compared with unilateral. There were cases of isolated TMD in PA debut. In the developed stage of the disease almost all pts (67 out of 76, or 88.1%) demonstrated painfulness during palpation of periarticular muscles. Limitation of mandibular excursion of III and IV stage was found in 18 pts. TMD deviations were noticed prevalently in unilateral damage of them. No occlusion pathology or deformation of face skeleton was found. According to TMD radiography, aside from osteoporosis and narrowing of articular space, 27 pts demonstrated erosion of joints surfaces and in 6 cases osteolysis of the head of the mandible. In the majority of cases the stage of TMD correlated to radiological PA stage as a whole.

Conclusion TMD is a frequent PA clinical manifestation. The frequency and character of such damage are closely related with the activity of inflammatory processes, arthritis prevalence and stage of its development.

THU0150 PROGRESSION OF RADIOLOGICAL DAMAGE IN PATIENTS WITH RHEUMATOID ARTHRITIS IN REMISSION; A PROSPECTIVE TWO YEAR FOLLOW-UP STUDY

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Background

Objectives To investigate the progression of radiological damage in patients with RA in remission during a follow-up of 2 years.

Methods RA patients (n = 187), in remission according to the ACR/Pinals criteria were included. Radiographs of hands and feet were made at baseline and after 2 years. Radiological damage was assessed according to the Sharp-van der Heijde method (range score 0–448; (SHS)). SHS at baseline and after 2 years were compared in the complete group and in subgroups of patients with persistent remission and in those suffering an exacerbation (Wilcoxon test). As riskfactors for radiological progression were analysed: number of tender and swollen joint, Ritchie score, Disease Activity Score (DAS), serum rheumatoid factors, Visual Analogue Scale for physicians impression of disease activity (VAS, range 0–100), and Health Assessment Questionnaire (HAQ) score.

Results At baseline and after 2 years, the mean SHS of the complete group were 49 and 51 ($p < 0.001$). In the subgroup with persistent remission, the mean SHS were 52 and 53 ($P = 0.004$). No significant correlations were found between radiological damage and variables at baseline ($\rho = 0.1$). In the subgroup of patients with an exacerbation, the mean SHS were 46 and 51 ($p < 0.001$). Progression of radiological damage correlated significantly with the following baseline variables: SHS($\rho = 0.40$), HAQ-score ($\rho = 0.28$), IgM-RF ($\rho = 0.29$), IgA-RF (0.25); but not with the DAS or VAS.

Conclusion Radiological damage proceeds in RA patients in remission and is not related to disease activity.

THU0151 HIGH FREQUENCY OF REDUCED BONE MASS IN MEN WITH RHEUMATOID ARTHRITIS

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Background

Objectives Osteoporosis is a well known complication of rheumatoid arthritis (RA). Both osteoporosis and RA are diseases predominantly affecting women. The aim of this study was to investigate the bone mineral density (BMD) in Scandinavian males with RA and to analyse the impact of different disease dependent and disease independent variables on bone health.

Methods Bone mineral measurements were done in 103 male RA patients attending a referral clinic of rheumatology. The BMD values were correlated with rheumatoid factor (RF), duration of disease, presence of erosions, degree of inflammation (DAS28), functional capacity (HAQ), treatment, levels of biologically active testosterone, body mass index (BMI) and smoking.

Results The patients were 20–70 years old with a median disease duration of 4 years (range 0–43). They had small but significant reductions in their BMD compared with an age and gender matched reference population (z scores). The mean BMD was lowered 6% ($p < 0.01$) in femoral neck, 6% ($p < 0.01$) in the trochanteric region, 7% ($p < 0.01$) in the region of Ward, and 4% ($p < 0.05$) in the spine. However, a substantial proportion of the patients had reduced bone mass defined as BMD lower than -1SD(z score). Thus 45/98 had reduced bone mass in femoral neck and 47/102 in the spine which is far more than the expected 16%.

Z-scores at Ward's triangle correlated with disease duration and presence of erosions. At trochanter z-scores correlated with duration of disease, erosions, HAQ, as well as BMI. The best multiple regression analysis with HAQ, erosions and BMI explained 22% of the variance. At femoral neck z-scores did not correlate to any of the tested variables. At spine (L2-L4) only erosions were significant correlated with z-scores.

Sulphasalazine had a statistically significant positive correlation to the bone in Ward's triangle and trochanter while methotrexate had a negative correlation to the bone in the trochanter region.

Neither in correlation analysis nor in multiple regression analysis there were any correlations between z-scores at hip or spine and RF, current degree of inflammation, treatment with glucocorticoids, parenteral gold or ciclosporin, levels of biologically active testosterone or smoking in any of the skeletal sites measured.

Conclusion A substantial proportion of males with RA had reduced bone mass. Variables that reflect structural damage had large impact on bone mineral density.

THU0152 THE DISEASE ACTIVITY SCORE PREDICTS RADIOLOGICAL PROGRESSION DURING THE FOLLOWING 6 MONTHS OF OBSERVATION IN A 5 YEARS OBSERVATIONAL STUDY; AN EXAMPLE OF ADVANCED LONGITUDINAL DATA ANALYSIS

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Background A number of studies have shown that a high level of disease activity is associated with more rapid radiological progression. In those studies *time-averaged* or *time-integrated* estimates for disease activity have been used. The concept of time-averaged disease activity does not entirely reflect reality, because disease activity is rarely constant over time. An inherent

shortcoming of time-averaged estimates is that they do not really *predict* radiological outcome.

Objectives To investigate, using multivariate longitudinal regression analysis, whether disease activity can *predict* radiological progression with a fixed time lag of 6 months.

Methods 5 years follow-up data of RA-patients having participated in the COBRA trial (a 56-weeks double blind controlled trial in 146 patients with early, DMARD-naïve, RA which compared COBRA-combination therapy with sulfasalazine monotherapy) were used. After the completion of the trial, patients had been followed for another 4 years, and X-rays of hands and feet, as well as assessments for disease activity, were obtained with 6 months intervals. X-rays were scored according to the van der Heijde-modified Sharp-method in a chronological order. The 28 joints disease activity score (DAS28) was calculated. Generalised estimating equations (GEE) was used to study the relationship between DAS28 and time (explanatory variables) and radiological damage (dependent variable). Every individual damage score was adjusted for its previous score (6 months earlier) (autoregression) in order to study radiological

Results The interpretation of the beta's in the Table 1 is that each additional DAS28 point, measured at any time point, predicts a mean radiological progression of 0.52 Sharp-points during the following 6 months interval. The negative sign for time indicates that radiological progression in this study decreased over time.

Abstract THU0152 Table 1

	Beta	95% CI	P-value
Time	-1.02	-1.80 to -0.24	0.01
DAS28 (6 m. earlier)	0.52	0.20 to 0.68	0.001

Conclusion By using GEE we have shown that DAS measured at any time point during a 5 years follow-up predicts radiological progression during the following 6 months. GEE is an appropriate method to study longitudinal relationships between outcome and explanatory variables in RA.

THU0153 OPEN-LABEL EVALUATION OF THE QUALITY OF LIFE OF PATIENTS TREATED WITH ETANERCEPT IN COMMON RHEUMATOLOGY USAGE (ECRU)

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Background Tumour Necrosis Factor-alpha (TNF α) plays an important role in the inflammatory processes of RA and the resulting joint pathology. Etanercept is a dimeric fusion protein consisting of two p75 TNF α receptors linked to the Fc portion of the human IgG1. This protein can bind and inactivate up to two free molecules of TNF α . The safety and efficacy of etanercept has been demonstrated in human clinical trials of early RA and active RA.

Objectives This current study was designed to further evaluate safety and efficacy of etanercept. One of the objectives was also to evaluate quality of life of patients treated with this substance by means of SF-36.

Methods This study was conducted in 55 Austrian outpatients with active RA who have failed at least one disease-modifying anti-rheumatic drug (DMARD). Each patient received twice-weekly subcutaneous injections of etanercept 25 mg administered over a treatment period of 16 weeks. Stable doses of methotrexate (MTX) and steroids were permitted. For SF-36 interpretation the normal ranges of the most recent published Canadian data and SF-36 Manual were used.

Results At baseline, all 8 domains revealed substantially lower score than observed in healthy subjects. Five of them indicated level of disability of 50% or more.

At week 16, all domains improved. Observed improvements ranged from 15 (general health perceptions) to 42,1 points (role function limited by physical problems). All were clinically significant (more than 5 points improvement). Two domains reached almost level characteristic for a healthy population: social functioning (97% of normal) and mental health (92% of normal).

Conclusion

- In general, study patients at baseline demonstrated poor functioning in all domains of SF-36 QoL assessment; in five domains their functioning was at least 50% worse than in healthy subjects.
- The study was conducted in a heavily pretreated population. In spite of that, substantial improvement in the course of the study was observed.
- Improvement in all domains could be observed already after one week of treatment. At week 16, substantial improvement in all 8 domains was recorded, in two of them reaching almost normal ranges.
- The significant improvement in Physical Function and Bodily Pain also suggest that work-difficulty may be delayed or prevented in patients treated with etanercept.

THU0154 ATLANTOAXIAL DISORDERS IN RHEUMATOID ARTHRITIS ASSOCIATE WITH DESTRUCTIONS OF THE PERIPHERAL AND SHOULDER JOINTS, AND DECREASED BONE MINERAL DENSITY

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Background Anterior atlantoaxial subluxation (aAAS) and atlantoaxial impaction (AAI) are common cervical spine disorders in advanced rheumatoid arthritis (RA;1). Earlier studies have suggested the association of the cervical spine disorders with peripheral joint destruction and osteoporosis of the cervical spine.

Objectives To evaluate whether atlantoaxial disorders (aAAS and AAI) associate with destruction of shoulder- (glenohumeral [GH] or acromioclavicular [AC]) or peripheral joints, and bone mineral density (BMD) in patients who have suffered RA for 20-years.

Methods An inception cohort of 103 patients with rheumatoid factor (RF) positive RA were followed up for 20 years, a total of 68 patients attended the 20-year check-up.¹ The shoulder radiographs were taken at the 15-year examination, and the cervical spine, hand and foot radiographs at the 20-year follow-up. Moreover, the BMD of the lumbar spine and femoral neck were measured at the 20-year check-up. Thereafter, the occurrence and severity of atlantoaxial disorders were compared with the Larsen scores of peripheral and shoulder (GH and AC) joints, and with BMD of the lumbar spine and femoral neck.