

Comparison of the Proprioception Sense and Standing Balance in Patients with Osteoarthritis Before and After Total Knee Arthroplasty Surgery

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Abstract : Back ground: Osteoarthritis (OA) is the most common form of arthritis, affecting millions of people around the world during the aging process. Knee joint proprioception sense decrease with OA and Total Knee Arthroplasty (TKA) surgery may affect them. We investigated two parameters of proprioception sense (the joint position sense and kinesthesia) and standing balance in affected limbs before and after TKA, in patient with Knee OA. Methods and Materials: In this Analytic study, 10 patients who were candidate for TKA during two months in Dena Hospital of Shiraz, selected for further analysis. All of cases were female in range of 55-70 years old. Participants assessed before and two weeks after TKA using three instruments: electrogoniometer and continuous passive motion (CPM) to assess Knee joint position sense and kinesthesia in 20 and 45 degrees; and chronometer to assess duration of standing balance on affected leg with open and closed eyes. Results: To examine differences between before and after of TKA scorings Willcoxon Signed Rank and Mann-Whitney was performed which indicated no significant differences between knee joint position sense and kinesthesia in 20 and 45 degrees ($P>0.05$) and no significant differences between Standing Balance in a patient with knee OA before and after TKA ($P>0.05$). Conclusion: The study indicates that, OA can affect proprioception sense and standing balance but TKA doesn't have any effect on these parameters. Intra articular structures such as cruciate ligaments and mines are responsible for proprioception sense in normal knee joint. Since in severe knee OA the number of mechanoreceptors in these intra articular structures decrease and their function reduce more than normal knee joint, so the anterior cruciate ligaments (ACL) become defected, thus after TKA surgery which this ligament is removed no significant change was found in proprioception sense. As a result of involving proprioception sense, muscles strength and the function of vestibular system in balance, standing balance did not show significant difference before and after TKA.

Keywords : knee joint, proprioception sense, standing balance, rehabilitation sciences

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