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Effect of Immuno Suppressent (Methylprednisolone) and Its Biochemical Changes in Rheumatoid Arthritis

G. SHANTHI, V. SIVAKUMARI, R. PRABHU AND S. GIRIDARAN

ABSTRACT

Rheumatoid arthritis is potentially crippling disease. Numerous pharmacologic agents are available for treatment of rheumatoid arthritis; the goal in therapy is relief of pain and inflammation, through modification of disease process. Several corticosteroids play an important role in the management of RA, among corticosteroids methylprednisolone shows beneficial effect. In this study the level of ADA activity, C-reactive protein and erythrocyte sedimentation rates are reduced after treatment with methylprednisolone compared to rheumatoid arthritis patients. This shows that methylprednisolone involves in several metabolism of inflammatory process. But it does not shown any significant changes in pain score compared to rheumatoid arthritis patients, this may be due to it does not involves in analgesic process. In rheumatoid arthritis pain and inflammation are important two symptoms. Based on present study it can be concluded that methylprednisolone has more anti-inflammatory effect compared to analgesic effect. So, while treating rheumatoid patient with methylprednisolone they should take care of pain of patient with some other pain killers like NSAIDS or potent opioids. The understanding of the pathophysiology of rheumatoid arthritis and precise knowledge of the possible triggers of the inflammation may open novel therapeutic approaches. Hence, the present study suggests the importance of measuring the biomarkers of inflammation assessed in the study not only to determine the severity of inflammation and the effect of treatment with drug.

See end of the article for authors' affiliation

Correspondence to :
V. SIVAKUMARI
Department of Environmental and Herbal Sciences, Tamil University, THANJAVUR (T.N.) INDIA

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Rheumatoid arthritis is a chronic inflammatory condition of unknown etiology affecting primarily the synovium, leading to joint damage and bone destruction (Haugeberg *et al.*, 2003). Rheumatoid arthritis causes significant morbidity as a result of synovial inflammation, joint destruction and associated disability. It is classified as one of the autoimmune disease (Cassim *et al.*, 2002). There is a prominent immunological dysfunction in the joints and many other tissues by accumulation of chronic inflammatory cells including T-cell and B-lymphocytes, monocytes and macrophages. It affects approximately 1-2% of World's population (Deborah *et al.*, 2002). In India, alone there are some 10 million people affected with rheumatoid arthritis and is associated with reduced life expectancy and is a major cause of chronic disability and handicap.

Methylprednisolone is an intermediate acting corticosteroid with an anti-inflammatory potency five times that of cortisol. Clinical situations that require paranteral administration of corticosteroids in large doses usually employ methylprednisolone (Wilson, 1974). As the prolonged half-life of dexamethasone produces a greater degree of hypothalamic-pituitary axis suppression as compared to methylprednisolone, the latter is preferred over dexamethasone in pulse corticosteroid therapy (Hari *et al.*, 1998).

Methylprednisolone has serious side effects if taken long-term, including weight gain, glaucoma, osteoporosis and psychosis, especially when overdosed. The most serious side effect occurs after the adrenal glands cease natural production of cortisone, which methylprednisolone will replace. Abrupt cessation of the drug after this occurs can result in a condition known as Addisonian crisis, which can be fatal. To prevent this, the drug is usually prescribed with a tapering dosage, including a pre-dosed "dose pack" detailing a specific number of pills to take at designated times over a six day period (ACR Subcommittee, 2002).

MATERIALS AND METHODS

50 patients presenting rheumatoid arthritis attending Sounderrajan rheumatology Hospital, Chennai were included in the study. The diagnosis of rheumatoid arthritis was established by clinical analysis, ESR and pain scale at initial stage and after treatment with Methylprednisolone-4mg (Methone-4) procured from Icarus pharmaceuticals for