ACTIVITY OF N-ACETYL–HEXOSAMINIDASE AND ITS ISOENZYMES IN RHEUMATOID AND OSTEOARTHRITIC FLUIDS

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ACTIVITY OF N-ACETYL–HEXOSAMINIDASE AND ITS ISOENZYMES IN RHEUMATOID AND OSTEOARTHRITIC FLUIDS (AKTYWNOŚĆ N-ACETYLO-β-HEKSOZAMINIDAZY I JEJ IZOENZYMÓW W PŁYNIE STAWOWYM W CHOROBACH REUMATYCZNYCH I ZWYRODNIENIOWYCH)

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N-acetyl–hexosaminidase (HEX) releases N-acetylhexosamines from non reducing end of glycoproteins, glycolipids and proteoglycans.
N-acetylhexosamines are constituents of proteoglycans and glycoproteins of human joint cartilage. Data regarding

hexosaminidase activity in arthritis are limited to a few publications.

The aim of our work was to determine the activity of HEX and its isoenzymes in the serum and synovial fluid of patients with rheumatoid arthritis (RA), osteoarthritis (OA) and knee injury (patients with trauma and tear of the anterior cruciate ligament-ACL alone or in combination with meniscus-ACL/MEN). In this patients x-rays were taken of all joints which had clinical symptoms of joint injury. The radiographs were evaluated by the method of Larsen. Patients with RA had Larson score III0, patients with OA had Larson score < IIIo and changes in one or two knees and patients with injured ligaments and menisci of the knee had normal results on radiography.

The serum and the knee synovial fluid were obtained from:

15 active RA patients (age 22-76), 17 patients with primary OA (age 41-75) and 36 patinets with torn ACL/MEN (age 16-42). The activity of HEX and its isoenzymes was determined by measuring liberation of p-nitrophenol from p-nitrophenyl N-acetylglucosaminide. In all group investigated, specific activity of HEX and its isoenzymes in synovial fluid was 2-3 times higher than in the serum. We found highest specific activity of HEX in synovial fluid and serum of RA patients, medium values of patients with arthrosis, and lowest of patients with knee injury.

Our data suggest that the N-acetyl–hexosaminidase is involved in degradation of knee joint extracellular matrix and can be good indicator of the degree of that degradation.