

## Osteoactivin Is a Specific Biomarker in Bone and Cartilage Metabolism

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**Abstract :** The aim of study is to investigate the role of osteoactivin as a more sensitive and modern diagnostic biomarker that has a prognostic value in metabolic and repair processes occurring in bone and cartilage tissue in osteoporosis and osteoporotic fractures. Osteoactivin (OA) is a new glycoprotein that is highly expressed during osteoblast differentiation. It was first discovered in an osteopetrotic rat model using mRNA . This study was carried out on patients between the ages of 45-83 from the Department of Traumatology and placed in 3 groups: group I - 14 patients with osteoporosis, group II - 15 patients with non-osteoporotic fractures, group III - 25 patients with osteoporotic fractures. The control group consisted of 14 healthy people. To monitor changes in osteoactivin, blood samples were taken at 3 stages: on day 1 before treatment, on day 10 of treatment, and 1 month after treatment. The concentration of OA in the blood serum was determined by ELISA method on the immunoassay analyzer "Mindray MR- 96A" using a set of reagents from the company Boster ( ELISA Kit PicoKine, USA). The statistical evaluation was performed by using SPSS 22.0 program (IBM SPSS Inc., USA). Compared to the control, osteoactivin concentration increased by 66.2% in patients with osteoporosis, 54.1% in patients with non-osteoporotic fractures, and 80.2% in patients with osteoporotic fractures, indicating that it plays an important role in the pathogenesis of osteoporotic fractures. At 1 month after treatment, osteoactivin concentration increased by 81.6% in patients with non-osteoporotic fractures. The lack of a significant change in osteoporotic fractures is explained by the late healing of these fractures. Based on the sensitivity and specificity indicators, the ROC curve was created and it was determined that osteoactivin is a test with high general diagnostic value, specificity and informativeness in the prognosis of osteoporosis and osteoporotic fractures, and can be used throughout the treatment period.

**Keywords :** osteoactivin, bone, osteoporosis., cartilage

**Conference Title :** ICBAHS 2024 : International Conference on Biomedical and Health Sciences

**Conference Location :** London, United Kingdom

**Conference Dates :** November 25-26, 2024