World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:19, No:05, 2025

The Role of Human Cartilage Glycoprotein in Osteoporosis and Osteoporotic Fractures

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Abstract : According to the WHO, osteoporosis is one of the most important health problems in the world and occupies the 4th place in its importance after cardiovascular pathology, oncological diseases and diabetes mellitus. The significance of osteoporosis is determined by its prevalence among the population, the severity of the course, the cause of death, disability, reduced quality of life, high economic costs for prevention and treatment. Osteoporosis is a systemic skeletal disease characterized by a decrease in bone mass and a violation of the structure of bone tissue, leading to an increase in bone fragility and the risk of fractures. Osteoporosis is manifested by low-traumatic fractures. Due to the complexity of the recovery process, the treatment of osteoporotic fractures is one of the important problems of modern traumatology. Diagnostic markers are needed to monitor the recovery period. Human cartilage glycoprotein -39, which has been studied so far in inflammatory processes in the bones, may allow the development of the correct treatment regimen, reflecting the level of metabolic processes in the bone tissue. The study was performed to examine the dynamics of human cartilage glycoprotein-39 (HCgp39) in the blood serum during osteoporosis and fracture healing. The material of the study is formed by the examination results of 68 people aged 38-83. Group I - control group consisted of 14 practically healthy people, group II - 14 patients with osteoporosis, group III - 15 patients with non-osteoporotic fractures, group IV - 25 patients with osteoporotic fractures. In groups, they were analyzed by enzyme-linked immunosorbent assay 3 times during the first month. As a result, in the first month of the recovery period, no significant difference was observed in the HCgp39 dynamics for groups II and IV ($p > 0.05$). However, there was a significant reduction in group III ($p < 0.05$). As no osteoporotic changes were observed in this patient group, bone healing was rapid and it was possible to monitor the dynamics of HCgp39 changes within 1 month. Patients with osteoporosis and other bone fractures in the process of complete recovery need to study HCgp39 more as a diagnostic indicator.

Keywords : osteoporosis, osteoporotic fractures, human cartilage glycoprotein, HCgp39
Conference Title : ICBC 2025 : International Conference on Bone and Cartilage
Conference Location : Berlin, Germany
Conference Dates : May 20-21, 2025