, 1 penetrating abdominal trauma. Three patients were treated by interventional drain placement, 2 by a left resection of the pancreas and 1 by direct suture of the pancreas. One patient developed a pseudocyst, 2 patients developed a pancreatic fistula Grade A and B: all healed spontaneously. The mean time in hospital was 18 days (10-47). The median follow up was 56 months (1-98). There were no exocrine pancreatic insufficiency, nor diabetes.

Conclusion
Traumatic injuries of the pancreas are rare and should be sought actively in blunt and penetrating abdominal trauma. Although they affect young patients and result in prolonged hospitalization the long-term prognosis is good with a normal exocrine and endocrine function of the pancreas.

Successful closure of a gastric leak after open sleeve gastrectomy as a rescue procedure for failed gastric banding by using an endoscopic over-the-scope clip (OTSC)
P. C. Nett, A. M. Ortner, J. M. Heinicke, D. Candinias

Sleeve gastrectomy is increasingly being recognized as a valid rescue procedure after failed gastric banding in morbid obesity. Gastric fistulas are uncommon complications accounting for 0.5-3.9% of these operations. When their management is not effective, the mortality rate is high.

A 63-year-old female, 9 and 10 years after laparoscopic gastric banding and open rebanding underwent open sleeve gastrectomy. Three days after surgery a staple line disruption occurred. Although revision surgery was performed, a high-output gastrocutaneous fistula with a diameter of 6mm persisted. Repeated computed tomography scans of the abdomen revealed a large extravasation of contrast material parallel to the gastric sleeve.

Gastric fistula was initially treated with conservative measures as antibiotics, jejunal enteric feeding and total parenteral nutrition. The use of a percutaneously radiologically guided drainage permitted to control the leak and to have a controlled fistula. Two months later, fibrin glue as a tissue adhesive was applied endoscopically to the leak without any success. Finally, 4 months after the original surgery, an endoscopic over-the-scope clip (OTSC) was brought to the leak and closed the gastrointestinal fistula. Patients with a gastric leak after reoperated bariatric surgery should be treated conservatively by antibiotics, percutaneously radiologically guided drainage, jejunal enteric feeding and total parenteral nutrition. When the leak persists, endoscopic sealing by an endoscopic OTSC should be considered before redo surgery, because it is simple, safe, effective and, in some cases, life-saving.
Patient data were collected using a questionnaire that was sent to one of our outpatients and three of the 13 members of the German CS self-help group.

Results: In all Cogan patients with IBD (3 female with UC, 1 male with CD), intestinal disease was diagnosed years before onset of CS. After suffering from a complicated IBD disease course, they suddenly developed CS-related symptoms, such as hearing loss, tinnitus or eye inflammation. Three of them went deaf within few years after diagnosis. Although all of them had been on immunosuppressive IBD therapy, these treatment regimens did not prevent the onset of CS.

Conclusions: Our data suggest a strong association of IBD and CS.

**Methods**

Patient data were collected using a questionnaire that was sent to one of our outpatients and three of the 13 members of the German CS self-help group.

**Results:**

In all Cogan patients with IBD (3 female with UC, 1 male with CD), intestinal disease was diagnosed years before onset of CS. After suffering from a complicated IBD disease course, they suddenly developed CS-related symptoms, such as hearing loss, tinnitus or eye inflammation. Three of them went deaf within few years after diagnosis. Although all of them had been on immunosuppressive IBD therapy, these treatment regimens did not prevent the onset of CS.

**Conclusions:** Our data suggest a strong association of IBD and CS.

**Background:**

Cogan’s syndrome (CS) is a rare autoimmune disease with less than 250 cases reported. It mainly affects the audiovestibular system and the eyes frequently resulting in deafness. Inflammatory bowel disease (IBD) consists of two subtypes, Crohn’s disease (CD) and ulcerative colitis (UC), and represents a common form of chronic intestinal inflammation.

**Methods:** Patient data were collected using a questionnaire that was sent to one of our outpatients and three of the 13 members of the German CS self-help group.

**Results:**

In all Cogan patients with IBD (3 female with UC, 1 male with CD), intestinal disease was diagnosed years before onset of CS. After suffering from a complicated IBD disease course, they suddenly developed CS-related symptoms, such as hearing loss, tinnitus or eye inflammation. Three of them went deaf within few years after diagnosis. Although all of them had been on immunosuppressive IBD therapy, these treatment regimens did not prevent the onset of CS.

**Conclusions:** Our data suggest a strong association of IBD and CS.

**Background:**

Cogan’s syndrome (CS) is a rare autoimmune disease with less than 250 cases reported. It mainly affects the audiovestibular system and the eyes frequently resulting in deafness. Inflammatory bowel disease (IBD) consists of two subtypes, Crohn’s disease (CD) and ulcerative colitis (UC), and represents a common form of chronic intestinal inflammation.

**Methods:** Patient data were collected using a questionnaire that was sent to one of our outpatients and three of the 13 members of the German CS self-help group.

**Results:**

In all Cogan patients with IBD (3 female with UC, 1 male with CD), intestinal disease was diagnosed years before onset of CS. After suffering from a complicated IBD disease course, they suddenly developed CS-related symptoms, such as hearing loss, tinnitus or eye inflammation. Three of them went deaf within few years after diagnosis. Although all of them had been on immunosuppressive IBD therapy, these treatment regimens did not prevent the onset of CS.

**Conclusions:** Our data suggest a strong association of IBD and CS.

**Background:**

Cogan’s syndrome (CS) is a rare autoimmune disease with less than 250 cases reported. It mainly affects the audiovestibular system and the eyes frequently resulting in deafness. Inflammatory bowel disease (IBD) consists of two subtypes, Crohn’s disease (CD) and ulcerative colitis (UC), and represents a common form of chronic intestinal inflammation.

**Methods:** Patient data were collected using a questionnaire that was sent to one of our outpatients and three of the 13 members of the German CS self-help group.

**Results:**

In all Cogan patients with IBD (3 female with UC, 1 male with CD), intestinal disease was diagnosed years before onset of CS. After suffering from a complicated IBD disease course, they suddenly developed CS-related symptoms, such as hearing loss, tinnitus or eye inflammation. Three of them went deaf within few years after diagnosis. Although all of them had been on immunosuppressive IBD therapy, these treatment regimens did not prevent the onset of CS.

**Conclusions:** Our data suggest a strong association of IBD and CS.

**Background:**

Cogan’s syndrome (CS) is a rare autoimmune disease with less than 250 cases reported. It mainly affects the audiovestibular system and the eyes frequently resulting in deafness. Inflammatory bowel disease (IBD) consists of two subtypes, Crohn’s disease (CD) and ulcerative colitis (UC), and represents a common form of chronic intestinal inflammation.

**Methods:** Patient data were collected using a questionnaire that was sent to one of our outpatients and three of the 13 members of the German CS self-help group.

**Results:**

In all Cogan patients with IBD (3 female with UC, 1 male with CD), intestinal disease was diagnosed years before onset of CS. After suffering from a complicated IBD disease course, they suddenly developed CS-related symptoms, such as hearing loss, tinnitus or eye inflammation. Three of them went deaf within few years after diagnosis. Although all of them had been on immunosuppressive IBD therapy, these treatment regimens did not prevent the onset of CS.

**Conclusions:** Our data suggest a strong association of IBD and CS.
Percutaneous, endoscopic assisted removal of gallstones in a critically ill patient: A new and feasible approach

Daniel Matz1, Philipp Kirchhoff2, Daniel Oertli1, MD; Lukas Degen2, Michael Ortmann3, Olek Heizmann4
1) Department of Surgery, University of Basel, Basel, Switzerland
2) Department of Internal Medicine, Division of Gastroenterology, University of Basel, Basel, Switzerland

Background: Cholecystectomy is associated with a high mortality rate in critically ill patients. As already widely accepted percutaneous transhepatic gallstone extraction is a feasible approach in critically ill patient: An new and feasible approach

Methods: Here we present a new treatment option for critically ill patients who suffer from cholecystitis and common bile duct stones. An 85-year-old woman was admitted to the emergency room and presented with typical symptoms of cholecystitis. After diagnosis of acute cholecystitis due to multiple small gallstones in septic condition we indicated an immediate laparoscopic cholecystectomy. Due to cardiopulmonary decompensation and resuscitation prior to surgery we performed only a cholecystostomy. The patient recovered well and after 2 weeks we did an endoscopic gallstone removal through a percutaneous applied metallic stent. The common bile duct stones were removed by an endoscopic retrograde cholangiography two days later. The convalescence of the patient was uneventful and she was discharged five days after the ERCP.

Conclusion: This new technique is feasible and safe in critical ill patients who are suffering from severe cholecystitis caused by multiple gall stones and who are not qualifying for cholecystectomy.

Acute Pancreatitis after Roux-en-Y Gastric Bypass Surgery due to Reflux into the Bilipancreatic Limb: A Case Report

Silvio Döbler, Yves Borbély, Markus von Flüe, Ralph Peterli
Department of Surgery, St. Claraspital, Basel

Objective: Whilst bile stones after bariatric procedures are known sequelae in the long term, perioperative acute pancreatitis is rather uncommon. Among other known causes, obstruction of the bilipancreatic limb can cause retrograde pressure back into the bilipancreatic ductal system, leading to acute pancreatitis.

Methods and Results: We report the case of a 57-year-old female bariatric patient who developed acute pancreatitis in the early postoperative course following conversion to open proximal Roux-en-Y gastric bypass (RYGBP) and extensive adhesiolysis for therapy-resistant gastroesophageal reflux disease. Due to band intolerance, a gastric band had been removed, and sleeve gastrectomy carried out two years earlier. At the same time, cholecystectomy was performed.

On post 3, the patient experienced a sudden onset of abdominal pain and fever. Laboratory analysis revealed an acute pancreatitis with mild hyperbilirubinemia. An UGI contrast examination showed reflux of contrast tracer into the bilipancreatic limb, with documented slightly delayed passage into the common limb. Because there was no obvious sign of intestinal obstruction, we decided on conservative treatment. A magnetic resonance cholangiopancreatography (MRCP) to rule out cholangiolithiasis remained inconclusive; in a follow-up no concerning findings were found. Antibiotic therapy was initiated, and the patient could be discharged from hospital on post 37.

Conclusion: Acute pancreatitis can arise for a multitude of reasons. With biliary stones as the foremost reason in general, we think the cause in this case was reflux of intestinal content into the bilipancreatic limb, probably complicated by intermittent mechanical obstruction, explaining the mild hyperbilirubinemia.

This potentially fatal complication of RYGBP surgery is very rare and has been described in the literature only once.

Gewichtsverlauf, Resolution der Komorbiditäten (Diabetes Mellitus Typ II, arterielle Hypertonie) und Komplikationen nach laparoskopischem VVLL-Magenbypass

T. Delko, M. K. Jung, E. Grossen, T. Köstler, O. Schöb
Spital Limmattal


Methoden: Wir führten bei 239 Patienten mit einem laparoskopischen VVLL-Magenbypass und einem Follow up von 0,5-9 Jahren eine prospektive Datenerhebung mit retrospektiver Datenanalyse des Gewichtsverlaufes, Beendlussung der Komorbiditäten sowie der frühpostoperativen Mortalität/Morbidity durch.

Resultate: Das mittlere Patientenalter betrug 40 Jahre (21 bis 60), der mittlere praoperative BMI betrug 45.7 kg/m2 (35-73.4), 47.3% (n=113) litten an einer arteriellen Hypertonie und 27.2% (n=65) an einem Diabetes Mellitus Typ II. Der mittlere BMI kg/m2 und der EBWL % betrugen nach 1 Jahr 30.0 kg/m2/62.7% und nach 5 Jahren 31 kg/m2/61%. Es zeigte sich ein EBWL ≥50% nach 1 Jahr von 83% und nach 5-9 Jahren von 83% der Patienten. Die arterielle Hypertonie verbesserte sich bei 69% und der Diabetes Mellitus Typ II bei 98% der Fälle. Die Mortalität betrug 1.3%. Eine Proximalisation des Common Channels aufgrund schwerer Malnutrition war in 1.2% der Fälle notwendig.

Schlussfolgerungen: Die Therapie der Adipositas mittels VVLL-Magenbypass zeigt im kurz- bis mittelfristigem Verlauf eine nachhaltige Gewichtsreduktion und Verbesserung der Komorbiditäten.

Gewichtsrebound bei Magenbandträgerin nach stumpfem Abdominaltrauma mit ungewöhnlicher Ursache

T. Delko, M.K. Jung, E. Grossen, T. Köstler, O. Schöb
Spital Limmattal

Einleitung: Das laparoskopisch platzierte Magenband (LAP Band) stellt ein restriktives Verfahren zur Behandlung der Adipositas dar. Methodische Komplikationen sind die Pouchdilatation, das Slippage, die Bandmigration oder die Öosphagusdekompensation. Systemassoziierte Probleme sind die Leckagen oder Rupturen die zu Dyskonnektion im Port-Bandsystem führen. Eine traumatische Ruptur des Verbindungsschlauches.


Additional abstracts

1) Michael Ortmann, Department of Surgery, University of Basel, Basel, Switzerland
2) Daniel Matz, Department of Surgery, University of Basel, Basel, Switzerland
3) Philipp Kirchhoff, Daniel Oertli, MD; Lukas Degen, Michael Ortmann, Olek Heizmann
4) Olek Heizmann, Department of Surgery, University of Basel, Basel, Switzerland

Methoden: We reported the case of a 57-year-old female bariatric patient who developed acute pancreatitis. The patient had undergone conversion to open proximal Roux-en-Y gastric bypass (RYGBP) and extensive adhesiolysis for therapy-resistant gastroesophageal reflux disease. Due to band intolerance, the gastric band had been removed, and sleeve gastrectomy carried out two years earlier. At the same time, cholecystectomy was performed.

On post 3, the patient experienced a sudden onset of abdominal pain and fever. Laboratory analysis revealed an acute pancreatitis with mild hyperbilirubinemia. An UGI contrast examination showed reflux of contrast tracer into the bilipancreatic limb, with documented slightly delayed passage into the common limb. Because there was no obvious sign of intestinal obstruction, we decided on conservative treatment. A magnetic resonance cholangiopancreatography (MRCP) to rule out cholangiolithiasis remained inconclusive; in a follow-up no concerning findings were found. Antibiotic therapy was initiated, and the patient could be discharged from hospital on post 37.

Conclusion: Acute pancreatitis can arise for a multitude of reasons. With biliary stones as the foremost reason in general, we think the cause in this case was reflux of intestinal content into the bilipancreatic limb, probably complicated by intermittent mechanical obstruction, explaining the mild hyperbilirubinemia. This potentially fatal complication of RYGBP surgery is very rare and has been described in the literature only once.
Therapie der perforierten Divertikulitis: Back to the roots?
Rebecca Kraus, Raffaele Rossi
Servizio di Chirurgia Generale, Ospedale Regionale di Lugano

Einführung:

Diskussion:

Laparoscopic repair of a hernia of Morgagni using a mesh technique
Stefan Kull1, Diego De Lorenzi1
1 Spitalregion Rheintal-Werdenberg-Sarganserland, Department of Surgery and Orthopaedics, Spital Grabs, Switzerland

Background: Morgagni’s hernia is a rare cause of a diaphragmatic hernia. When symptomatic, a trans-thoracic or trans abdominal repair has been carried out. We report a symptomatic case, presenting in a young patient, repaired successfully using a laparoscopic approach and using a mesh technique.

Case report: An 27-year-old man presented with an 6 month history of intermittent severe upper abdominal pain, associated with episodes of constipation. Clinical examination was unremarkable, abnormal chest radiographic findings and a diagnostic CT scan. The hernia was reduced and the sac fully excised from the mediastinum in a laparoscopic way.

Result: Using the reported technique a safe reduction of the herniated contents and closure of the defect was achieved. The patient made an uncomplicated postoperative recovery, and at 6 months he remains well, with no recurrence of symptoms an no evidence of recurrent herniation.

Conclusion: Laparoscopy provides an excellent route for repair of a Morgagni’s hernia. With careful dissection, the hernial sac can be easily removed and, where possible, this should be done. If there is excessive tension on the repair, a mesh repair technique may be a better option.

Spontaneous Rupture of a Hepatocellular Carcinoma
A Case Report
Pasternak Itai, Fleischmann Samuel, Büchel Horst, Melcher Gian A
Spital Uster, Klinik für Chirurgie, Brunnenstrasse 42, 8610 Uster

Background
We report a case of haemorrhage due to spontaneous ruptured hepatocellular carcinoma leading to a state of shock. This is a rare event in Western countries where the incidence of hepatocellular carcinoma is < 3%.

Methods
A 76 year old male patient, who had been operated for rectal carcinoma 11 months before was referred for syncope. A focal liver lesion was known and had been characterised as focal nodular hyperplasia in contrast enhanced computed tomography and sonography.

Results
After stabilization of vital parameters emergent helical computed tomography showed active bleeding from segment IV of the liver with haemoperitoneum. Emergency laparotomy revealed a necrotic tumor mass of approximately 5cm in diameter with arterial bleeding. Resection of segment IV of the liver was performed after which the bleeding could be stopped. Histopathological work up confirmed the tumor to be a hepatocellular carcinoma. In the postoperative course no complications ensued.

Conclusion
Haemoperitoneum as a first presentation of HCC is an unusual occurrence. Nevertheless, as this case shows, it has to be included in the differential diagnosis of patients presenting in a state of hypovolemic shock with no adequate trauma. This should raise special concern in patients with known focal liver lesions or underlying liver disease, e.g. cirrhosis.

Duodéno-pancréatectomie éphalique (Whipple) par voie laparoscopique.
B. Ghavami, Lausanne

La laparoscopie est de plus en plus la voie préférentielle dans la chirurgie viscérale. De nombreuses interventions complexes sont pratiquées sous coelioscopie. Aujourd’hui de nombreuses enquêtes ont pu démontrer la faisabilité de la laparoscopie dans des affections tumorales.

Parmi les opérations avancées on peut citer les colectomies, les gastrectomies, l’hépatectomies, la pancréatectomies caudale, etc. Toutefois cet abord est peu utilisé pour la duodéno-pancréatectomie éphalique, qui constitue une intervention majeure et compliquée. La coelioscopie permet une exploration précise pour juger l’opérabilité du patient. L’opération de Whipple sous coelioscopie peut être réalisée dans des tumeurs T1 ou T2.

Cette présentation, est sous forme d’une vidéo de 10 minutes, d’une duodéno-pancréatectomie éphalique chez une patiente de 70 ans souffrant d’un Adénocarcinome de la tète du pancréas, T1 N0 M0 sans intére.

Elle détaille les différentes étapes de l’opération de Whipple : mobilisation du bloc duodéno-pancréatique, dissection de l’artère mésentérique sup, de la veine porte, lymphadenectomie complète ( 37 ganglions prélevés), section gastrique et pancréatique.

La Veine porte

La dissection de l’artère mésentérique sup

Liberation de la face superficielle de la V. porte de la tête du pancréas

La veine porte et ses branches et la tranche de section du corps du pancréas
Ein Koagelpropf an der Entero-Enterostomie nach Magenbypassoperation: Eine potentiell lebensgefährliche Frühkomplikation

T.Delko, E. Grossen, M. Jung, Th. Köstler, O. Schöb
Spital Limmattal

Einleitung
In unserer Klinik wurden seit 2000 über 350 Magenbypassoperationen durchgeführt. Eine chirurgisch revisionspflichtige intraluminale Staplernahtreihenblutung im Bereich der Entero-Enterostomie trat nur in einem Fall auf.

Material und Methoden

Ergebnisse

Schlussfolgerung

Laparoskopische Splenektomie eines Littoral Zell Angioms

T. Delko, M. K. Jung, E. Grossen, T. Köstler, O. Schöb
Spital Limmattal

Einleitung:

Material und Methoden:
Bei einem 66 jährigen Patienten wurde computertomographisch bei Pyrexie unklarer Genese eine Splenomegalie mit einer 5,5 cm grossen hypodensen Raumforderung am Unterpol gefunden. Aufgrund der Verdachtsdiagnose Milztumor stellten wir die Indikation zur laparoskopischen Splenektomie.

Ergebnisse:
Der Patient wird in Steinschnittlagerung Anitentendelenburg positioniert. Der Operateur steht zwischen den Beinen und ein Assistent rechts vom Patienten. Es werden 4 Zugänge (1x10mm Optiktrokar, 1x12mm Versaport, 2x5mm Trokare) gesetzt. Es folgt die Mobilisation des Milzunterpols über Dissektion des Ligamentum splenocolicum und eingehen in die Bursa omentalvis unter Durchtrennung des Ligamentum gastrocolicum mittels Ligasure sowie Fortsetzung der medialen Mobilisation mittels Durchtrennung der Arteriae gastricae breves. Nun erfolgt die Absetzung des Milzhilus mittels zweier Staplerapplikationen (Endo GIA, weisses Magazin, Tyco). Die Bergung erfolgt mittels Endo-Catch über eine Erweiterung des Zugangs im linken Oberbauch.

Schlussfolgerungen:
Hinter der Verdachtsdiagnose unklarer Milztumor verbirgt sich selten ein LCA. Seit der Erstbeschreibung 1991 sind weltweit in der englischsprachigen Literatur mehr als 60 Fälle des LCA beschrieben. Aufgrund potentieller maligner Entartung und möglicher Metastasierung empfehlen wir die videotechnische Splenektomie zur Diagnosesicherung und Therapie des LCA.

Spontaneous Rupture of a Hepatocellular Carcinoma

A Case Report
Pasternak Itai, Fleischmann Samuel, Büchel Horst, Melcher Gian A.
Spital Uster, Klinik für Chirurgie, Brunnenstrasse 42, 8610 Uster

Background
We report a case of haemorrhage due to spontaneous ruptured hepatocellular carcinoma leading to a state of shock. This is a rare event in Western countries where the incidence of hepatocellular carcinoma is < 3%.

Methods
A 76 year old male patient, who had been operated for rectal carcinoma 11 months before was referred for syncope. A focal liver lesion was known and had been characterised as focal nodular hyperplasia in contrast enhanced computed tomography and sonography.

Results
After stabilization of vital parameters emergent helical computed tomography showed active bleeding from segment IV of the liver with haemoperitoneum. Emergency laparotomy revealed a necrotic tumor mass of approximately 5cm in diameter with arterial bleeding. Resection of segment IV of the liver was performed after which the bleeding could be stopped. Histopathological work up confirmed the tumor to be a hepatocellular carcinoma. In the postoperative course no complications ensued.

Conclusion
Haemoperitoneum as a first presentation of HCC is an unusual occurrence. Nevertheless, as this case shows, it has to be included in the differential diagnosis of patients presenting in a state of hypovolemic shock with no adequate trauma. This should raise special concern in patients with known focal liver lesions or underlying liver disease, e.g. cirrhosis.
<table>
<thead>
<tr>
<th>Author</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abitabile P</td>
<td>19 S</td>
</tr>
<tr>
<td>Adamina M</td>
<td>2 S, 21 S</td>
</tr>
<tr>
<td>Antonino A</td>
<td>19 S</td>
</tr>
<tr>
<td>Aqtashi B</td>
<td>14 S</td>
</tr>
<tr>
<td>Baumann K</td>
<td>2 S</td>
</tr>
<tr>
<td>Baur K</td>
<td>2 S</td>
</tr>
<tr>
<td>Becker H</td>
<td>17 S</td>
</tr>
<tr>
<td>Bentz S</td>
<td>14 S</td>
</tr>
<tr>
<td>Bernasconi E</td>
<td>2 S</td>
</tr>
<tr>
<td>Bisang P</td>
<td>24 S</td>
</tr>
<tr>
<td>Breitenstein S</td>
<td>3 S</td>
</tr>
<tr>
<td>Burri E</td>
<td>18 S</td>
</tr>
<tr>
<td>Criblez D</td>
<td>26 S</td>
</tr>
<tr>
<td>D’Angelo F</td>
<td>3 S</td>
</tr>
<tr>
<td>Dietz M</td>
<td>3 S</td>
</tr>
<tr>
<td>Dittrich M</td>
<td>18 S</td>
</tr>
<tr>
<td>Doering C</td>
<td>3 S</td>
</tr>
<tr>
<td>Dolder M</td>
<td>17 S</td>
</tr>
<tr>
<td>Drommer J</td>
<td>4 S</td>
</tr>
<tr>
<td>Faes S K</td>
<td>22 S</td>
</tr>
<tr>
<td>Fischbeck A</td>
<td>14 S</td>
</tr>
<tr>
<td>Folie P</td>
<td>24 S</td>
</tr>
<tr>
<td>Frei P</td>
<td>15 S, 20 S</td>
</tr>
<tr>
<td>Fruehaufl H</td>
<td>4 S</td>
</tr>
<tr>
<td>Ghavami B</td>
<td>28 S</td>
</tr>
<tr>
<td>Ginert C</td>
<td>4 S</td>
</tr>
<tr>
<td>Girardin M</td>
<td>4 S, 13 S</td>
</tr>
<tr>
<td>Glauser P M</td>
<td>19 S</td>
</tr>
<tr>
<td>Goetze O</td>
<td>5 S</td>
</tr>
<tr>
<td>Gouttevoro J</td>
<td>5 S</td>
</tr>
<tr>
<td>Guerin MO</td>
<td>25 S</td>
</tr>
<tr>
<td>Haltmeier T</td>
<td>23 S</td>
</tr>
<tr>
<td>Hausmann M</td>
<td>17 A</td>
</tr>
<tr>
<td>Heinrich H</td>
<td>5 S</td>
</tr>
<tr>
<td>Horl C</td>
<td>7 S</td>
</tr>
<tr>
<td>Horlberger K</td>
<td>23 S</td>
</tr>
<tr>
<td>Hruz P</td>
<td>13 S</td>
</tr>
<tr>
<td>Inglis R</td>
<td>22 S</td>
</tr>
<tr>
<td>Jung M</td>
<td>24 S, 26 S</td>
</tr>
<tr>
<td>Kern B</td>
<td>5 S</td>
</tr>
<tr>
<td>Kim C</td>
<td>25 S</td>
</tr>
<tr>
<td>Kirchhoff P</td>
<td>6 S, 21 S</td>
</tr>
<tr>
<td>Kraus R</td>
<td>28 S</td>
</tr>
<tr>
<td>Krieger-Grübel C</td>
<td>13 S</td>
</tr>
<tr>
<td>Kull S</td>
<td>28 S</td>
</tr>
<tr>
<td>Kurmann A</td>
<td>21 S, 22 S, 23 S</td>
</tr>
<tr>
<td>Kuyumcu S</td>
<td>6 S</td>
</tr>
<tr>
<td>Lange C M</td>
<td>6 S</td>
</tr>
<tr>
<td>Maillard M</td>
<td>6 S</td>
</tr>
<tr>
<td>Manser C N</td>
<td>14 S</td>
</tr>
<tr>
<td>Matz D</td>
<td>27 S</td>
</tr>
<tr>
<td>Maurer E</td>
<td>15 S, 25 S</td>
</tr>
<tr>
<td>Mertens J C</td>
<td>7 S</td>
</tr>
<tr>
<td>Moldovan B</td>
<td>7 S</td>
</tr>
<tr>
<td>Naef M</td>
<td>7 S, 21 S</td>
</tr>
<tr>
<td>Netto PC</td>
<td>24 S, 25 S</td>
</tr>
<tr>
<td>Nguyen-Tang T</td>
<td>20 S</td>
</tr>
<tr>
<td>Nichita C</td>
<td>8 S</td>
</tr>
<tr>
<td>Pache I</td>
<td>20 S</td>
</tr>
<tr>
<td>Pasternak I</td>
<td>28 S, 29 S</td>
</tr>
<tr>
<td>Patuño N</td>
<td>13 S</td>
</tr>
<tr>
<td>Petkeli R</td>
<td>8 S</td>
</tr>
<tr>
<td>Piech V</td>
<td>23 S</td>
</tr>
<tr>
<td>Rothweiler S</td>
<td>8 S</td>
</tr>
<tr>
<td>Schaffer T</td>
<td>9 S</td>
</tr>
<tr>
<td>Schär M</td>
<td>16 S, 26 S</td>
</tr>
<tr>
<td>Schmit C</td>
<td>9 S</td>
</tr>
<tr>
<td>Schoepfer AM</td>
<td>12 S, 13 S</td>
</tr>
<tr>
<td>Seibold F</td>
<td>9 S</td>
</tr>
<tr>
<td>Sendensky A</td>
<td>15 S</td>
</tr>
<tr>
<td>Slankamenac K</td>
<td>10 S</td>
</tr>
<tr>
<td>Straumann A</td>
<td>10 S</td>
</tr>
<tr>
<td>Sulz M C</td>
<td>10 S</td>
</tr>
<tr>
<td>Vavricka SR</td>
<td>12 S, 13 S</td>
</tr>
<tr>
<td>Veli D</td>
<td>11 S</td>
</tr>
<tr>
<td>Vonlaufen A</td>
<td>11 S</td>
</tr>
<tr>
<td>Wojtal K A</td>
<td>11 S</td>
</tr>
<tr>
<td>Wolfram I</td>
<td>17 S</td>
</tr>
<tr>
<td>Zanella MC</td>
<td>19 S</td>
</tr>
<tr>
<td>Zhang X</td>
<td>11 S</td>
</tr>
</tbody>
</table>