selected from healthy adults with same age. Than blood samples were investigated in biochemistry unit. Protein carbonyl content of the samples were determined according to the method described by Levine *et al* and the modified method was described by Koster *et al*. These two methods were used for determination of protein sulphhydryls.

Results The sulphhydryl contents of RA patients were found significantly decreased than those in age and sex matched controls, $396,26 \pm 42,33$ mmol/L and $677,21 \pm 59,98$ mmol/L respectively ($p < 0,001$). On the other hand the carbonyl contents of RA patients were found significantly increased than those in controls, $105,45 \pm 14,26$ mmol/L and $93,65 \pm 10,49$ mmol/L respectively ($p < 0,05$).

Conclusion These changes in oxidative stress markers could indicate the role of free radical attacks on proteins.

REFERENCES

- 1 Levine RL, Garland D, Oliver CN, Amici A, *et al*. Determination of carbonyl content in oxidatively modified proteins. *Methods Enzymol*. 1990;**186**:464–78
- 2 Koster JF, Biemond P, Swaak JG. Intracellular and extracellular sulphhydryl levels in rheumatoid arthritis. *Ann Rheum Dis*. 1986;**45**:44–6

AB0032 BONE DESTRUCTION IN RHEUMATOID SYNOVIA

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Background Rheumatoid Arthritis (RA) is characterised by severe and irreversible bone destruction in affected joints on its last stage. On the other hand, bone absorption by osteoclasts may be a natural physiological phenomenon as bone remodelling in mature manhood. Throughout our life, bone is constantly renewed with the process of old bone removing and new bone supplement. Osteoclasts are derived from the hematopoietic granulocyte/macrophage colony forming units, which also become to monocytes and macrophages, and their progenitors move from bone marrow to bone surface through the circulation or direct migration, and differentiate to functional mature osteoclasts with stimulation of some cytokines and/or direct contact. In RA, or another bone destructive disease, activated osteoclasts certainly have a critical role in bone destruction. But, is that all? How bone is broke down in RA? We have speculation that some cells derived from rheumatoid synovia were activated by inflammatory cytokines abundant in the joint of RA and take a significant role in the destruction of the bone.

Objectives To elucidate what mechanism is there, we have observed the pannus-bone junctions in detail.

Methods The specimens of the destructive bone derived from the RA patients under arthroplasty with their consent. Tissue sections from the pannus-bone junctions at sites of bone erosion were examined by hematoxylin-eosin staining, tartrate-resistant acid phosphatase (TRAP) staining, and electron microscopy. Synovial tissues were also examined immunohistochemically.

Results The specimens of the destructive bone derived from the RA patients showed that there were many not-classical osteoclasts in the area of bone erosions. Cells in the erosive front of RA are divided in four groups, the authentic osteoclasts, mononuclear osteoclasts, fibroblast-like cells and monocytes. The electron microscopy observations revealed that the fibroblast-like cells certainly have some contact with bone matrix. TRAP-

positive cells and vitronectin receptor -positive cells were seen in frozen sections of synovial membrane from the patient with RA.

Conclusion Our result showed that not only authentic osteoclasts, but the mononuclear cells and fibroblast-like cells were activated and have some role in bone destruction of RA.

REFERENCES

- 1 *Arthritis Rheum*. 1984;**27**:968–75
- 2 *Ann Rheum Dis*. 1993;**52**:133–7

AB0033 ASSOCIATION OF C ? REACTIVE PROTEIN WITH BONE MINERAL DENSITY AND BIOCHEMICAL MARKERS OF BONE TURNOVER IN OSTEOPOROSIS PATIENTS WITH RHEUMATOID ARTHRITIS

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Background

Objectives To examine the association of C ? reactive protein (CRP) on bone mineral density and biochemical markers of bone turnover in osteoporosis patients with rheumatoid arthritis (RA).

Methods Out of the 60 female patients with proved diagnosis of RA aged 34–64 years.; Gr. 1: 30 women with preserved menstrual cycle (median age 41,5 years, disease duration 9,5 years, rheumatoid factor positive 80%). Gr. 2: 30 women with postmenopause. (median age 56,2 years, disease duration 10,2 years, rheumatoid factor positive 83,3%). Both groups have not undergone any glucocorticoid or antiosteoporotic therapy. Bone mineral density (BMD) was measured with a ?QDR Hologic 1000 plus? by Dual Energy X -Ray Absorptiometry (DEXA) method, for the lumbar spine and in proximal segments of the femur. Concentration of CRP, bone alkaline phosphatase (BAP) and deoxypyridinoline (Dpir) was studied by immunoensymatic method.

Results In gr.1 of RA patients by with increase of concentration (CRP) > 50 mg/l reliable decrease of BMD was determined in all studied sections of proximal segment of the femur, as compared with patients with CRB £ 50 mg/l level, and in gr. 2 similar change was observed only in BMD L1-L4. Negative correlation between CRB and BMD femoral neck ($r = -0,53$, $\delta < 0,005$) in RA patients of gr. 2, and in gr.1 with CRB and BMD of femoral neck ($r = -0,5$, $\delta < 0,01$) was revealed. Direct significant correlation between the level of Dpir and CRP has been revealed in both groups ($r = 0,46$, $\delta = 0,04$ and $r = 0,51$, $\delta = 0,02$ relatively). Reliable correlation between BMD L1-L4 and CRP, also between BAP and CRP was not revealed.

Conclusion Increase of CRB concentration in RA correlated with growing of bone resorption markers and decrease of BMD of femoral neck.

AB0034 THE DISTRIBUTION OF HLA-DRB1 ALLELES IN THE RUSSIAN POPULATION WITH PROTRACTED RHEUMATOID ARTHRITIS (RA)

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Background

Objectives The objective was to assess the distribution and possible associations of HLA-DRB1 alleles in the Russian population with long standing rheumatoid arthritis.

Methods Forty four patients (pts) with RA (2 males, 42 females, mean age 53.3 ± 10.85 yr. and mean disease duration 12.9 ± 7.71 yr. and 135 controls were typed for HLA-DRB1 alleles using PCR based molecular techniques. Radiological outcome was measured by scoring X-rays of the hands and feet using the standard radiographs of Larsen (Larsen score). Patients were stratified by RF status and the results were analysed using the Fisher exact test.

Results The frequency of individuals with DRB1*04 ($p < 0.00001$) was significantly higher, DRB1*05 ($p < 0.04$) and *07 ($p < 0.006$) were lower in the pts in compare with the controls. HLA-DRB1*04 proved to be significantly increased in seropositive pts ($p < 0.038$). RF(+) pts with homozygous status for HLA-DRB1*04 ($p < 0.04$) had significantly higher radiological score ($p < 0.05$).

Conclusion Protracted RA in the Russian population is characterized by high frequency HLA-DRB1*04 and low distribution DRB1*05 and DRB1*07. In RF(+) RA pts there was association between the presence DR4 and radiological severity.

AB0035 PLATELET MICROPARTICLES IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background Platelet microparticles (PMP) contain pro-coagulant as well as pro-inflammatory substances like platelet activating factor (PAF) and P-selectin. Rheumatoid arthritis (RA) is associated with increased concentrations of both PAF and P-selectin, but the link with PMP has never been investigated.

Objectives To test the hypothesis that patients with RA have elevated levels of PMPs and that these levels are associated with disease activity.

Methods This was a descriptive study in patients with RA, using neither anticoagulants nor corticosteroids. The patients were divided in two groups, according to disease activity. Criteria for active RA were: ESR at least 28 mmh and/or CRP at least 28 mg/dl plus more than 8 painful and more than 5 swollen joints. Criteria for RA in remission were: ESR < 28 mmh and/or CRP < 28 mg/dl plus no painful and no swollen joints. PMPs were determined with flowcytometry (CD61/annexin-V). The values were compared with those from healthy volunteers, using non-parametric tests (Mann-Whitney).

Results Ten patients with active RA and ten patients with RA in remission were included. There were 5 men and 15 women. The mean age was 61 years, the mean disease duration was 6 years and 75% was rheumatoid factor positive (comparable in both groups). The mean number of PMPs in RA patients was $3,173 \times 106/L$ versus $451 \times 106/L$ in healthy volunteers ($p = 0.005$). See Table 1 for further results:

Abstract AB0035 Table 1

	Active RA	RA in remission	Healthy
DAS	6.8 (5.1–7.5)	2.1 (1.3–2.4)	-
PMPs $\times 10^6/L$	2,104 (120–22,441)	504 (121–5,562)	118 (35–1,881)
Mann-Whitney	$p = 0.01$	$p = 0.028$	

Conclusion This study confirms the hypothesis that patients with RA have higher numbers of PMPs; moreover, the presence of PMPs is associated with disease activity. This observation is most probably the missing link between the studies on the PMP content in general and the raised PAF- and P-selectin levels in sera from patients with RA. Moreover, one may speculate on the possible meaning of these elevated PMPs for the well-known high mortality due to cardiovascular disease in patients with RA. More research may clarify this.

AB0036 POLYMORPHISM OF CHOLESTEROL CRYSTALS IN SYNOVIAL FLUID

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Background The aim of the study was to evaluate the frequency of cholesterol crystals occurrence in synovial fluid (SF) in rheumatic diseases as well as characteristics of crystals.

Objectives We have studied 1000 synovial fluid samples from 854 patients. The most numerous was group of rheumatoid arthritis (RA) patients (573 cases) and osteoarthritis (OA).

Methods Synovial fluids were taken on heparin as anticoagulant. SF sediments were examined under polarised microscope.

Results Cholesterol crystals were demonstrated in 16 samples taken from 7 patients with RA only. Most of the crystals occurred as typical large flat rectangular or romboid plates. They ranged in size from 8 to 100 μm and they showed strong birefringence with negative or positive elongation. Less often, they appeared as long rods or curved needle-shaped crystals.

Conclusion The results showed rare occurrence of cholesterol crystals in synovial fluid samples. Polymorphism of cholesterol crystals under polarised microscope may be a cause of difficulties in synovial crystals differentiation.

OP0010 NEUTRALISATION OF IL-18 ACTIVITY IS A DISEASE-MODIFYING THERAPY IN THE MURINE COLLAGEN-INDUCED ARTHRITIS MODEL

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Background Interleukin-18 (IL-18) is a member of the interleukin-1 cytokine family. *In vivo* IL-18 has been demonstrated as promoting the development of a TH1 response in synergy with IL-12. Patients with rheumatoid arthritis (RA) have in their joints significant levels of IL-18 and IL-12.

Objectives This study was aimed at studying the effect of neutralising endogenous IL-18 *in vivo* in collagen-induced arthritic (CIA) mice, to define the therapeutic potentials of IL-18 blockade for the treatment of patients with RA.

Methods Two distinct IL-18 neutralising strategies were used, i. e. a recombinant human IL-18 binding protein (rIL-18BP) and a polyclonal rabbit anti-mouse IL-18 IgG, to treat CIA mice in a