

Therapeutic effect of rapamycin on the clinical and radiological aspects in patients with multiple sclerosis

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Background : Multiple sclerosis (MS) is an autoimmune disease characterize by demyelinating plaque in the central nervous system. The disease has no cure and no recognized definite cause yet. The available therapies are mostly disease modifying. The aim of the present clinical trial was to evaluate the therapeutic effects of rapamycin on the clinical, life quality and radiological aspects of the patients with MS.

Methods : In this phase I clinical trial, eight patients with relapsing remitting MS were chosen to be included in the trial. Patients have been received rapamycin (Rapacan, Biocon, India) for six months. The safety of drug on the participants was monitored by checking the hematological and blood biochemical parameters of the patients in days 0, 30, 60, 90, 120, 150 and 180 after initiation of study. Magnetic resonance imaging (MRI) of the brain of the patients has been taken before and after therapy. Patients' expanded disability status scale (EDSS) was also been recorded.

Results : After the therapy was finished, all patients had some degrees of significant reduction in mean plaque area volume ($P=0.012$, $Z=-2.520$), and minimum and maximum volume ($P=0.012$, $Z=-2.521$) of the plaques. EDSS of 4 (50%) out of 8 patients was decreased after treatment with rapamycin, but was not significantly ($P=0.059$, $Z=-1.89$).

Conclusions : This study was the first clinical trial on the effect of rapamycin on multiple sclerosis, which showed promising results for treatment management of the disease. According to the findings, rapamycin is beneficially effective on multiple sclerosis and suggested for therapy of this disease.

Keywords: Multiple Sclerosis; Rapamycin; Treatment