

## Comparison of neutralizing antibody titer against Rebif and Recigen in Relapsing-remitting Multiple Sclerosis (RRMS) patients and relation to patient's disability

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**Introduction:** Multiple Sclerosis is most commonly neurodegenerative autoimmune disease. One of the main treatment methods in Relapsing Remitting Multiple Sclerosis (RRMS) is the subcutaneously administration of human recombinant interferon beta (IFN- $\beta$ ). The immune system of patients receiving the drug may produce neutralizing antibodies against this drug and impair the drug function. Recigen and Rebif are two brands of recombinant IFN- $\beta$ -1a. In this study the titer of neutralizing antibodies in two groups of patients receiving Recigen and Rebif were compared.

**Material and method:** 71 RRMS patients (34 patients Recigen, 37 patients Rebif) with mean age of  $34.42 \pm 9.3$  were included in this study. An interferon beta sensitive cell line (A-549) was treated with patient's serum in three dilutions (1:160, 1:320, 1:640) which incubated with constant concentration of Recigen and Rebif. The treated cells were lysed with lysing buffer and intracellular maxovirus associated protein A (MxA) concentration was measured by ELISA kit. The level of MxA production was an indicator of IFN- $\beta$  activity.

**Results:** The percentage of NAb positive patients in both groups showed no significant difference ( $P=0.23$ ). In Recigen group there is a positive correlation between the mean Expanded Disability Status Scale score and positive NAb percentage. No significant relation for duration of medicine administration and the production of neutralizing antibodies was observed. Stimulation threshold of Interferon beta receptor on A-549 treatment by Rebif was less than Recigen.

**Conclusion:** Patients in Recigen and Rebif groups showed no significant differences in NAb+ production. Considering price of the two medicine, Recigen seems to be more cost effective compared to Rebif. Interferon beta receptor saturation dose for Rebif was lower than Recigen. This may lead to overstimulation of the immune system in long term.

**Keywords:** RRMS, Recigen, Rebif, Neutralizing Ab