The contribution of tenosynovitis of small joints to the symptom morning stiffness in patients with Pd3 rheumatoid arthritis and undifferentiated and rheumatoid arthritis:

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Background: Morning stiffness (MS) is characteristic of Rheumatoid Arthritis (RA) that is associated with functional disability. Despite the known parallel in the circadian rhythm of MS and that of several hormones and pro-inflammatory cytokines in the systemic circulation, it is insufficiently known to what extent local inflammatory processes contribute to this symptom. The correlation between MS and the number of swollen joints is relatively weak and may be underestimated by insufficient sensitivity in measuring local inflammation. Furthermore, MRI-detected synovitis of small joints is increasingly recognized as an early feature of RA which is also associated with functional impairments. Recently it was proposed that this may contribute to MS.

Objectives: We assessed the relationship between MS and MRI-detected inflammation and tenosynovitis in particular.

Methods: 286 consecutive patients newly presenting with undifferentiated and rheumatoid arthritis underwent contrast-enhanced 1.5T-MRI of (2-5) MCP-, (1-5) PTP-, and wrist-joints. Scans were scored for tenosynovitis according to Haagenveldt and for synovitis, osteitis conform the RAM-RIS-method. MS was dichotomized as <60 vs ≥60 minutes. Associations between MS and synovitis/synovitis were tested with logistic regression and the presence of a biologic interaction was assessed categorically (solitary or simultaneous presence of synovitis/tenosynovitis).

Results: MS was present in 40% of patients. Tenosynovitis was more often present in patients with MS than without MS (80% versus 65%), OR 2.11 (95% CI): 1.21,3.69). Also synovitis was more often present in patients with MS (58% versus 44%), OR 1.83 (1.12,29). In categorized analyses the largest association was found for concurrent synovitis and tenosynovitis OR 2.43 (1.30,4.54); whereas single presence of synovitis was not associated (OR 0.85 (0.21,4.37). The variance explained in all analyses on McGill stiffness was small, ranging 3-6%.

Conclusion: Tenosynovitis, and simultaneous presence of synovitis and synovitis in particular, was associated with MS. However, effect sizes suggested that the contribution of local inflammation to this symptom is rather limited. Acknowledgement: E.C. Siewu and W.P. Nieuwenhuis are acknowledged for scoring MRI-scans.

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Effects of malalignment and disease activity in secondary osteoarthritis progression in knees of rheumatoid arthritis patients:

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Background: Recent advancements in treatment of rheumatoid arthritis (RA) with disease-modifying anti-rheumatic drugs (DMARDs) have been remarkable, with disease symptoms nearly disappearing due to their strong anti-inflammatory action and many patients achieving remission. As a result, the need for RA-related surgery has shown a yearly decreasing trend, especially knee surgery and synovectomy procedures [1]. On the other hand, cases of secondary osteoarthritis (OA) in knee joints as a symptom associated with RA following a total knee arthroplasty (TKA) are increasing.

Objectives: We investigated the morphology of osteophytes by quantitatively evaluating their size using images obtained prior to performing a TKA. Additionally, the relationships of osteophyte size with patient background, disease activity, and degree of inflammation were examined.

Methods: Radiographs of 35 consecutive knees in 30 RA patients (26 females, 4 males; mean age 63.0 years; median disease duration 15 years) who underwent TKA, including preoperative standing AP view radiographs of the knee joint, were retrospectively analyzed. Using the Image-J software package, osteophyte size in the medial femur (MF), medial tibia (MT), lateral femur (LF), and lateral tibia (LT) regions was determined. Written informed consent for data collection was obtained from all patients in accordance with the Declaration of Helsinki.

Results: Preoperative Larsen grade was 2, 3, 4, and 5 in 1, 12, 18, and 2 patients, respectively, with the mean value of motion of the knee joint was 118° for flexion and -1° for extension. The mean femoral anteroposterior corner (FTA) was 178°13.6°; with varus (FTA >180°; n=14) more frequently observed as compared to valgus (FTA <170°; n=7) cases. Mean osteophyte size in the MF, MT, LF, and LT regions was 37.2, 17.0, 27.2, and 4.57 mm², respectively, and significantly greater in the medial compartment (MF - MT) than the lateral compartment (LF - LT) (p<0.001). Furthermore, osteophyte size in the medial compartment was significantly larger as compared to the normal and valgus cases (p=0.0016). Moreover, osteophyte size in the medial compartment was negatively correlated with the inflammatory markers CRP (r=-0.492, p=0.0027) and ESR (r=-0.529, p=0.0016), whereas that in the lateral compartment was correlated with neither CRP nor ESR.

Conclusion: Our results suggest that secondary OA is a more prominent symptom in RA patients in whom inflammation is controlled, while dis ease activity has effects on osteophyte size.