GENETIC VARIATION IN THE SMAD3 GENE IS ASSOCIATED WITH KNEE OSTEOARTHRITIS IN NORTH INDIAN POPULATION


Purpose: Osteoarthritis (OA) is the most common degenerative arthritis, a type of arthritis that is caused by breakdown of articular cartilage with eventual loss of the cartilage of the joints. Smad3 is a key intracellular messenger in the transforming growth factor β signaling pathway. Previous study suggested Smad3 gene mutation is a possible predisposing factor for human OA and found gene mutation in OA, providing insight into the function of SMAD3 mediated TGF-β signals in the development of OA and also suggested that Smad3 gene mutation may be a risk factor for genetic susceptibilities to OA. In this case control study, we investigated the possible correlation between the SNPs Smad3 C/T; rs6494629, FokI A/C; rs2289263 in Smad3 gene and susceptibility to knee OA.

Methods: This study was conducted in the department of Orthopaedic Surgery, King George's Medical University (KGMU), Lucknow. In this study cases consisted of men and women >40 years that fulfilled American College of Rheumatology (ACR) clinical and radiographic criteria for knee OA. Venous blood samples were obtained from all cases as well as controls for genetic analysis. Polymerase chain reactions were performed for SNP analysis using specific primer.

Results: A total of 200 cases that confirmed radiographic knee OA and equal number of age and sex matched healthy controls were enrolled. There was no significant difference in demographic characteristics between the cases and controls. A SNP (rs6494629 and rs2289263) mapping to intron 1 of SMAD3 was associated with knee OA (P<0.013 and P<0.044, respectively). Within the SNPs (rs6494629) of Smad3 gene, genotype CC and CT was found to be significantly (p<0.013) associated with knee OA as compared with the CC genotype and SNP rs2289263, genotype CC and CA was found to be significantly (p<0.044) associated with knee OA as compared with the AA genotype In addition when alleles were compared, C allele of both the studied SNP was observed to be significantly associated with knee OA.

Conclusions: Our data indicate that genetic variation in the SMAD3 gene is involved in the risk of knee OA in North Indian populations, confirming the results from previous studies on the potential importance of this gene in the pathogenesis of OA.

Health Services Research

USE OF PHYSICAL THERAPY AND CORTICOSTEROID INJECTIONS IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS IN THE U.S. MILITARY HEALTH SYSTEM

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Purpose: The prevalence of osteoarthritis (OA) in active duty military members is much higher than age-matched groups in the general population. OA is one of the most common and costly conditions encountered in military healthcare. Physical therapy and corticosteroid injections have been shown to result in clinically relevant improvements in pain, function and disability levels in patients with knee OA. However, several studies have shown that in civilian healthcare settings, very few patients with knee OA receive physical therapy treatment. To date, no data exists on the utilization and timing of healthcare services for this population in the military healthcare system. The purpose of this study is to determine the utilization rates and timing of physical therapy services for patients with knee OA in the military healthcare system.

Methods: This was a retrospective review of data extracted from the Military Health System Data Repository (MDR) from 2008 to 2013. Patients presenting to a primary care clinic for a knee OA diagnosis without any care for that diagnosis in the preceding 12 months were included in the analysis. The date of diagnosis in the primary care clinic became the “index date” and healthcare utilization was examined for a 12-month period following the index date. Utilization and timing of physical therapy and corticosteroid injections were analyzed for the management of each patient for that 1-year period.

Results: There were 135,843 patients across the entire MHS that met the criteria during this 5-year period. Within the 1 year of care following diagnosis, 40.0% of patients received a corticosteroid Injection and 29.2% of patients received physical therapy. Only 12.9% of patients received both physical therapy and a corticosteroid injection during their 1-year course of care. Timing of interventions also varied. For corticosteroid injection, 50.9% received a CSI within 30 days of the