Adipocytokines are a group of adipose tissue-derived cytokines that have been discovered since early nineties. The role of selected adipocytokines in the prostate carcinoma and in selected joint diseases was evaluated.
In the first part of this work the role of adiponectin and resistin in the prostate cancer development and progression was examined. Immunohistochemical expression and serum levels of these adipocytokines were evaluated in both groups of patients with benign prostate hyperplasia and prostate cancer of pathological grade pT2 and pT3, respectively. Moreover, selected metabolic, biochemical and anthropometric parameters were included into this study. Serum adiponectin levels did not differ between prostate benign hyperplasia and prostate cancer generally, but they were significantly higher in pT3 in comparison to pT2 group. In agreement with the results of serum levels, tissue immunohistochemistry showed enhanced staining intensity of adiponectin in neoplastic glands and to a lesser degree in prostatic intraepithelial neoplasia while within benign prostate hyperplasia the immunohistochemical staining was generally low. None relation of adiponectin expression to disease grade or stage was observed. In resistin no difference between benign hyperplasia and prostate cancer in respect to serum levels and tissue immunohistochemistry was observed. Similar results were found when resistin was evaluated in locally advanced and organconfined prostate cancer.
It is of notion here that results on adiponectin are strikingly contradictory to results of other studies, but our study is superior to others in the use of total embedding and processing of prostate specimens, long follow-up of patients and the extent of biomarkers monitored. On the other hand, we found a significant difference between patients with and without seminal vesicle invasion in prostate cancer. Moreover, a correlation of serum resistin levels with some stress, inflammatory and insulin resistance markers in benign hyperplasia was observed and this correlation was partially lost in prostate cancer. Especially the correlation with insulin resistance is of interest, as the results on this topic are still conflicting.
In the second part of the study, the role of resistin and adiponectin in rheumatoid arthritis was evaluated. Resistin was found to be enhancingly expressed in synovial tissue of rheumatoid arthritis and reflected the increased cellularity in rheumatoid arthritis. Subepithelial lining fibroblasts, macrophages, lymphocytes and plasma cells were shown to express resistin in confocal laser scanning microscopy. However, the question remains open whether this represents the true sites of production or rather sites of selective uptake from the surrounding environment. Similarly, increased levels of resistin in synovial fluid were found in comparison to osteoarthritis. The same results were obtained in serum levels. Resistin serum levels correlated both with CRP and DAS28. Altogether, these findings strongly support the proinflammatory properties of resistin in rheumatoid arthritis.
Adiponectin synovial fluid levels were shown to be increased in rheumatoid arthritis in comparison to osteoarthritis patients, while serum levels in both groups were comparable. When compared with healthy controls, serum levels in rheumatoid arthritis were increased.