

Role of Moderate Intensity Exercises in the Amelioration of Oxidant-Antioxidant Status and the Levels of Inflammatory Cytokines in Rheumatoid Arthritis Patients

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Abstract : Cytokines and reactive species play an important role in the pathophysiology of rheumatoid arthritis (RA). This study was done to determine the levels of reactive oxygen and nitrogen species (ROS and RNS), inflammatory cytokines and the markers of protein, DNA and lipid oxidation in the blood of RA patients, with the aim to study the antioxidant and anti-inflammatory role of moderate intensity exercises in the management of RA. RA patients were subdivided into two groups- first group (n=30) received treatment with conventional RA drugs while the second group (n=30) received moderate exercise therapy along with the conventional drugs for a period of 12 weeks. The levels of ROS, RNS, inflammatory cytokines and markers of biomolecule oxidation were monitored before and after 12 weeks of treatment. RA patients showed a marked increase in the levels of ROS, RNS, inflammatory cytokines, lipid, protein and DNA oxidation as compared to the healthy controls. These parameters were ameliorated after treatment with drugs alone and exercise combined with drugs, with the amelioration being more significant in patients given drugs along with the moderate intensity exercise treatment. In conclusion, the role of ROS, RNS and inflammatory cytokines in the pathogenesis of RA has been confirmed by this study. These may also serve as potential biomarker for assessing the disease severity. Finally, the addition of moderate intensity exercises in the management of RA may be of great value.

Keywords : rheumatoid arthritis, reactive oxygen species, inflammatory cytokines, moderate intensity exercises

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