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Relationship between Matrilin-3 (MATN-3) Gene Single Nucleotide Six Polymorphism, Transforming Growth Factor Beta 2 and Radiographic Grading in Primary Osteoarthritis

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Abstract : Objective: Assess serum level of Transforming growth factor beta 2 (TGF-β2) and Matrilin-3 (MATN3) SNP6 polymorphism in osteoarthritic patients Background: Osteoarthritis (OA) is a musculoskeletal disease characterized by pain and joint stiffness. TGF-β 2 is involved in chondrogenesis and osteogenesis, It has found that MATN3 gene and protein expression was correlated with the extent of tissue damage in OA. Findings suggest that regulation of MATN3 expression is essential for maintenance of the cartilage extracellular matrix microenvironment Subjects and Methods: 72 cases of primary OA (56 with knee OA and 16 with generalized OA were compared with that of 18 healthy controls. Radiographs were scored with the Kellgren-Lawrence scale. Serum TGF-β2 was measured by using (ELISA), levels of marker were correlated to radiographic grading of disease and MATN3 SNP6 polymorphism was determined by (PCR-RFLP). Results: MATN3 SNP6 polymorphism and serum level of TGF-β2 were higher in OA compared with controls. Genotype, NN and N allele frequency were higher in patients with OA compared with controls. NN genotype and N allele frequency were higher in knee osteoarthritis than generalized OA. Significant positive correlation between level of TGFβ2 and radiographic grading in group with knee OA, but no correlation between serum level of TGFβ2 and radiographic grading in generalized OA. Conclusion: MATN3 SNP6 polymorphism and TGF-β2 implicated in the pathogenesis of osteoarthritis. Association of N/N genotype with primary osteoarthritis emphasizes on the need for prospective study include larger sample size to confirm the results of the present study.

Keywords : Matrilin-3, transforming growth factor beta 2, primary osteoarthritis, knee osteoarthritis
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