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Freie Mitteilungen SGR/SGPMR: FM 1–FM 6	3 S
Poster SGR/SGPMR: P 1–P 18	5 S
Freie Mitteilungen Health Professionals: HP 1–HP 4	10 S
Poster Health Professionals: HP 5–HP 7	11 S
Index of authors	12 S

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FM 1

The role of cholinergic anti-inflammatory pathways during arthritis

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Purpose: Recent studies demonstrate that the central nervous system (CNS) can regulate peripheral inflammation. In the rat adjuvant model, inhibition of the p38 MAP kinase in the spinal cord can suppress arthritis and joint destruction. The efferent neuronal routes and the mediators remain poorly defined. We evaluated the contribution of the vagus nerve and cholinergic anti-inflammatory mechanisms.
Methods: Vagus nerve activity was quantified in rats by power spectral analysis of heart rate after intrathecal (IT) administration of the p38 inhibitor SB203580 (SB). Acute inflammation was studied in the rat carrageenan paw edema (CPE) model. The expression of the alpha7 cholinergic receptor (alpha7R) was determined in human synovium and cultured synoviocytes (FLS) using immunohistochemistry (IHC), Western blot and quantitative PCR. The role of the alpha7R on cytokine and chemokine production by FLS was tested with acetylcholine, the selective alpha7R antagonist methyllycaconitine (MLA), the selective agonist PNU-282987 and siRNA knockdown. Gene regulation pathways were assessed by reporter and gel retardation assays and mRNA half-life determination.
Results: IT SB and systemic administration of the cholinesterase inhibitor galanthamine significantly increased vagal activity. Galanthamine decreased inflammation in the CPE model ($p < 0.001$). IHC demonstrated abundant alpha7R in RA and OA synovium, especially in the intimal lining. Expression was also demonstrated in FLS lines by Western blot and q-PCR. ACh and PNU-282987 inhibited IL-6 and chemokine release by IL-1 stimulated RA and OA FLS in a dose dependent manner (up to 40 ± 2% inhibition, $n = 14$, $p < 0.001$). The alpha7R specific antagonist methyllycaconitine (MLA) blocked the anti-inflammatory action of ACh in FLS. alpha7R knockdown with specific siRNA blocked the effect of ACh on IL-6 production. Steady state mRNA levels of IL-6 in IL-1 stimulated FLS were decreased by ACh (37 ± 2% inhibition, $n = 14$, $p < 0.001$). ACh had no effect on gene transcription in promoter assays or NF-kappaB binding activity. Instead, ACh significantly decreased the half life of IL-6 mRNA in IL-1 stimulated FLS from 13.8 to 6.5 hours.
Conclusion: Inhibition of p38 in the CNS increases vagal outflow and cholinergic mechanisms can potentially account for the anti-inflammatory action of spinal p38 blockade. Alpha7R agonists could represent new therapeutic agents in RA.

FM 2

Inhibition of IL-33 signaling attenuates the severity of experimental arthritis

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Introduction: IL-33 (IL-1F11) was recently identified as the ligand of the IL-1 family receptor T1/ST2. The aim of this study was to examine IL-33 production in human and mouse joints and to investigate the role of IL-33 and T1/ST2 in experimental arthritis.
Methods: IL-33 mRNA and protein expression was examined in cultured human rheumatoid arthritis synovial fibroblasts (SF) and arthritic mouse joints. Mice with collagen-induced arthritis (CIA) were treated with blocking anti-ST2 or control antibodies from the onset of disease. The severity of arthritis was assessed by clinical and histological scoring. Draining lymph node cell (DLN) responses were examined *ex vivo* and joint mRNA was used for expression profiling.
Results: IL-33 was expressed by SF and its expression strongly increased in response to IL-1β and/or TNF-α. Furthermore, IL-33 mRNA was detected in the joints of mice with CIA and increased during the early phase of the disease. The administration of a blocking anti-ST2 antibody at the onset of disease attenuated the severity of CIA and reduced joint destruction. Anti-ST2 antibody treatment was associated with a marked decrease in IFN-γ production, as well as more limited reduction in IL-17 production by *ex vivo*-stimulated DLN cells. Finally, RANKL mRNA levels in the joint were reduced by treatment with the ST2 antibody.
Conclusion: IL-33 is produced locally in inflamed joints and neutralization of IL-33 signaling has a therapeutic effect on the course of arthritis. These observations suggest that locally produced IL-33 may contribute to the pathogenesis of joint inflammation and destruction.

FM 3

Which subgroup of RA patients benefit most from switching to Rituximab versus alternative Anti-TNF agents after previous failure to Anti-TNF agent?

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Background: Rheumatoid arthritis (RA) patients who experience a failure on anti-TNF agents (aTNF failure) may respond more favourably to a different class of biologic therapy, such as rituximab (RTX), than to a 2nd or 3rd alternative aTNF agent. However, patients may interrupt aTNF therapy for various motives (i.e. ineffectiveness, adverse events (AE), preferences) and it remains unclear in which clinical setting each therapeutic strategy offers most benefit.
Objective: To analyze the effectiveness of RTX versus alternative aTNFs on disease activity (DAS28) in RA patients with aTNF failure and examine potential effect modification by the type of prior aTNF failure or the type of aTNF switch.
Methods: This is a prospective cohort study nested within SCQM-RA cohort including all patients with an aTNF failure to at least one aTNF agent, who received subsequently either one cycle of RTX or an alternative aTNF. The primary outcome is the evolution of the DAS28 over the first year, which is analyzed using multivariate regression models for longitudinal data.
Results: 300 RA patients are included; 101 with a first RTX cycle and 199 with alternative aTNFs (adalimumab 56%, etanercept 25%, infliximab 19%). Overall 65% of patients had experienced a prior aTNF failure due to ineffectiveness (28% primary, 72% secondary) and 35% due to an AE. At baseline, there was no significant difference between the two therapeutic groups in age, disease duration, function, RF positivity, concomitant glucocorticoid or DMARD use, but groups differed in baseline DAS28 levels and in number of previous aTNF failures. After adjustment for potential confounders, and in particular for baseline DAS28, the evolution of DAS28 was overall more favourable in the RTX group compared to the aTNF group ($p = 0.01$). However, the relative benefit of RTX varied with the type of prior aTNF failure (effect modification). When the motive for switching was ineffectiveness to a previous aTNF, than the evolution of DAS28 was significantly better for RTX than for alternative aTNF (i.e. at 6 months, –1.55 (95%CI:–1.79; –1.31) versus –1.03 (95%CI: –1.32; –0.75) respectively). When the motive for switching was another cause (i.e. an AE), than the evolution of DAS28 was similar for RTX and for alternative aTNFs (i.e. at 6 months, –0.86 (95%CI:–1.28; –0.44) versus –0.77 (95%CI: –1.06; –0.48) respectively). Furthermore, we found no effect modification by prior aTNF AE, primary versus secondary aTNF failure, concomitant DMARD use or type of aTNF agent switch.
Conclusion: This observational study suggests that RTX is more effective than switching to an alternative aTNF in RA patients who have persistent active disease despite of aTNF. However, when the motive for interrupting aTNF was other than ineffectiveness, both RTX and alternative aTNF agents appear to offer similar levels of effectiveness.

FM 4

Malnutrition in a rehabilitation center

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Introduction: In 2004, we found that 28.6% of our patients had a high risk for malnutrition. (Nutrition Risk Score ≥3) [1, 2]. Our objective in this follow up study is to determine how many of our at risk patients are effectively suffering from malnutrition.
Methods: From July 1st 2007 to March 31st 2008, all patients were screened with the NRS within the first two days of admission. Subsequently the patients were assessed by the nutritionist using standardized assessments with Nutritional parameters: BMI, ability of eating, upper arm circumference, triceps skinfold thickness [3], cover of caloric needs [4] and laboratory data.
Results: From the 195 patients screened with the NRS**,** 110 (56.4%) had a NRS score ≥3. 64 (58.7%) from these 110 at risk patients were classified as undernourished. "Vascular brain injury" (stroke, trauma) was the most common diagnosis (65%) among the remaining 46 patients at risk, which were not categorised to be undernourished. Malnutrition was found in 11 (13%) of 85 patients defined as no risk according to the NRS <3.
Conclusion: This is the first study in Switzerland suggesting that malnutrition with an incidence of 38.4% is even more frequent in the rehabilitation setting than in the acute hospitals [5]. Considering these results we will continue to screen all patients at admission using the NRS and perform screening tests, for early detection of malnutrition and thus early treatment

References: 1 Kondrup J, et al. Clin Nutr. 2003;22:415–21.
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FM 5

Refined insights into the pain-depression association in chronic pain patients

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Background: The relationship between chronic pain and depression is controversial and the data on association show large variation in current literature, especially when using diagnostic thresholds. This study aimed to provide refined correlation and regression data on the basis of continuous measures.
Methods: Cross-sectional assessment was performed with standardized instruments that measure on quasi-continuous scales, the Multidimensional Pain Inventory (MPI) and the Hospital Anxiety and Depression Scale (HADS). Correlations between the depression and pain scales were determined controlling for 13 potentially disease-modifying confounders, and within chronic pain subgroups as defined by the MPI cluster patterns using multivariate regression analysis.
Results: In 273 chronic pain patients on admission to an inpatient pain rehabilitation program, the MPI pain severity scale and the HADS depression scale showed overall partial correlation of 0.30 (1.00 means perfect association). Distinguishing three subtypes of pain patients, the partial pain-depression correlation was moderate (0.57) in the "interpersonally distressed" subgroup (characterized by relatively low social support), weak (0.26) in the "dysfunctional" subgroup (characterized by relatively high levels of symptoms), and absent (0.01) in the "adaptive copers / minimizers" subgroup (characterized by relatively low levels of symptoms).
Conclusions: The strengths of the pain-depression association and the "dose-response" relationship were both weak – weaker than to be expected if the hypothesis of a causal relationship were true. In the "interpersonally distressed" subgroup, the moderate association may have an impact on pain management, i.e. pain could be treated by treatment of depression and vice versa.

FM 6

Systematic tutoring, education and aftercare of familiy members from stroke-patients in the process of rehabilitation

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Introduction: 76% of our stroke patients return home after discharge. Follow up care in the home setting is provided mainly by family members. Caregiver training, education and counselling interventions play a decisive role, to make the optimal adjustment for living with a stroke [1, 2]. In order to optimise the long-term support of family caregivers, we wanted to recognise their most relevant needs.
Methods: From 2006 to 2007, 143 family members from a total of 199 hospitalised stroke patients were systematically tutored. The different interventions were coordinated using a flowchart. Instruments for the preparation of discharge included: Information packages to the disease, a guide book, an invitation to a lecture on Stroke, interdisciplinary tutoring, domicile inspection and assessment of home weekend-visits. 2 Weeks after discharge, family caregivers were assessed for stress situations using the self-rated burden (SRB) and the Caregiver Strain Index (CSI) [3]. An interview also disclosed possible burdens and suggestions were made to reduce strain.
Results: We found a linear correlation between the SRB and the CSI. 9 out of the 46 respondents had a total score of ≥7/13 which verifies a high level of stress. The most frequently experienced problems were less flexibility and adaptation of planning as well as emotional adjustment. Physical strain was seldom mentioned. Surprisingly we found no correlation between the SRB and CSI neither with the Functional Impairment Index (FIM) nor with the nursing capacity performance (LEP minutes) of patients.
Discussion: This study showed that Familiy Caregivers felt relatively secure with their handling techniques, regardless of the level of nursing care of the patients. We conclude that this could be due to the offered systematic and educational concept in our clinic. Given these conclusions we are challenged to further develop this approach, in order to find ways to reduce the stress factors specified above. This therefore implicates a further development of the present tutoring program into the long term setting with counselling, education and other specific interventions, as well as possibilities for screening in order to maintain an acceptable stress level over time.
References: 1 Brereton L, et al. Clin Rehab. 2007;21:867–84.
2 Clark MS, et al. Clin Rehab. 2003;17:703–12.
3 van Exel NJ, et al. Clin Rehab. 2004;18:203–14.

P 1

Diagnostic criteria and follow-up parameters in complex regional pain syndrome type I – a delphi survey

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Objective: Although the current clinical guideline of diagnostic criteria for the Complex Regional Pain Syndrome I (CRPS I) is a landmark endeavor to define this complex condition it does not prioritize its most important clinical manifestations. We set out to obtain an expert agreed priority list of diagnostic and follow-up parameters in the diagnosis and management of CRPS I.
Methods*:* A two round Delphi survey: We asked international experts to list (first round) and weight (second round) parameters (scale 1–10) they believed to be relevant in diagnosis and follow-up. Median ratings and interquartile ranges (IQR) were calculated. Rates ≥7 and IQR ≤3 depicted important and expert agreed parameters.
Results: Thirty-two diagnostic and twenty-three follow-up listings and ratings of 13 experts were available for analysis. In three domains (clinical presentation, further examinations and follow-up) experts agreed on the following parameters, *pain* (10;9-10) with its subcategories hyperesthesia (7;5-8) hyperalgesia (8; 8-8) and allodynia (8;7-10), *signs* with edema (9; 8-10) and color change (8;5-8) and *mobility* with its categories motor change (7;5-8) and decreased range of motion (8;8-8). The experts agreed that no further examinations were necessary for diagnosis (10;8-10). Agreed important follow-up parameters was *clinical course* (10;8-10) with its categories decrease in pain (8; 8-9) and hyperalgesia (8;6-8), decreased edema (8;7-10) and improvements in motor function (10;8-10) and strength (8;6-9).
Conclusion: This expert survey conveys an agreed set of relevant diagnostic parameters of CRPS I and proposes that in follow-up examinations treatment success should be based on restoration of those manifestations.
Reference: Brunner F, et al. Diagnostic criteria and follow-up parameters in complex regional pain syndrome type I – a Delphi survey. Eur J Pain. 2008;12(1):48–52.

P 2

Biphosphonates for the therapy of complex regional pain syndrome I – systematic review

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Objectives: Serveral studies found that biphosphonates counteract locally increased bone resorption and associated pain in patients with complex regional pain syndrome I (CRPS I). We performed a systematic review of all randomised controlled trials to assess the benefit of biphosphonates in the treatment of CRPS I patients with bone loss.
Data sources: We searched Medline, Embase (April 2007) and the Cochrane Library and screened bibliographies of included studies.
Review methods: We selected randomised trials comparing biphosphonates with placebo, with the goal of improving pain, function and quality of life in patients with CRPS I. Two reviewers independently assessed trial eligibility and quality, and extracted data. Where data were incomplete or unclear, conflicts were resolved with discussion and/or trial authors were contacted for further details. We calculated the study size weighted pooled mean reduction of pain intensity (measured with a visual analogue scale [VAS]).
Results: Four trials of moderate quality fulfilled our inclusion criteria. In respect to function and quality of life there was a trend in favour of biphosphonates but differences in outcome assessment impeded pooling of results. Two trials provided sufficient data to pool pain outcomes. Biphosphonates reduced pain intensity by 22.4 and 21.6 mm on a VAS after 4 and 12 weeks of follow-up. Data on adverse effects were scarce.
Conclusions: The very limited data reviewed showed that bisphosphonates have the potential to reduce pain associated with bone loss in patients with CRPS I. However, at present there is not sufficient evidence to recommend their use in practice.
Reference: Brunner F, et al. Biphosphonates for the Therapy of Complex Regional Pain Syndrome I – Systematic Review accepted in Eur J Pain.

P 3

Positive correlation of lupus nephritis with anti C1q and dsDNA under immunosuppression – case report

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Anti C1q antibodies have an outstanding negative predictive value regarding active renal disease. A positive correlation of anti C1q in combination with high titres of dsDNA antibodies with active lupus nephritis is widely accepted. Some data exist on a further correlation with disease activity under immunosuppression. We report the clinical and laboratory course of anti C1q and anti dsDNA in a patient with lupus nephritis under therapy with mycophenolate mofetil (MMF).
A 19-year old female with a 5 year history of systemic lupus erythematodes suffered her first episode of nephritis in 11/07 with moderate proteinuria, microscopic hematuria and renal insufficiency. Histology revealed lupus nephritis grade IV G (A/C). After initiation of prednisone and MMF she experienced rapid recovery of malaise and renal parameters to now: low grade proteinuria, normal urine sedimentation, creatinine clearance from 54 to 81 ml/min. There was a corresponding decline of anti C1q from 40.8 to repeatedly normal values around 16 U/ml (range <20) within 3 months. Anti dsDNA fell from 909 to 307 Units (range <200) within 5 months. C3/C4 values increased from 0.72 to 0.83 g/l (range 0.75–1.4) and from 0.07 to 0.12 g/l (range 0.1–0.34) respectively. Baseline therapy consists of prednisone 5 mg/day and MMF 1.5 g/day. Anti C1q correlated well with the course of disease. Signs of proteinuria in the absence of hematuria and renal insufficiency are interpreted as chronic renal damage. To further determine the activity of lupus nephritis under stable clinical and laboratory parameters repeat renal biopsies are suggested. Whether anti C1q has a correlation to histologically verfiable disease activity is not known. Although the literature states anti C1q to have either a positive or negative correlation in predicting renal flares this has not been clearly demonstrated in clinical courses. We suggest determination of anti C1q in addition to ds DNA antibody values as baseline diagnostic and for follow up in systemic lupus erythematodes, in particular if renal involvement is suspected.
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P 4

Double blind randomized comparison of a subunit – and a virosomal influenza vaccine in immunocompromized patients

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Objective: To compare the immunogenicity and tolerance of a subunit and a virosomal influenza vaccine in three groups of immunocompromized patients.
Methods: A double-blind block-randomized trial was conducted in a total of 305 adult immuno-compromized outpatients (47 with rheumatic diseases, most of them on MTX and anti-TNF treatment, 131 HIV positive, 74 renal transplant recipients, 53 patients with chronic haemodialysis). Serum antibody levels against haemagglutinin (HA) were determined at baseline and a median of 35 days after vaccination. Data on tolerance were collected for 7 days after vaccination.
Results: One hundred fifty two patients received a subunit and 153 a virosomal influenza vaccine. Anti-HA titres increased significantly for all 3 influenza strains in both vaccine groups, with the exception of the B Shanghai strain in the virosomal group. The two vaccines were comparable for immunogenicity within vaccine strains. Protection rates after vaccination were 75% for the A1 California, 63% for the A1 Caledonia and 38–49% for the B Shanghai strain. However, the proportion of patients with protection against none of the strains was higher in the subunit (21%) than in the virosomal (11%, $p = 0.02$) group. Vaccine tolerance was comparable between groups. Mean geometric titers in rheumatologic patients raised significantly in both vaccine groups. Protection rates did not differ for the A1 California and A1 Caledonia strain between the two vaccines. The protection rate for the B Shanghai strain were however significantly higher in patients receiving the subunit vaccine. No flare-up of rheumatic disease could be observed in correlation to vaccination.
Conclusions: Both subunit and virosomal vaccines are immunogenic and well tolerated in immunocompromized patients. The virosomal vaccine was slightly superior in terms of stimulating an immune response against at least one vaccine strain.

P 5

Long-term study of three dosages of epicutanenously applied Diractin® (Ketoprofen in Transfersome®) in patients with Osteoarthritis (OA) of the knee

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Background: The risk of oral NSAIDs to cause gastrointestinal, renal or cardiovascular adverse events related to systemic drug exposure could be reduced by local application. Conventional topical formulations face skepticism about their efficacy for use in OA, given that very few long-term studies have been published. Diractin® is a new, carrier based NSAID formulation for local application that showed efficacy comparable to oral celecoxib in a 6-week study of knee OA [1]. Results of a 12-week study were reported recently [2]. Here we report data for a 3-month extension of that 12-week study, being the first trial providing 24-week safety and efficacy data for a locally applied NSAID.
Methods and objective: The multicentre, multinational, randomised, double-blind, parallel-group, dose-controlled study enrolled 510 patients with knee OA, and investigated doses of 25, 50 and 100 mg ketoprofen in Diractin® per knee b.i.d. Study objective was to check, whether long-term treatment effects are maintained, as defined by comparison of the OMERACT-OARSI Responder Index between weeks 12 and 24, and evaluation of treatment induced changes of the WOMAC.
Results: The responder rates for all three treatment groups (n = 390) remained high (week 12: 93.6%; week 24: 95.1%). The responder rate increase for those patients treated with placebo for 12 weeks before (n = 108), was significantly higher (p = 0.008) at week 24 (89.8%) than at week 12 (83.3%). All three groups on active treatment during the first 12 weeks had significant further improvements of the WOMAC subscales for pain, function and stiffness between week 12 and 24.
Conclusions: Treatment with ketoprofen in Diractin® maintained efficacy for a treatment period of up to 24 weeks with best effects for the 50 mg and 100 mg ketoprofen dose. There was no evidence of systemic side effects in any populations, including patients with risk factors, e.g. low dose ASS.
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2 Stucki et al. Poster, EULAR Conference, 13–16 Jun 2007.

P 6

Adalimumab in the treatment of acute severe sciatica, a randomized double blind placebo controlled study

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Purpose: Iinflammation in tissues surrounding the herniated disc seems to play an important role in sciatica. Animal studies have shown that tumor necrosis factor (TNF)-alpha plays an important in this inflammatory process. In addition, we have recently shown that TNF-alpha levels are increased in the periradicular fat of patients with sciatica. The objective was to determine the role of TNF-alpha in the pathogenesis of sciatica and whether adalimumab (ADA), a human anti-TNF agent administered subcutaneously, could fasten the evolution of severe acute sciatica.
Methods: Patients with acute (less than 3 months of leg pain) and severe sciatica (Oswestry score (ODI) >50 despite adequate pain treatment) were randomized into two groups. In addition to standard analgesic therapy, the treatment group (ADA) received two subcutaneous injections of 40 mg of adalimumab at 1 week interval, while the control group received two injections of placebo (PL). Patients, nurses and physicians were blinded to the treatment allocation. The primary outcomes were leg pain (VASlp) and function (ODI). Follow-up time points were planed at 10 days, 6 weeks, and 6 months. Preliminary results at day 10 and 6 weeks are presented herein.
Results: 61 patients were included (31 ADA, 30 PL). Baseline data were balanced between both groups for age (48 v. 45 y.o), duration of leg pain (13 v 16 days), neurologic deficits, ODI score (66 v 70), VASlp (7.55 v 8.45) and VASbp (4.85 v 2.85). VASbp, VASlp, and ODI levels decreased significantly in both groups at day 10 and at week 6. At day 10 no significant difference were found for leg pain but ODI decreased significantly more in the ADA group ($p < 0.05$). At week 6, 5 patients were lost to follow up (1 ADA and 4 PL). Five patients in the PL group, but none in the AD group, underwent surgery for intractable leg pain ($p = 0.02$). In the intention to treat analysis mean change scores were not statistically different between ADA and PL: Median VASbp (1.2 (0.4–2.4) versus 1.1 (0.3–4.8)), VASlp (2.4 (1.0–4.2) versus 2.4 (0.9–4.5)), ODI (31 (17–38) versus 31 (17–50)).
Conclusions: At short term follow-up, systemically delivered adalimumab may decrease the need for surgery in acute severe sciatica. However, in the intention to treat analysis, adalimumab was devoid of significant effect on either pain or function.

P 7

Calcium und Vitamin D-levels of in-patients of our clinic, in both summer and winter

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Introduction: A sufficient supply of Calcium (1000–1500 mg/d) and Vitamin D (25-OH-Vitamin-D-level 80–120 nmol/l) is the essential foundation for a healthy skeleton and the basis of Osteoporosis treatment (1), – although far from self-evident (2). We present the preliminary results of an observation study designed to evaluate the supply levels of our patients on entry, and to show the influence of age, gender, and season.
Methods: We collected the data from 238 patients on admission, 111 of these in summer (August 2007), and 127 in winter (mid-January to mid-February 2008), in each case over a 4 week period. We used a standard Calcium questionnaire to establish the daily *alimentary Calcium intake (mg)* and determined with blood tests on admission the *25-OH-Vitamin-D value (nmol/l)*. We investigated the relationship between these values and factors of age, gender and the season of the year.
Results: From our patients on entry – 69% women and 31% men, with an average age of 67.6 years (22–91 years) – the average daily alimentary Calcium intake was 791 mg (10 mg to 4145 mg) in summer and 907 mg (40 mg to 3308 mg) in winter. In the case of 21.8% of the patients the Calcium intake was insufficient (<500 mg/d). The *average Vitamin-D-level* in summer was 63.3 nmol/l (<30 nmol/l to 143 nmol/l), and in winter was 38.8 nmol/l (<30 nmol/l to 145 nmol/l). A Vitamin-D deficiency (<30 nmol/l) was found in 23.9% of the patients (summer 8.1%, winter 37.8%). The difference between summer and winter for Vitamin D was significant (chi-squared test $p < 0.0001$). No significant correlation was determined between Vitamin D level and age or gender; or between alimentary Calcium intake and age, gender or season.
Conclusion: In a large number of our patients the alimentary Calcium intake and the Vitamin D serum levels were below the recommended norm values. The deficiency of Vitamin D was significantly more pronounced in winter than in summer. For patients in rehabilitation the supply of Calcium and Vitamin D deserves additional attention.
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P 8

An easy functional capacity evaluation in chronic low back pain

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Lifting is said to be on of the major risk factors for the onset of low back pain, several different measures has been developed to study this. Several programs are available in order to measure these components, or to determine the ability of an individual to perform a certain job or to discover if the job creates dangerous positions for the worker. In these different fields reliable and valid instruments exist but they are costly and time spending. We present a simplified functional capacity measuring that we use daily in practise.
Method: 280 patients have been evaluated on this base. The majority was referred to multidisciplinary rehabilitation treatment. The patients had recurrent back problems for months or years. Inclusion criteria were between 18 and 64 years, currently of work, no work compensation. Exclusion criteria were chronic low back pain with a specific cause. They followed a one-hour evaluation test as a functional capacity evaluation at the end of the multidisciplinary treatment period, it was compared to the PILE-test done at the beginning and at the end.
Results: We included 280 subjects: 160 men and 120 women. Mean age 43.6 by the women and 44 years by the men. We studied the caring foot-hip, hip-shoulder, 5 meter carrying, pushing and tiring and the global weight carried during the test. We found this global value to be 696 kg by men and 422 kg by women suffering from chronic lumbar pain. The increase in this value had a clear incidence on a greater work ability, as had a decrease.
Conclusions: We were able to develop a lifting capacity program that is easy to reproduce and not expensive, giving us the possibility to have an idea on how to reorient the patients according to their work place and their capacities. We could also have an information of work performance and power consumption.
It should be more tested and compared to standard capacity in the healthy population.

P 9

Correlation between Nutrition Risk Score (NRS) and clinical parameters for malnutrition in a rehabilitation center

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Introduction: The significance of malnutrition is underestimated and no "golden standard" exists for determining nutritional status [1]. Our objectives were to improve the method for screening malnutrition in our clinic. We therefore compared the Nutrition Risk Score (NRS) [2] with other recommended screening tools.
Methods: Between July 1st 2007 and March 31st 2008, all patients within the first 2 days of admission, were screened using the NRS. In addition, the following clinical parameters were performed: Laboratory values, BMI, the total caloric content using the plate diagram [3], capability to eat, measurement of upper arm circumference and triceps skinfold thickness [4].
Results: 21 (25.6%) of the 85 patients screened with the NRS <3 had an insufficient intake of calories. As expected we found a statistical correlation between NRS and albumin as well as hemoglobin, but the NRS did not correlate with the CRP, folic acid, iron, cholesterol and lymphocytes. NRS was correlating with upper arm circumference but only weakly with triceps skinfold thickness. Further we did not observe any correlation between the NRS and the Functional Independence Index (FIM) total score.
Conclusion: The findings of this study showed that almost a quarter of the patients who were not identified to be at risk for malnutrition by NRS, had an insufficient intake of calories. Because these patients may develop relevant malnutrition during rehabilitation we will continue to screen all patients for cover of caloric intake. Further, routine laboratory screening of biochemical makers will be limited to albumin.
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P 10

A multiple-dose, open-label, safety, compliance, and usage evaluating study of epicutaneously applied Diractin® (ketoprofen in Transfersome®) in joint / musculoskeletal pain or soft tissue inflammation

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Objective: The risk of oral NSAID to cause gastrointestinal, renal or cardiovascular adverse events related to systemic drug exposure could be reduced by local application. However, conventional topical NSAIDs face scepticism about their efficacy for use in indications that require long term application like osteoarthritis (OA) and only very few long-term studies have been published. This is the first presenting of results from a prospective long-term safety study with a new technology for targeted drug delivery (predominantly in OA), covering up to 18 months exposure after local application.
Methods: This multiple-dose, open label, at-home-usage study enrolled 402 patients with joint pain, musculoskeletal pain, stiffness or soft tissue inflammation. Diractin® was applied up to twice daily with a maximum dose of 220 mg ketoprofen per a maximum of 2 application sites. The mean overall duration of treatment was 278. 2 days. For patients, which applied the drug for more than 6 months (N = 227) or 12 months (N = 158) the mean application duration was 429.1 and 501.0 days, resp.
Results: The pain score progressively improved up to week 36 (3.5 ± 1.9) without substantial change until week 78. The reduction of pain scores at all visits vs. baseline was statistically significant (P <0.0001). Patients reported improved quality of life with regard to mobility, self-care, usual activities, pain/discomfort and anxiety/depression. 218 patients (54.2%) experienced 602 AEs. 136 AEs observed by 88 patients (21.9%) were related to Diractin®. The most frequent treatment related AEs were skin and subcutaneous tissue disorders with highest frequencies for erythema (16.7%) and pruritis (2.0%). No cases of drug related allergies or phototoxic reactions were recorded, but one case of contact dermatitis was notified. There were no treatment related SAEs. The mean plasma concentration of ketoprofen was 70.6 ng/ml, 58.1 ng/ml and 69.0 ng/mlat month 6, 12, and 18, resp.
Conclusions: Diractin® provided adequate pain relief with a good safety and tolerability profile. Ketoprofen plasma concentrations were less then 1% of what was reported for a single oral dose of 200 mg ketoprofen.

P 11

New treatment option for osteoarthritis using Transfersome® carriers – preclinical results

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Objective: Topical application of NSAIDs is frequently used but faces skepticism regarding efficacy and true local nature of drug delivery as shown by comparable synovial drug concentrations in the treated and untreated joint after topical application [1]. This implies a systemic rather than a local drug distribution explained by rapid drug absorption via cutaneous blood capillaries. Innovative Transfersome® carriers actively pass the skin driven by the transcutaneous moisture gradient, transport drug across the skin, prevent their systemic absorption and allow high local drug concentrations deep below the application site. We therefore provide experimental data obtained in pigs supporting the innovative transport mechanism of Transfersome® carriers and their contribution to a new treatment option for osteoarthritis (OA).
Methods: Diractin® was applied on joints of pigs. Treated and untreated joints were tapped at different timepoints post application to compare ketoprofen levels in the synovial fluid. In separate studies, Diractin® was applied dermally on pigs in different area and total doses. Tissue biopsies below the application site were taken at different timepoints post application to compare ketoprofen levels in different subdermal tissue layers.
Results: The mean ketoprofen concentration in synovial fluid on the treated side was 3 to 5 times higher than on the untreated, side. Ketoprofen concentration in the synovial fluid of the untreated side was in the range of the drug concentration in plasma. Diractin® showed superior targeted drug delivery into different structures of subdermal pig tissue as compared to conventional oral and topical products.
Conclusions: The findings prove the feasibility of the Transfersome® mediated targeted delivery of ketoprofen and indicate a highly efficient concept for the treatment of OA. They also indicate that Transfersome® carriers deliver a substantial portion of the drug directly into the joint below application site, supporting their truly local mode of action.
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P 12

Adalimumab is effective and well-tolerated in treating Ankylosing Spondylitis (AS) in real-life clinical practice: subanalysis of results for Swiss patients in the RHAPSODY trial

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Introduction: We evaluated the effectiveness and safety of adalimumab in a large cohort of patients (pts) with active ankylosing spondylitis (AS) eligible for anti-TNF therapy in daily rheumatologic practice.
Methods: Pts with active AS and insufficient responses to ≥1 prior NSAID received adalimumab 40 mg every other week for 12 weeks in an open-label European study, "Review of safety and effectiveness witH Adalimumab in Patients with active ankylosing Spondylitis (RHAPSODY)." Evaluations of treatment effects on spine and peripheral joints and routine safety evaluations were conducted at Weeks 2, 6, and 12. Adverse event (AE) reports were collected during therapy plus a 70-day follow-up period.
Results: In RHAPSODY, 1,250 pts enrolled at 211 centers in 15 countries. A total of 1,159 (92.7%) patients completed 12 weeks of adalimumab treatment, including all 16 patients from Switzerland. Baseline characteristics for all/Swiss pts were (mean) age 44/40 years; AS duration, 11/8 years; male, 71/88%; HLA-27+, 82/81; BASDAI (0–10), 6.3 /5.8; BASFI (0–10), 5.4 /3.3; ≥1 SJC, 23/19; enthesitis, 55/63; comedication with NSAID, 74/81; and history of anti-TNF therapy, 26/31. Treatment response is summarized in the table. Adalimumab was well-tolerated, with serious AEs occurring in 3.4% of all pts and in none of the Swiss pts, respectively. No cases of TB or malignancy were observed.

Effectiveness of Adalimumab Therapy at Week 12 in RHAPSODY

	ASAS20	ASAS40	BASDAI 50	ASAS 5 of 6	Partial Remission
All 1,250, %	70	54	57	58	28
Swiss 16, %	63	56	69	75	31

Conclusion: Adalimumab was effective in this large cohort of patients with AS, with more than half of patients achieving a BASDAI 50 or ASAS40 response and more than a quarter reaching partial remission at Week 12. Despite slightly lower disease activity at study entry, Swiss patients exhibited a trend toward better response.

P 13

Anakinra for a patient in end-stage renal failure with recurrent episodes of severe pseudogout

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Background: Recent data on the molecular mechanisms of crystal-induced arthritis demonstrated that excessive levels of interleukin (IL)-1β are released. Pilot studies have suggested that anakinra (an IL-1 receptor antagonist) is efficacious in the treatment of ten patients with acute gout and in one case of refractory pseudogout.
Objective: To examine whether anakinra is safe and efficacious in a patient in end-stage renal failure with episodes of severe pseudogout.
Case: We describe the case of a 71-year old man on hemodialysis for end-stage renal failure secondary to hypertensive and diabetic nephropathy. Since 18 months, he has a history of severe painful swelling of wrists and ankles. In addition, he had also episodes of painful left hip. Examination of synovial fluid revealed the presence of acute inflammation with calcium pyrophosphate dihydrate (CPPD) crystals and X-rays showed typical articular calcifications. During the last year, he exhibited three episodes of severe acute arthritis leading to hospitalisation for several days. Non steroidal anti-inflammatory drugs and colchicine were not used because of end-stage renal failure. In addition, oral corticosteroid therapy was barely sufficient to control the inflammatory manifestations and was limited by the occurrence of severe hyperglycemia. Thus, at the time of a subsequent episode of arthritis, anakinra 100 mg was administered subcutaneously 3 days per week after each hemodialysis session. After a few days, the patient responded with a complete resolution of the signs and symptoms of pseudogout and normalization of the markers of acute-phase response. In addition, after a follow-up of 4 months, he did not exhibit any severe episode of pseudogout.
Conclusion: This observation suggests that anakinra is effective in the management of refractory pseudogout. This strategy may represent a safe and efficacious alternative in patients with end-stage renal failure.

P 14

The Berne Ultrasound Cartilage Score – a novel alternative of the Sharp-van der Heijde joint space narrowing score

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Introduction: This study evaluated the reliability and validity of a novel ultrasound (US) imaging method to measure metacarpophalangeal (MCP) and proximal interphalangeal (PIP) finger joint cartilage.
Methods: We examined 48 patients with rheumatoid arthritis (RA), 18 patients with osteoarthritis (OA), 24 patients with unclassified arthritis of the finger joints, and 34 healthy volunteers. The proximal cartilage layer of MCP and PIP for digits 2–5 was bilaterally visualised from a posterior view, with joints in approximately 90° flexion. Cartilage thickness was measured with integrated tools on static images. External validity was assessed by measuring radiologic joint space width (JSW) and a numeric joint space narrowing (JSN) score in patients with RA.
Results: Precise measurement was possible in 97.5% of the MCP and 94.2% of the PIP joints. Intraclass correlation coefficients for bilateral total joint US scores were 0.844 (95% confidence interval [CI] 0.648–0.935) for interobserver comparisons and 0.928 (95% CI 0.826–0.971) for intraobserver comparisons (when the same observer used different US devices). The US score correlated with JSN of the complete hands (adjusted R2 = 0.513, p <0.001) and JSW of the same finger joints (adjusted R2 = 0.635, p <0.001). Reduced cartilage shown by US allowed discrimination of early symptomatic OA versus early RA and healthy joints. In patients with RA, US cartilage scores correlated with duration of treatment-resistant, progressive RA.
Conclusion: The method of direct visualisation and quantification of cartilage in MCP and PIP joints by US is objective, reliable, and valid and can be useful for diagnostic purposes in patients with arthritis.

P 15

Lower trabecular bone mineral density and thinner cortices at peripheral bones in patients with RA

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Introduction: It is well established that peripheral areal bone mineral density (aBMD) measured by dual x-ray absorptionmetry (DXA) and the juxta-articular BMD metacarpal index (ratio of cortical area/total bone area) assessed by plain radiographs are reduced in patients with RA compared to the general population. Using peripheral quantitative computed tomography (pQCT), the aim of the present study was to compose a more detailed assessment of trabecular and cortical bone involvement in RA.
Methods: Consecutive RA patients seen at the Department of Rheumatology of the Inselspital Bern were recruited. PQCT measurements were performed at the distal epiphyses and mid-shafts of the radius, tibia and 3rd metacarpal (additional measurement was placed at one third of bone length from the distal end of the 3rd metacarpal). At the epiphyses bone mineral content (BMC), total BMD and trabecular BMD of the central 45% of the bone cross sectional area (CSA) were determined. At the shafts, total bone CSA (including medullary CSA), cortical bone CSA (excluding medullary CSA), cortical wall thickness, and cortical BMD were determined. Bone parameters were compared to those recently measured in a healthy reference population in our department by means of independent t-tests.
Results: Twenty-six RA patients and 133 reference participants were analysed for this abstract. RA patients and reference population were comparable with regard to age, sex and weight. Trabecular and total BMD were significantly lower and shaft cortical wall thickness thinner (all p <0.01, 95% confidence intervals not overlapping) in RA patients than controls at the radius (14–22%), tibia (8–10%) and metacarpal bone (9–16%). In addition, trabecular BMD at the 3rd metacarpal tended to be lower in patients with erosive RA than in patients without erosive changes.
Conclusions: Bone involvement in RA was found at all measured peripheral skeletal sites in the form of lower total and trabecular BMD as well as thinner shaft cortices. PQCT measurement is shown to be a sensitive and discriminative method to detect bone involvement in RA.

P 16

Peripheral bone mineral density and bone geometry in patients with diffuse idiopathic skeletal hyperostosis (DISH): preliminary results

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Introduction: Recent studies in patients with DISH have suggested that peripheral areal bone mineral density (aBMD) measured by dual x-ray absorptionmetry (DXA) and the metacarpal index assessed by plain radiographs are elevated in these patients. Using peripheral quantitative computed tomography (pQCT), the aim of the present study was to assess whether a potential bone mass increase in DISH patients is of densitometric or geometric nature.
Methods: Consecutive patients with radiographically established DISH seen at the Department of Rheumatology of the Inselspital Bern were recruited. An age, sex and height matched control group of healthy volunteers in a 2:1 ratio, recruited from hospital staff and by locally distributed flyers, was also measured using the same protocol. PQCT measurements were performed at the distal epiphyses and mid-shafts of the radius, tibia and 3rd metacarpal. At the epiphyses total BMD and trabecular BMD of the central 45% of the bone CSA were determined. At the shafts, total cross sectional area (CSA) (including medullary CSA), cortical CSA (excluding medullary CSA), cortical wall thickness, and cortical BMD were determined. Muscle and fat CSA were also determined at the lower arm and lower leg by means of pQCT. Bone parameters were compared between the two groups using independent t-tests with alpha set at 0.05.
Results: 17 DISH patients and 30 reference participants were analysed for this abstract. DISH patients were age, sex and height matched to controls, but they were 21.2 kg (95% confidence interval 12.7–29.8 kg, p <0.0001) heavier than controls. Muscle CSA at the lower arm and leg were comparable between the two groups, but DISH patients had a 65% (95% CI 17-113%, p <0.0001) greater fat CSA at the lower arm. None of the measured bone parameters at the radius tibia or 3rd metacarpal bone differed between the two groups.
Conclusions: Measured with pQCT, we found no generalised bone apposition at peripheral skeletal sites in DISH patients. However, DISH patients were significantly heavier and had greater fat mass at the lower arm, which would lead to overestimation of BMC and aBMD measured by DXA.

P 17

Relationship between lower arm muscle cross-section and bone densitometric and geometric parameters of the 3rd metacarpal bone

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Introduction: Metacarpal index (ratio between cortical bone area and total bone area) assessment by plain radiographs has been widely used to classify the severity of RA disease activity and progression. Using peripheral quantitative computed tomography (pQCT), the aim of the present study was to determine the contribution of muscle forces (via surrogate measurement of muscle cross-sectional area (CSA)) of the lower arm to densitometric and bone geometric parameters of the 3rd metacarpal bone.
Methods: Consecutive RA patients seen at the Department of Rheumatology of the Inselspital Bern were recruited. Additionally, a reference population of healthy controls was recruited from hospital staff and by locally distributed flyers. PQCT measurements were performed at 4%, 30% and 50% of total bone length measured from the distal bone end. At the epiphysis (4%) bone mineral content (BMC), total BMD and trabecular BMD of the central 45% of the bone (CSA) were determined. At the shaft (30% and 50%), BMC, total bone CSA (including medullary CSA), cortical CSA (excluding medullary CSA), cortical wall thickness, and cortical BMD were determined. Muscle CSA of the lower arm was measured at 66% of ulnar bone length measured from the distal end of the radius. A Pearson linear correlation coefficient matrix was formed with independent parameters group (RA and control), age and muscle CSA and dependent bone parameters of the 3rd metacarpal.
Results: 26 RA patients and 133 controls were included in the analysis. Lower arm muscle CSA showed the highest correlation coefficients with all measured bone parameters of the 3rd metacarpal except trabecular BMD of the distal epiphysis. Correlation coefficients between lower arm muscle CSA and shaft cortical CSA and shaft BMC were between 0.75 and 0.86. Group showed the highest correlation coefficient with trabecular BMD ($r = –0.35$).
Conclusions: There is a strong underlying positive relationship between lower arm muscle volume and cortical shaft bone parameters which can not be neglected when assessing bone involvement in RA patients. Thin cortices at the metacarpal bones of RA patients are likely to be the result of muscle disuse. Trabecular BMD of the distal 3rd metacarpal bone is less dependent on muscle volume but instead more strongly associated with RA induced inflammation driven bone change.

P 18

Mycobacterium marinum infection in undifferentiated spondyloarthritis: Role of TNF blocking strategies?

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Patient history: This 44 year old farmer suffered from a dactylitis of the first toe. After injection with corticosteroid he developed a chronic fistula, which was finally surgically removed. Several months thereafter a carpal tenosynovitis and arthritis of the left hand developed and the patient reported inflammatory back pain.
Laboratory results at admission were: CRP 6 mg/l; Lc 6.3 G/L, Tc 218; rheumatoid factor, ANA, HLA B27 negative. Quantiferon Test 10.7 IU/ml (<0.4); Serology for Rubella, Parvovirus B19, Bartonella, Borrelia Burgdorferi, Chlamydia trachomatis, Salmonella, Campylobacter, Yersinia, Brucella, Streptococcae were negative.
Treatment and evolution: NSAR and corticosteroids, later co-medicated with methotrexate proofed insufficient. Additional etanercept combined with INH for treatment of latent tuberculosis ameliorated peripheral synovitis and also improved back pain. Unexpectedly, however, tenosynovitis secondarily deteriorated. This prompted a synovectomy. Histological examination revealed granuloma formation with giant cells (Fig. 1). Bacterial cultures remained negative for mycobacteriae and eubacteriae.
Due to an increase of liver enzymes methotrexate was temporarily stopped. As a consequence synovitis flared and the prior fistula of the first toe became active.
A second synovectomy lead to the detection of Mycobacterium marinum. Etanercept and methotrexate were stopped and an antibacterial therapy with ethambutole, clarithromycine, and rifampicine was initiated.
Despite improvement of general health and resumption of work as a farmer, sterile synovitis of the carpal joint flared after 6 months. MRI showed synovial proliferation with concomitant osseous activity (Fig. 2).
After a thorough discussion we decided to destroy granulomatous inflammation with the use of infliximab. 2 infusions at a dose of 5 mg/kg were sufficient to induce a remarkable regression of swelling and pain.
Conclusions: Unexpected inflammatory signs under successful treatment with TNF blocking agents should always prompt a thorough search for complicating infections. While TNF blocking strategies are known to promote latent tuberculosis, they can also be helpful to destroy granulomatous inflammatory reaction and help to achieve complete remission in cases of mycobacterium marinum.

HP 1

Prévalence du mal de dos et facteurs occupationnels parmi le personnel soignant d'un hôpital

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Introduction: La prévalence du mal de dos est élevée chez les infirmières. Son traitement occasionne des frais conséquents. De nombreux facteurs liés au mal de dos ont été décrits: port de charges, organisation, satisfaction au travail. Mais, on sait peu de choses concernant les autres catégories professionnelles. Cette étude visait à mesurer la prévalence du mal de dos non spécifique parmi les collaborateurs d'un hôpital important (10 669 employés).
Méthode: Une enquête a été menée auprès d'un échantillon aléatoire, stratifié par catégories professionnelles: administration, aides-soignantes, infirmières, logistique, médico-techniques et thérapeutiques, médecins. Le questionnaire concernait les données socio-démographiques, les caractéristiques du mal de dos, celles du poste de travail et la santé perçue (SF-36). Nous avons comparé les proportions au moyen d'un test de Chi-carré. En cas de besoin, nous avons utilisé un test non-paramétrique (Kruskal-Wallis). La limite de significativité a été fixée à 0,05. En cas de comparaisons multiples, le niveau de significativité a été calculé en effectuant une correction de Bonferroni.
Résultats: 1280/2700 questionnaires ont été retournés. Le taux de réponses était similaire dans les catégories. La prévalence totale du mal de dos était de 74%, avec un pic à 82,2% chez les infirmières et 81,5% dans l'administration. La prévalence au moment de l'enquête était de 34%, surtout localisée dans la région lombaire, maximale chez les infirmières (40.2%) et chez dans l'administration (38,5%), minimale chez les médecins (22.7%). Concernant la fréquence, les infirmières (42,7%) et les médecins (38,6%) relatent significativement moins de mal de dos ($p = 0,007$) que les aides-soignantes (50.85). Le mal de dos chronique était significativement corrélé avec le sexe féminin et un âge >40 ans. Il n'y avait pas de relation entre le mal de dos et le lever ou le port de charges, la manutention de patients ou le travail de nuit alors qu'il y en avait une avec les positions longtemps maintenues ($p < 0,001$) et un poste de travail mal adapté ($p = 0,009$).
Conclusion: Les aides-soignantes ont relaté plus de maux de dos chroniques. Parmi les caractéristiques du travail investiguées, les collaborateurs n'associent que les positions longtemps maintenues et un poste de travail mal adapté à leur mal de dos.

HP 2

Erhebung der Fitness und Einfluss des Body Mass Index und Alter bei Jugendlichen von 13–15 Jahren in den Kantonen SG und AR

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Hintergrund: Die Zunahme übergewichtiger Jugendlicher (BMI) und eine Abnahme der physischen Fitness (pF) ist ein breites Thema in der Presse. Es wird angenommen, dass ein Zusammenhang zwischen der pF und dem BMI besteht. Es gibt jedoch keine epidemiologischen Daten bezüglich pF in Relation zum BMI.
Ziel: Bestimmung des BMI, Erhebung der pF von Jugendlichen im Alter von 13–15 Jahren in den Kantonen SG und AR und Bestimmung der Korrelation zueinander. Ein weiteres Ziel der Studie war es, Normdaten der pF zu erhalten, damit in Zukunft präventative Programme auf wissenschaftliche Grundlagen abstützen können.
Relevanz: Die Bevölkerung wird immer übergewichtiger und die allgemeine Fitness nimmt ab. Für Präventionsprogramme benötigt man Normdaten welcher den Fitnesszustand von Jugendlichen in der Schweiz abbilden.
Material/Methode: Eine epidemiologische Querschnittuntersuchung wurde an ganzen Schulklassen in den Kantonen AR und SG durchgeführt. Getestet wurde der Test Fitness Rekrutierung (TFR) der Schweizerischen Sporthochschule Magglingen. Eine descriptive Statistik mit Mittelwertbestimmung wurde durchgeführt. Partielle Korrelationen über den Einfluss von Alter, Geschlecht und BMI auf die pF wurden berechnet.
Resultate: 41 Schulklassen aus 14 verschiedenen Schulgemeinden mit gesamt 892 Schülern (471 Mädchen, 421 Buben) im Durchschnittsalter von 13,8 Jahren (SD 0.8) wurden untersucht. Der BMI der Mädchen betrug 19,3 (SD 2,7), derjenige der Buben 19,6 (SD2,9). 9,7% der Mädchen und 11% der Buben warenuntergewichtig, während 10.9% der Mädchen und 13% der Buben übergewichtig waren. Bezogen auf die 3 Altersstufen war der prozentuale Anteil der übergewichtigen in etwa gleich (13%, 14%, 9%), demgegenüber nahm der Anteil der untergewichtigen Schüler mit dem Alter zu (1%, 14%, 20%). 34% der Schüler waren mehr als 5 Stunden pro Woche sportlich Aktiv, während lediglich 15% keinerlei Sport ausführten. Alter, Geschlecht und BMI haben verschiedentlich Einfluss auf die pF. Buben zeigten mit dem Alter eine Zunahme der pF in allen Bereichen des TFR (3–22%), während Mädchen lediglich beim Medizinballstossen 4% und beim Koordinationstest 3% zulegen konnten. In den Disziplinen Explosivkraft, Ausdauer und Rumpfkraft zeigten sie eine Abnahme der Leistung zwischen 8% und 33%. Sowohl Mädchen wie auch Buben, welche sich sportlich betätigen, zeigen signifikant bessere Leistungen in TFR ausser bei der Koordination. In der Ausdauerdisziplin und bei der Rumpfkraft zeigten die Untergewichtigen die besten Resultate, die Übergewichtigen die schlechtesten, beim Medizinballstossen war es genau umgekehrt.

HP 3

Untersuchung der Intra- und Intertester Reliabilität der Evaluation der funktionellen Leistungsfähigkeit für statische Arbeitshaltungen

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Hintergrund: Die Evaluation der funktionellen Leistungsfähigkeit (EFL) nach Isernhagen ist eine Testmethode zur Beurteilung der arbeitsbezogenen körperlichen Leistungsfähigkeit. Die Reliabilität der EFL konnte von verschiedenen Autoren (Isernhagen et al 1999; Gross et al. 2002; Reneman et al. 2002, 2003, 2004; Brouwer et al. 2003) gezeigt werden. Die qualitativen und quantitativen Beobachtungskriterien der EFL für statische Arbeitshaltungen wurden 2007 durch ein internationales Expertengremium genauer definiert. Diese wurden bisher nicht auf ihre Reliabilität untersucht.
Ziel: Die Darstellung der Intra- und Intertester Reliabilität der EFL Tests für statische Arbeitshaltungen.
Methode: Es sollen 30 stationäre Patienten (Alter: 18–55 Jahre) mit chronischen Wirbelsäulenbeschwerden ohne Komorbidität mittels den EFL Tests für statische Arbeitshaltungen geprüft und gleichzeitig standardisiert als Video aufgezeichnet werden. Zur Beschreibung des Patientenkollektivs werden soziodemographische Daten und der Grad der subjektiv empfunden Einschränkung im Alltag mittels des Oswestry Disability Index, Fear Avoidance Believe Questionnaires und Performance Assessment Capacity Tests erhoben. Zur Beurteilung der Intratester Reliabilität wird der Erstuntersucher in einem Abstand von 1 Monat die Videosequenz erneut beurteilen. Die Intertester Reliabilität wird durch Videobeurteilungen der einzelnen Testsequenzen in randomisierter Reihenfolge von vier Untersuchern ermittelt. Alle Untersucher sind akkreditierte EFL Therapeuten und werden vorgängig in der Anwendung der qualitativen und quantitativen Beobachtungskriterien für statische Arbeitshaltungen erneut instruiert. Die soziodemographischen Daten werden mittels deskriptiver Statistik dargestellt. Zur Beurteilung der Intratester Reliabilität wird bei kontinuierlichen Variablen der ICC (one-way random effects model) berechnet und bei ordinalen Daten gewichteter Cohen's Kappa während zur Beurteilung der Intertester Reliabilität bei kontinuierlichen Variablen der ICC (two-way random effects model) berechnet und bei ordinalen Daten Fleiss' Kappa. Diese Studie wurde vom Ethikkomitee des Kantons St. Gallen geprüft und bewilligt (Ethikantrag Nr EKSG 08/26).
Resultate: Die Studie wird im Zeitraum von April bis September 2008 durchgeführt. Mit einer Veröffentlichung der Ergebnisse wird anfangs 2009 gerechnet. Dieses Poster wird die Hintergründe und Methodik dieser Studie aufzeigen.

HP 4

ILOAS: Ein Funktionalitätstest für die stationäre Rehabilitation nach Kniegelenkersatz. Reliabilität, Validität und Responsivität der ILOAS (IOWA Level of assistance Scale)

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Hintergrund: Das Wiedererreichen der Selbständigkeit ist ein Hauptziel der stationären Rehabilitation [1]. Dies gilt auch bei der Nachbehandlung von Patienten nach Kniegelenkersatz. Die ILOAS (Iowa Level of Assistance Scale) ist ein Messinstrument zur Erfassung der physischen Funktionsfähigkeit von Patienten nach Kniegelenkersatz [2]. Die ILOAS wurde bisher in der Schweiz nicht verwendet und im Ausland nur in Bezug auf das Akutspital geprüft [3]. Da die ILOAS verschiedene Aktivitäten vereint und einfach zu handhaben ist [2, 4], wäre sie auch als Funktionsparameter für die stationäre Rehabilitation nach Kniegelenkersatz geeignet.
Ziel: Die Studie soll zeigen, ob die ILOAS ein geeigneter Funktionalitätstest für Patienten nach Kniegelenkersatz während der stationären Rehabilitation ist. Validität, Responsivität und Reliabiltät der ILOAS werden erhoben.
Methode: Die ILOAS wird bei mindestens 30 Patienten mit Kniegelenkersatz jeweils am Tag des Eintritts, am Tag danach und vierzehn Tage nach Eintritt in die Rehabilitationsklinik von vier geschulten Therapeuten/Innen angewendet. Als Referenztest dient der Western Ontario und Mc Master Universities (WOMAC) Arthroseindex [2]. Die Messungen werden im Rehabilitationszentrum Valens durchgeführt. Die soziodemographischen Daten werden mittels deskriptiver Statistik dargestellt. Die Intertester Reliabilität wird mit dem Bland und Altmann Plot präsentiert. Zur Beurteilung der Konkurrenten Validität zwischen WOMAC und ILOAS wird die Rangkorrelation nach Spearman berechnet. Die Veränderung des Scores zwischen den beiden Messzeitpunkten wird mit dem Wilcoxon-Test ausgewertet. Zusätzlich werden Effektgrössen sowie die minimal erkennbare Veränderung (MDC) berechnet. Diese Studie wurde von der Ethikkommission St.Gallen geprüft und bewilligt (Ethikantrag EKGS Nr.07/089)
Ergebnisse: Die Studie wird im Zeitraum von Januar bis Juni 2008 durchgeführt. Dieses Poster wird Resultate sowie eine Schlussfolgerung beinhalten.
Literatur: 1) Knüsel O. Schweiz. Ärztezeitung. 2002;83:Nr 37. 2) Shields RK, et al. Physical Therapy. 1995;45:169–79. 3) Oldmeadow LB, et al. Australian Journal of Physiotherapy 2002;48:73–8. 4) Terwee CB, et al. Rheumatology 2006;45:890–902.

HP 5

Mal de dos et perception de leurs conditions de travail par les collaborateurs d'un hôpital

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Introduction: Le mal de dos, problème fréquent chez les employés d'un hôpital, pourrait avoir une relation avec les conditions de travail. Mais on sait peu de choses concernant le mal de dos et le travail au sein d'un hôpital. Cette étude visait à investiguer les relations entre un mal de dos persistant (récurrent ou chronique) et les conditions de travail des collaborateurs d'un grand hôpital (10 669 personnes).
Méthode: Nous avons adressé un questionnaire à un échantillon randomisé de collaborateurs (n = 2700) préalablement stratifiés par catégories professionnelles: administration, aides-soignantes, infirmières, logistique, médico-techniques et thérapeutiques, médecins. Le questionnaire concernait les données socio-démographiques, les caractéristiques du mal de dos [jamais, aigu/subaigu, récurrent (1–3 épisodes/an)], les caractéristiques du poste de travail et un questionnaire de perception des conditions de travail (Job Content Questionnaire).
Résultats: Parmi les 1280 réponses valides (taux de réponse = 48%), 21,5% n'avaient jamais eu de mal de dos, 5,5% reportaient un mal de dos aigu, 35,5% récurrent et 38% chronique. Les récurrents avaient une perception de leurs conditions de travail significativement meilleure que les chroniques dans quatre des six dimensions du Job content Questionnaire: «latitude de décision» (69,1 vs 65,2), «autonomie d'exécution» (68,4 vs 65,0), «latitude de décision» (70,6 vs 65,4) et «exigences physiques» (36,3 vs 42,9). Les récurrents et les chroniques étaient surtout des femmes (70%), entre 31 et 50 ans (75%); les médecins et les infirmières étaient sur-représentés alors que les aides-soignantes étaient sous-représentées. Les récurrents avaient des taux d'absences significativement plus bas que les chroniques (11% vs 19%). Les attributions causales étaient similaires mais les récurrents considéraient significativement moins que le mal de dos leur poserait problème tout au long de leur vie (25% vs 46%).
Conclusion: Les récurrents semblent constituer un sous-groupe spécifique en termes de perception de leurs conditions de travail et de taux d'absences. Ils ont également un point de vue plus positif du pronostic que les personnes qui ont mal au dos de manière chronique.

HP 6

ULNT2a Tests bei gesunden Personen in klinischen Bedingungen: eine Analyse der Reliabilität und der sensorischen Antworten

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Einführung: Neurodynamische Tests der oberen Extremitäten werden häufig von Physiotherapeuten mit dem Ziel der Diagnose und der Evaluation (Test-Treat-Test) durchgeführt. Nur wenige Studien haben diese Reliabilität untersucht und die Fallzahlen dieser Studien waren klein. Ziele dieser Arbeit waren, die Test-Retest und die Inter-Tester-Reliabilität des maximalen Bewegungsausmasses bei einem Upper Limp Neural Tension Test 2a, sowie die normalen Symptome an den oberen Extremitäten bei sonst asymptomatischen Personen zu ermitteln.
Methoden: Reliabilitätsstudie. 2 Studenten in Physiotherapie führten zweimal (Rater A) und einmal (Rater B) bei 34 gesunden, in Ruhe asymptomatischen Personen, einen standardisierten Upper Limp Neural Tension Test 2a durch. Die Testbewegung wurde bis zur Schmerzgrenze durchgeführt. Ein dritter Therapeut mass mit einem Goniometer, in standardisierter Stellung des Nackens, des Schultergürtels, des Ellbogen und des Handgelenkes, die Schulterabduktion. Die Tests wurden innerhalb einer halben Stunde durchgeführt. Bei 63 gesunden Probanden wurden die Symptome am Ende der Testbewegung bis an die Schmerzgrenze erfragt. ANALYSE: Bland-Altman-Plots, limits of agreements sowie Intraclass Correlation Coefficients wurden gezeichnet und berechnet.
Resultate: Test-Retest-Reliabilität: ICC: 0.80, limits of agreement: –15,27 bis 13,68, Mittelwertdifferenz (systematischer Fehler): 0,79. Inter-Tester Reliabilität: ICC: 0,76, limits of agreement: –18.01 bis 18.80. Mittelwertdifferenz: 0,35. Symptome: 61% der Probanden gaben Symptome in der Ellenbeuge, 39% auf der palmaren Seite des Handgelenks und 37% auf den Fingern I bis III. Die Symptome wurde in 80% der Fälle als Ziehen, Wärmegefühl (39%) und Kribbeln (25%) angegeben.
Konklusion: Die Reliabilität kann als moderat bis gut bezeichnet werden. Die Variabilität des Bewegungsausmasses war auch bei diesen gesunden Probanden gross, was die Durchführung dieser Reliabilitätsstudie an gesunden Personen rechfertig. Die Lokalisation der Symptome am Ende der Bewegung entspricht der in der Literatur beschriebenen.

HP 7

Predictive validity of a bio-psychosocial test in patients with non-acute, non-specific low back pain: does the test identify therapy responders regarding work readiness?

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Background: Non-specific Low back pain (NSLBP) is a frequent problem in the working population, the life-time prevalence is reported to be 80%. Only 5% of these 90% with NSLBP will develop chronic NSLBP but account for 80% of the total cost. The transition from acute to chronic NSLBP is a bio psychosocial process, most effective in preventing this is an interdisciplinary bio psychosocial program like a functional restoration program (FRP). Still it is not sufficient possible to identify patients who will respond to a FRP.
Purpose: The purpose of this study was to identify patients at risk of chronic NSLBP who will respond to a FRP regarding restoring work readiness (WR).
Study design: This trial is a retrospective, cohort pilot study with a prospective data collection.
Patient sample: Patients off work due to non acute NSLBP where included consecutively. Inclusion period: 1/2005–1/2007. Patients with "Red flags", no sufficient language skills, diseases preventing active therapy, psychiatric diseases, or a request for pension where excluded.
Outcome measures: WR was determined as a consensus between team and patient.
Methods: Since transition from acute to chronic NSLBP is a bio-psycho-social process, a bio-psychosocial tool (RTL) was established. Only previously pub-lished risk factors from where included. The RTL was done before the FRP and did not influence therapy. FRP was a 15 days 4-6h therapy per day program. WR was determined at the end of the FRP and was defined as the possibility to return to full duty or a stepwise return to full duty. Logistic regression with work readiness as dependent and total score of RTL as independent variable. ROC Curve and Area under the ROC curve were calculated.
Results: 73 patients with non acute NLBP where include, average age 41, SD 9.6, min 21, max 64, 48 men, and 25 women. The odds ratio for one point increase in the score of the RTL for work readiness was 0.89 (95% CI 0.79 to 0.99), i.e. patients with a higher score are less ready to work. The area under the curve was moderate 0.65 (95% CI 0.53 to 0.76).
Conclusion: The findings show some information through the RTL regarding triaging patients with NSLBP to a FRP to restore WR. In conclusion the usefulness of the RTL in triaging patients may be enhanced through more bio psychosocial information through questionnaires and standardised interviews.

The numbers refer to the pages of this supplement.

Adler S 5 S
Aeberli D 8 S
Angst F 4 S
Announ-Cem Gabay N 8 S
Aschbacher B 10 S

Bernhard J 4 S
Boller C 9 S
Brunner F 5 S

Cantieni M 10 S
Corti M 11 S

Eser P 8 S, 9 S
Evison J 5 S

Finckh A 3 S

Gamper UN 10 S
Genevay S 6 S
Germann D 6 S

Kneer W 7 S

Lorenz T 11 S

Mazgareanu S 7 S
Möller B 8 S
Monnin D 10 S, 11 S

Norberg M 6 S

Palmer G 3 S

Stucki G 6 S

Villiger P 7 S

Waldburger JM 3 S
Weibel M 3 S, 7 S