

an infectious agent. *Mycoplasma pneumoniae* stimulates production of the interleukins and TNF- α and may be a potential cause of flare of BD, as described in this case report.

Case presentation: A 18-year-old Syrian male was hospitalized with a 10-day history of dysphagia, fever, and impaired general condition. He had previously had two episodes of oral aphthous ulcers healing spontaneously. On admission, his white cell count was $12.3 \times 10^9/L$, CRP 168 g/L, and body temperature 38.9°C. He was treated with broad spectrum antibiotics with insignificant effect. He developed a severe flare of BD in the form of genital/oral ulcers, rash, and conjunctivitis. *Mycoplasma pneumoniae* was confirmed by a positive serological test, and laboratory tests excluded herpes simplex virus, cytomegalovirus, Epstein–Barr virus, varicella zoster, chlamydia, HIV, hepatitis, and syphilis. Biopsy of the oral ulcer and scrotum showed unspecific inflammation. He was HLA-B52 positive. He was diagnosed as having BD based on recurrent oral/genital ulceration and eye lesions. Treatment with systemic and local steroids resulted in clinical remission.

Conclusion: *Mycoplasma pneumoniae* can be a trigger for flare of BD, and should be taken into consideration, particularly in those with prolonged or recurrent episodes of BD.

Reference

1. Criteria for diagnosis of Behçet's disease. International Study Group for Behçet's Disease. *Lancet* 1990;335:1078–80.



Figure 1. Oral ulceration.

PP65

Rituximab-induced hypogammaglobulinaemia and intravenous immunoglobulin replacement therapy do not protect against relapse in granulomatous with polyangiitis

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Background: Rituximab (RTX) is effective in inducing and maintaining remission in patients with granulomatous with polyangiitis (GPA). However, RTX decreases serum levels of immunoglobulin (Ig) leading to hypogammaglobulinaemia and infections in some patients. This study aimed to examine the use of intravenous immunoglobulin (IVIG) in GPA patients treated with RTX.

Method: The study included 35 GPA patients from our vasculitis registry who received long-term pre-emptive RTX maintenance between April 2004 and June 2011. These patients (54% male) had a mean age of 50 (range 14–81) years and had received 16 (0–250) g of cyclophosphamide. They also received an RTX cumulative dose of 9 (2–14) g and were followed up for 77 months. Hypogammaglobulinaemia was defined as total Ig < 6 g/L.

Results: Nineteen patients (54%) developed hypogammaglobulinaemia 33 (4–71) months after RTX initiation and RTX was readministered in 16 patients. Seven patients (20%) received IVIG 31 (0–43) months after the diagnosis of hypogammaglobulinaemia. Two patients discontinued IVIG after 3 and 4 months; however, five patients were still on IVIG at the last visit, receiving 360 (150–390) g yearly in the past 3 years. Total Ig levels increased from 4.7 g/L before IVIG to 7.4 g/L. Eight patients (23%) relapsed after 3 years of RTX maintenance: five had hypogammaglobulinaemia and four required IVIG. All three relapsing patients with subglottic or endobronchial stenosis were on IVIG ($p = 0.036$).

Conclusions: The risk of hypogammaglobulinaemia and the need for IVIG increase during long-term RTX maintenance in GPA. If treatment of hypogammaglobulinaemia is required, IVIG use is usually prolonged. RTX-induced hypogammaglobulinaemia and IVIG do not protect against relapse.

PP66

Enhanced compliance to osteoporosis prophylaxis in glucocorticoid (GC)-treated polymyalgia rheumatica (PMR) patients: the role of ongoing follow-up support at nurse consultations

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Background: Compliance to osteoporosis prophylaxis in postmenopausal women has been described as very poor; however, it is higher in patients with inflammatory diseases treated with glucocorticoids (GCs), probably because of the risk of osteoporotic fractures as a side-effect of treatment (1).

Objectives: To evaluate the adherence to osteoporosis prophylaxis in patients with polymyalgia rheumatica (PMR) who were treated with GCs and to investigate the role of nurse consultations in enhancing compliance to treatment.

Method: All patients diagnosed with PMR in 2013 were interviewed about their compliance towards osteoporosis prophylaxis using a standardized questionnaire. Patients with mild disease were seen at every second consultation by a nurse specializing in rheumatology and were asked if they had remembered to take their prescribed medication.

Results: Of the 118 included patients, 117 were prescribed calcium and vitamin D, and 88.9% of them took the medication as prescribed. The reasons for non-compliance were: forgetfulness, reluctance to take many pills, and side-effects. Bisphosphonates were prescribed in 61 patients and, of these, 96.6% took the medication regularly. Non-compliance to bisphosphonates was in all cases due to gastrointestinal side-effects.

Conclusions: Compliance will increase considerably if the nurses at every consultation ask about the prophylactic medications, at least in this group of patients with a very painful disease. Furthermore, a friendly atmosphere and emphasizing the importance of the medication to prevent GC side-effects are both important.

Reference

1. Emamifar A, Gildberg-Mortensen R, Andreas Just S, Lomborg N, Asmussen Andreasen R, Jensen Hansen IM. Level of adherence to prophylactic osteoporosis medication amongst patients with polymyalgia rheumatica and giant cell arteritis: a cross-sectional study. *Int J Rheumatol* 2015;2015:783709.

Pain and fatigue in rheumatic disorders

PP67

Lower back pain as an initial symptom of a fatal infection with leptospirosis

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A 45-year-old woman without prior medical history was admitted because of lower back pain radiating to the left hip, fever, headache, nausea, and malaise. Two weeks before admission she was bitten by a rat and 2 days before admission she contacted the doctor on call with severe back pain. Initially, her temperature was 39.7°C, blood pressure 104/77 mmHg, and heart rate 132 beats/min.

A healed, non-infected scratch mark was found on her left thigh. Physical examination was normal. Blood tests revealed white blood cells $11.4 \times 10^9/L$, C-reactive protein 288 mg/L, thrombocytes $59 \times 10^9/L$, haemoglobin 7.2 mmol/L, creatinine 127 $\mu\text{mol/L}$, and erythrocyte sedimentation rate 51 mm/h. A chest X-ray showed diffuse bilateral condensations, and renal ultrasound was normal.

Treatment with piperacillin/tazobactam and ciprofloxacin was initiated, and large quantities of intravenous fluids to correct the electrolyte imbalance and hypotension. Eight hours after admission she desaturated to 80% despite maximum oxygen flow. Severe pulmonary haemorrhage was observed, and shortly after, she went into cardiac arrest and died. Positive urine leptospiral DNA was given post-mortem.

Discussion: Leptospirosis, in Denmark most commonly carried by rats, is generally mild, but it may cause tubulointerstitial nephritis, which can lead to renal failure. Leptospirosis can also lead to pulmonary haemorrhage and adult respiratory distress syndrome. In Denmark, the incidence of leptospirosis has been steady since the early 1990s and has caused four deaths between 1980 and 2012 (1).

Reference

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PP68

Effect of rehabilitation on health status and sleep in women with fibromyalgia

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Background: Fibromyalgia (FM) is a debilitating condition characterized by widespread chronic pain, fatigue, psychosocial stress, and disturbed sleep.

Objectives: The aim of this study was to explore the effect of a 6-week rehabilitation programme (6WR) on quality of sleep among FM patients compared to a group of healthy controls.

Method: Thirty-three women with FM entered the study but eight were excluded due to sleep apnoea. Twenty-five patients (mean age 46.8 ± 8.7 years) and 12 matched controls (mean age 50.0 ± 8.4 years) completed the Fibromyalgia Impact Questionnaire (FIQ), the Insomnia Severity Index (ISI), and the Dysfunctional Beliefs and Attitudes about Sleep (DBAS) questionnaire and answered two questions rating the quality of their sleep (0–10) pre- and post-6WR or equal control period.

Results: The results are presented in the following table.

	Fibromyalgia patients (n = 25)		Control group (n = 12)	
	Pre-6WR	Post-6WR	Pre-control period	Post-control period
BMI (kg/m ²)	31.6 ± 5.3	31.0 ± 4.8	29.1 ± 4.2	29.1 ± 4.3
FIQ total score	59.1 ± 12.3	42.5 ± 12.4*	5.1 ± 5.8†	
ISI score	16.0 ± 5.0	14.4 ± 4.3*	3.2 ± 3.7†	2.9 ± 2.8
DBAS score	94.8 ± 26.1		52.1 ± 17.8†	
Subjective sleep quality	5.5 ± 1.1	6.2 ± 1.4*	8.3 ± 0.8†	8.2 ± 0.8
Subjective sleep refreshment	4.8 ± 1.2	5.4 ± 1.5	8.6 ± 0.8†	8.3 ± 0.7

BMI, Body Mass Index; FIQ, Fibromyalgia Impact Questionnaire (FIQ); ISI, Insomnia Severity Index; DBAS, Dysfunctional Beliefs and Attitudes about Sleep.

*p < 0.05 post- vs. pre-6WR in the FM group. †p < 0.005 controls pre- vs. patients pre- data.

Conclusions: Sleep apnoea is common among FM patients. Health status, beliefs, attitudes, and quality of sleep are impaired in FM patients compared to controls. However, they improved significantly during the rehabilitation programme in our study.

PP69

The impact of concomitant fibromyalgia on disease activity composite indices in rheumatoid arthritis

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Objectives: To examine the impact of fibromyalgia (FM) on disease activity composite indices (DAS-28, SDAI, CDAI) in patients with rheumatoid arthritis (RA) in a regional, monocentric, cross-sectional study.

Method: The same rheumatologist conducted an examination of 120 patients (29 males, 91 females) with RA for the presence of concomitant FM according to the 1990 ACR criteria and an assessment of tender joint count (TJC), swollen joint count (SJC), and tender point count (TPC). Laboratory parameters included erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), rheumatoid factor (RF), and anti-citrullinated peptide antibodies (ACPA).

Results: The diagnosis of FM was established in 25 (20.8%) patients with RA (RAF), four men and 21 women. RA and RAF patients did not differ significantly in sociodemographic characteristics, laboratory inflammatory markers, RF and ACPA seropositivity. RAF patients in comparison to RA patients obtained significantly higher scores in all three composite indices tested (DAS-28 5.35 ± 1.1 vs. 3.67 ± 1.4, p < 0.0001; SDAI 31.8 ± 10.9 vs. 13.5 ± 10.8, p < 0.0001; CDAI 29.6 ± 10.7 vs. 11.8 ± 9.4, p < 0.0001). Detailed analysis ascertained that TJC and patient's VAS global health (GH) contributed

mostly to the disease activity differences; however, physician's VAS GH was also significantly raised in RAF in comparison to RA.

Conclusions: When using disease activity indices in clinical practice or in clinical trials, rheumatologists should take into account the limitations that may arise when the indices do not in fact mirror inflammatory activity but may be skewed by measurements dependent on an individual patient's pain perception.

PP70

Effect of 6 weeks of rehabilitation on health status, stress, anxiety, and depression in women with fibromyalgia

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Objectives: Fibromyalgia (FM) is a debilitating condition characterized by widespread chronic pain, fatigue, psychosocial stress, and depleted exercise tolerance. The aim of this study was to explore the effect of a 6-week rehabilitation programme (6WR) on health status and psychological well-being among female patients with FM compared to a group of healthy female controls.

Method: Twenty-five women with FM (mean age 46.8 ± 8.7 years) and 12 matched controls (mean age 50.0 ± 8.4 years) completed the Fibromyalgia Impact Questionnaire (FIQ) and the Depression, Anxiety and Stress Scale (DASS) pre- and post-6WR or an equal control period. Their functional exercise capacity was measured by the 6-minute walk test (6MWT).

Results: The results are shown in the following table.

Conclusions: Health status, functional exercise capacity, and psychological well-being are impaired among FM patients compared to controls. However, they improved significantly during the rehabilitation programme in our study.

	Fibromyalgia patients (n = 25)		Control group (n = 12)	
	Pre-6WR	Post-6WR	Pre-	Post-
BMI (kg/m ²)	31.6 ± 5.3	31.0 ± 4.8	29.1 ± 4.2	29.1 ± 4.3
FIQ score	59.1 ± 12.3	42.5 ± 12.4*	5.1 ± 5.8†	
DASS depression	10.3 ± 6.9	6.3 ± 6.5*	1.0 ± 1.2†	1.1 ± 1.7
DASS anxiety	8.0 ± 6.3	6.0 ± 5.8	1.4 ± 2.6†	0.8 ± 1.9
DASS stress	12.2 ± 5.9	9.4 ± 7.0	2.6 ± 3.2†	2.8 ± 3.4
6MWT (m)	564 ± 58	584 ± 63*	659 ± 45†	666 ± 35
6MWT (% predicted)	86 ± 10		103 ± 6†	

*p < 0.05 post-6WR vs. pre-6WR in the group. †p < 0.005 controls pre- vs. patients pre- data.

PP71

A description and study of a physiotherapy residential programme for Scandinavian patients with rheumatic diseases

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The main clinical manifestations of rheumatic diseases are inflammation of the joints, morning stiffness, and pain, and these events affect the patients' quality of sleep and consequently their quality of life. Having account of the functional impact resulting from these changes, our study hypothesis was that the performance of a specific treatment of physiotherapy in rheumatic patients could achieve positive results with regard to pain, improving quality of sleep and reducing morning stiffness, and consequently affecting positively both physical and psychological well-being. To demonstrate this, our study aimed to evaluate the effectiveness of a programme of physical therapy using different variables related to pain and physical (sleep quality and morning stiffness) welfare. Based on the initial hypothesis, the main objectives of the study were to demonstrate the effectiveness of the programme of physical therapy in patients suffering from various rheumatic diseases, and to compare the results between the day when treatment began and the last day of treatment, also comparison by gender, relying on measurements of certain variables, taken before and after the treatment programme.



The Physical Therapy Programme that we apply is based primarily on the use of soft gymnastics. We consider these to be of benefit to patients suffering from rheumatic diseases. The programme comprises hydrotherapy, manual therapy, occupational therapy, and individual teaching of specific exercises. Specific objectives are to improve functionality (improvement of pain), enhance the quality of life of these patients, and slow the degenerative disease process by establishing a programme of exercise and self-care for rheumatic diseases, which can also be carried out at home.

PP72

Study of the reparation of the rotator cuff by combining scaffolds with BMP-2

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Background: Therapeutic suturing of chronic rotator cuff tears presents an elevated percentage of re-rupture. The failure of tendon-to-bone regeneration could be related to the absence of appropriate molecular signaling and cell differentiation. Tissue engineering could therefore be an alternative to increasing the mechanical strength of the suture. The aim of this study was to evaluate the benefits of scaffolds alone and in combination with recombinant human bone morphogenetic protein-2 (rhBMP-2) in the healing process of chronic tendon-to-bone tears in an experimental model. At the same time a rat model with chronic rotator cuff lesions is described for further investigation.

Method: Forty rats underwent unilateral supraspinatus tendon section. Four weeks later a transosseous suture was performed in association with scaffolds of alginate, chitosan, and rhBMP-2. According to the scaffold used, the rats were divided into four groups. Four months after the reparation the rats were killed and histological and biomechanical studies performed.

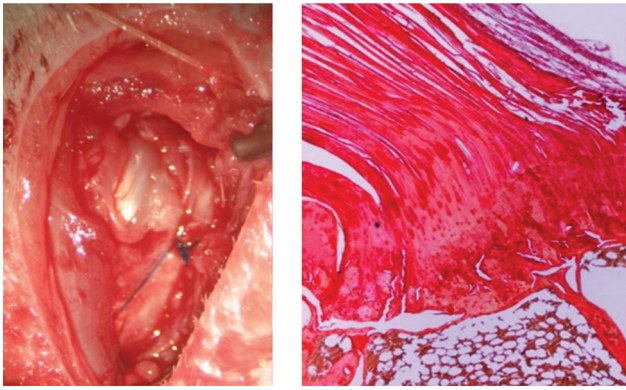


Figure 1. Macroscopic and microscopic visualization of the tendon repair.

Results: In the second surgery all cases presented an osteotendinous gap, simulating chronic rotator cuff lesions in humans. A favourable reparation was performed in all cases but three, where the reparation had to be performed with a tensioned suture. Histological analysis revealed three re-ruptures and two cases presented ruptured sutures with a repaired tendon. The strength and rigidity were highest in the alginate+chitosan group while the elasticity was best with alginate+rhBMP-2 and chitosan+rhBMP-2.

Conclusions: Bioactive scaffolds in combination with rhBMP-2 seem to increase the elasticity and resistance of tendon sutures. They could thereby be important in stimulating the biological regeneration of the rotator cuff.

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