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Research Article

Clinical Study on Serum Nitric oxide levels in Osteoarthritis and Structure-Based Drug Design of New Inducible Nitric Oxide Synthase inhibitors

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ABSTRACT

Osteoarthritis (OA) is a degenerative disease and has a number of underlying causes including both biochemical and mechanical factors. Nitric oxide (NO) is a metabolic product of L-arginine produced by nitric oxide synthase (NOS). NO and its derivatives were found to have a number of different functions in both normal and pathophysiological joint conditions. According to recent studies excessive production of NO by excessive iNOS (inducible nitric oxide synthase) stimulation is responsible for several pathological conditions including OA. We conducted clinical study on 150 female patients suffering from OA with age group 45 – 65 years (mean age 55.5 years) to find out whether the levels of nitric oxide are associated with OA. Levels of Nitrite were measured in the serum as marker of nitric oxide (NO) production by method based on Griess assay. In OA patients serum nitrite levels were much higher (116.8µmol/L) as compared to control subjects (48.6µmol/L) (p<0.001). At the end of the clinical study we conducted **structure based drug designing (molecular docking study) for the *in silico* search of new iNOS inhibitors as it is involved in the excessive formation of NO which ultimately cause osteoarthritis.**

