

Metabolic Syndrome and Its Effects on Cartilage Degeneration vs Regeneration: A Pilot Study Using Osteoarthritis Biomarkers

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Abstract : Background: Osteoarthritis OA of the knee is one of the leading causes of disability characterized by degeneration of hyaline cartilage combined with reparative processes. Its strong association with metabolic syndrome is postulated to be due to both mechanical and biochemical factors. Our study aims to study differential effect of metabolic risk factors on cartilage degeneration and regeneration at biomarker level. Design: After screening 281 patients presenting with knee pain, 41 patients who met the selection criteria were included and were divided into metabolic MetS OA and non-metabolic Non-MetS OA phenotypes using National Cholesterol Education Programme-Adult Treatment Panel-III NCEP ATP III criteria for metabolic syndrome. Serum Cartilage Oligomeric Matrix Protein COMP and Procollagen type IIA N terminal Propeptide PIIANP levels were used as tools to assess cartilage degeneration and regeneration, respectively. Results: 22 among 41 patients 53.66% had metabolic syndrome. Covariates like age, gender, Kellgren Lawrence KL grades were comparable in both groups. MetS OA group showed significant increase in serum COMP levels (p 0.03 with no significant effect on serum PIIANP levels (p 0.46. Hypertriglyceridemia showed independent association with both cartilage anabolism (p 0.03 and catabolism (p 0.03. Conclusion: Metabolic syndrome, though has no effect on cartilage regeneration tends to shift cartilage homeostasis towards degeneration with hypertriglyceridemia showing significant independent effect on cartilage metabolism.

Keywords : metabolic, syndrome, cartilage, degeneration

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