Abstract

Background and aim: Osteoarthritis (OA) is the most common joint disorder in the world. It is one of the most frequent causes of pain, loss of function and disability in adults. The current treatment of osteoarthritis is primarily focused on symptomatic relief by the use of rapidly acting analgesics such as NSAIDs and newer cyclooxygenase-2(COX-2) specific inhibitors that have many adverse effects. Hence, there is continuous search for new and better drugs for OA treatment. Interleukin-1β plays an important role in the pathogenesis of OA. Diacerein, an Interleukin-1β antagonist has been used recently in treatment of OA. Accordingly this work was designed to compare the anti-inflammatory effect of diacerein with one of the NSAIDs namely diclofenac sodium and their combination on animal model of osteoarthritis, and to study the effect of these drugs on systolic blood pressure.

Experimental approach: 90 adult healthy female albino rats were allocated into 5 groups: normal untreated animals (negative control), the disease model group that received a single dose of monoiodoacetate (MIA) intra articularly in their right knees (positive control), and the (MIA) induced osteoarthritis treated either by diacerein, diclofenac sodium, or their combination for 6 weeks. Level of serum cartilage oligomeric matrix protein as a specific biochemical marker for cartilage, histopathologic examination, and radiological assessment were performed to evaluate the effect of the studied drugs. In addition a non-invasive measurement of systolic blood pressure was done to study the effect of these drugs on systolic blood pressure.

Results: Induction of OA by monoiodoacetate (MIA) resulted in development of osteoarthritic changes detected by elevation of the biochemical parameter measured, deterioration of pathological scores and X-rays. Interestingly the administration of diacerein alone or with diclofenac sodium resulted in significant amelioration of all the parameters measured with no effect on systolic blood pressure. However, diacerein intake alone showed the best results.

Conclusion: The results of the present study revealed that diacerein has the potential to ameliorate osteoarthritic changes with no effect on the blood pressure unlike the commonly used NSAIDs.

Key words: Osteoarthritis, Diacerein, Diclofenac sodium, Monoiodoacetate.