A Comparative Study of The Effect of Selectivity of COX-2 Inhibition (Meloxicam & Celecoxib) on Some Cardiovascular RiskMarkers in Patients With Rheumatoid Arthritis

Abstract

Background: Prostaglandin G/H Synthases (Cyclooxygenases) are enzymes that catalyze the conversion of arachidonic acid to a series of compounds ending in prostaglandins, endogenous compounds triggering many biological & physiological events in many systems including circulatory & renal systems. The normal balance between Cox-1 derived thromboxane A2 (TXA2) which acts as a platelet activator enhancing thrombosis, & the antithrombotic cardioprotective effects of prostacyclin (PGI2) which is produced through Cox-2 activity. Thus inhibition of Cox-2 derived PGI2 will exaggerate the cardiovascular effects of TXA2. Cyclooxygenase - 2 (Cox-2) inhibitors have different odds on cardiovascular risk factors through selectivity to that enzyme that could play a role in their pharmacological action.

Objective: Our study includes a comparison between the effects of the purely cox-2 selective inhibitor (Celecoxib), and the relatively Cox-2 selective inhibitor (Meloxicam) on some cardiovascular risk markers in patients suffering from rheumatoid arthritis.

Materials &Methods: Thirty –six patients were selected as having rheumatoid arthritis (RA) with age range of 30-60 years

(48±9.72), in addition to a group of normal subjects (12) were included as a control group Specific biochemical investigations based on measuring highly sensitive kit for serum C – reactive protein (hs-CRP), serum creatine kinase(CK), serum aspartate aminotransferase(AST), serum urea, serum creatinine, and serum lipid profile. The patients were treated with celecoxib 400mg/day or with meloxicam 15mg/day for 3 months period.

Results: Both drugs were able to reduce (significantly) the highly sensitive Creactive protein and increase serum total cholesterol, Low Density Lipoprotein /High Density Lipoprotein (LDL/HDL) ratio as compared pretreatment values. Both drugs have nearly the same effects on renal function presented bydecreasing glomerular filtration rate (GFR) as indicated by elevating serum urea levels.

Conclusion: The selectivity of COX2 inhibition is not the major character that could be correlated with cardiovascular events related to their administration. Since, meloxicam could aggravate some cardiovascular risk factors more than celecoxib does, as presented a significant increment in serum CK activity.
Keywords: Meloxicam,Celicoxib,Cardiovascular risk markers, CRP, Rheumatoid arthritis