

Effect of fingolimod on white blood cell, lymphocyte, and neutrophil counts in multiple sclerosis patients

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Background: Fingolimod is an immunomodulating oral treatment used for treating relapsing-remitting multiple sclerosis (RRMS). The exact mechanism for its action in preventing relapses is unknown. In addition, its effect on immune cell populations remains unestablished. This study will measure the changes in cell populations of WBCs, lymphocytes, and neutrophils in MS patients after one month of treatment.

Methods: 66 MS patients from Isfahan Province with RRMS were chosen based on certain exclusion criteria and eligibility for fingolimod oral treatment. Initial cell counts for WBC, lymphocyte, and neutrophil cell populations were achieved. Fingolimod .5 mg daily treatment was then initiated under the supervision of a physician. After one month of treatment, cell counts were repeated. Statistical analysis was performed using SPSS.

Results: Both lymphocyte and WBC mean cell counts were significantly decreased in this patient cohort. Neutrophil average cell counts were significantly increased in this 66 patient cohort. Only the decrease of WBC populations was significant for both male and female cohorts individually. Only female sub-cohorts were significantly changed for neutrophils and lymphocytes, increased and decreased respectively. Male sub-cohorts maintained the same directionality, but failed to produce statistical significance.

Conclusion: While fingolimod has been effectively proven as reducing lymphocyte cells in most patient populations, its effects on neutrophils have not been studied in abundance. In addition, there may be sex-related differences in responses to fingolimod treatment with regards to lymphocytes and neutrophils, suggesting a possibly difference in RRMS pathogenesis between males and females.

Keywords : Multiple sclerosis, Fingolimod, White blood cell, Lymphocyte, Neutrophil.