Aggrecan Degradation Is Not Just Aggrecan Degradation – A Study of Neo-Epitopes (NITEGE and ARGS) of Aggrecanase Degradation

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AB0171 Aggrecan Degradation Is Not Just Aggrecan Degradation – A Study of Neo-Epitopes (NITEGE and ARGS) of Ag….

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observation period only 52,4% of patients were vitamin D sufficient. New erosions in ultrasound examination were found in 14 (21,5%) patients. We have found no significant difference between vitamin D sufficient and insufficient patients according to the average indices of disease activity, disease activity improvement, time to achieve remission, duration of the remission and disease progression during the first year of therapy.

Conclusions: Higher disease activity at RA onset is associated with lower serum vitamin D concentration. Vitamin D supplementation does not improve disease outcome during the first year of therapy.

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AB0171 **AGGRECAN DEGRADATION IS NOT JUST AGGRECAN DEGRADATION – A STUDY OF NEO-EPITOPES (NITEGE AND ARGS) OF AGGRECANASE DEGRADATION**

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Background: Cartilage degradation is a hallmark of arthritic disease. The main constituents of cartilage is aggrecan and type II collagen. Previous studies have shown that aggrecan degradation is prior to type II collagen degradation and that only aggrecanase degradation but not matrix metalloproteinases (MMP) degradation of aggrecan was reversible[1]. It is therefore essential to have biomarkers that can detect reversible and irreversible aggrecan degradation to identify the condition of the cartilage. Of the well-known aggrecanase degradation site at NITEGE373–374ARGS, ARGS is released by only aggrecanse, but NITEGE is retained in the aggrecan molecule and in theory needs additional aggrecan degradation to be released. The numbers indicate the aggrecanase cleavage site.

Objectives: Investigate the profile of two neo-epitope biomarkers of aggrecanase degraded aggrecan at NITEGE373–374ARGS in a bovine cartilage explants model.

Methods: Catabolic stimulated (oncostatin M and TNF-a; O+T) bovine cartilage explants were treated with or without the generic MMP inhibitor, GM6001. Explants without catabolic stimulation was used as negative control. In the culture supernatant two biomarkers investigating aggrecanase degraded aggrecan was measured. The AGNxI competitive ELISA detects the NITEGE373 neo-epitope and the ARGS sandwich ELISA detects the 374ARGSVI neo-epitope. Statistical differences between groups were tested by two-way ANOVA.

Results: The AGNxI level was significantly increased compared to w/o from day 5 to day 17. GM6001 significantly lowered the release of AGNxI compared to O+T alone at day 7 (p<0.0001), day 10 (p=0.0007) and 12 (p=0.01). In addition, GM6001 shifted the release to 2days later in the culture period, as the AGNxI level was first significantly increased compared to w/o at day 7 to day 17, where the level was higher than O+T, but non-significant. The ARGS level was significantly increased at day 5, 10 and 12 for both O+T and O+T + GM6001 compared to w/o. At day 10 the ARGS level was higher in O+T + GM6001 than O+T (p<0.0001).
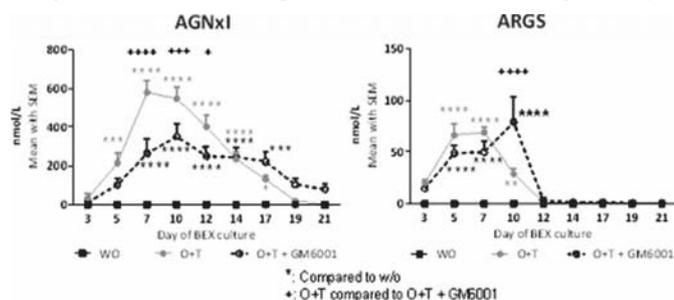
Conclusions: The prolonged release of AGNxI and the significantly lowered level of AGNxI with the MMP-inhibitor, suggest that the AGNxI release is somewhat dependent of MMP activity. In contrast, the ARGS release seems not to be MMP-dependent as there was a significant increase in O+T with the MMP-inhibitor compared to w/o and the peak was pronounced. In summary, aggrecan degradation is not just aggrecan degradation and different neo-epitopes have different importance in cartilage degradation.

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AB0172 **USEFULNESS OF THE JAPANESE VERSION OF THE PATIENT-RATED ELBOW EVALUATION IN PATIENTS WITH RHEUMATOID ARTHRITIS**

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Background: Patient self-administered questionnaires remove the possibility of observer bias, and are important instruments for the assessment of clinical outcome. The patient-rated elbow evaluation (PREE) is a joint-specific, self-administered questionnaires.

Objectives: We aimed to investigate the correlation between the Japanese version of PREE (PREE-J) and other clinical parameters in rheumatoid arthritis (RA) patients before and after total elbow arthroplasty (TEA).

Methods: Thirty-five elbows in 32 RA patients (M/F: 3/29) were replaced by TEA. The mean age was 62.1 (range 41–79) years at the time of surgery, the mean follow-up period was 21.5 (range 12–36) months. All patients were assessed pre- and post-operatively by PREE-J, elbow and forearm range of motion (ROM), Disease Activity Score with 28 joint using CRP (DAS28-CRP), Mayo Elbow Performance Score (MEPS), Japanese version of the Disabilities of the Arm, Shoulder and HAND (DASH-JSSH) and Health Assessment Questionnaire Disability Index (HAQ-DI). The changes of parameters after surgery were examined by Wilcoxon signed-rank test, and the correlation between PREE-J and other parameters was examined using Spearman's correlation coefficients.

Results: Both pre- and post-operative PREE-J significantly correlated with DAS28-CRP, DASH-JSSH, and HAQ-DI. Significant improvement was observed after surgery in all parameters except for HAQ-DI. The mean postoperative MEPS improved from 50.3±16.4 points to 98.1±3.2 points, the average postoperative PREE-J improved from 54.7±19.3 points to 27.1±24.4 points. The correlation between PREE-J and MEPS was significant preoperatively (p<0.01), but the correlation disappeared postoperatively. The correlation between PREE-J and ROM was not significant pre- and post-operatively.

Conclusions: The current study indicated that elbow evaluation by patients who underwent TEA showed significant correlation with disease activity, upper limb function and disability in daily life. It was revealed preoperative PREE-J also well correlated with MEPS, which is widely accepted evaluation system by elbow surgeons. Interestingly, PREE-J did not correlate with MEPS and ROM postoperatively. As PREE-J contains many questions about complex motions required the multiple joint function of upper extremity, it is possible PREE-J might be influenced by other joints affected by RA. MEPS (up to 100 points) evaluates pain (45), ROM (20), function (25) and instability (10) of the elbow, and reached almost perfect score by TEA. PREE-J evaluates pain and function with more detailed questionnaires than MEPS, some of them cannot be solved by a single joint surgery. Our results suggested PREE-J might be useful and wide range evaluation instrument for functional improvement of upper extremity after TEA.

Disclosure of Interest: None declared

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AB0173 **ROLE OF ANTI CITRULLINATED PROTEIN ANTIBODIES IN FOLLOW-UP AND RADIOGRAPHIC DAMAGE IN A GROUP OF PATIENTS WITH EARLY RHEUMATOID ARTHRITIS**

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Background: Autoantibodies in early rheumatoid arthritis (RA) have important diagnostic value. Anti citrullinated protein antibodies (ACPA) and rheumatoid factor (RF) are believed to be associated with more severe clinical outcomes, but the utility of both autoantibodies in the clinical follow-up of disease is controversial. It has recently been described that bone damage in early and even recent-onset RA is attributed to ACPAs, which form years before clinical symptoms start to emerge[1].

Objectives: To investigate the longitudinal course of immunological markers, ACPA and RF, during the first year after diagnosis of RA, to see their utility for the clinical follow-up. In addition, to assess if the baseline values of ACPA are associated with the severity of initial radiographic involvement.

Methods: The study population was 52 patients diagnosed with early RA according to ACR-EULAR 2010 classification criteria, with ACPA positive. Serum samples at baseline, 3, 6 and 12 months were analyzed, and levels of ACPA, RF, C reactive protein (CRP) and erythrocyte sedimentation rate (ESR) were determined. Values of DAS 28, SDAI and HAQ were employed as clinical activity markers.To analyse the variations of the measured parameters, we expressed the values of each analytic and clinical parameter as "Variation Index" on the baseline value for each patient (VI (x month)=Value (x month)/Value (baseline)). The statistical study was made through canonical correlation analysis and linear regression. Radiographic damage was evaluated using Sharp scores modified