

Heart rate variability decreases after 3 months of sustained treatment with fingolimod in patients with multiple sclerosis: a prospective clinical trial

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Background and aims:

To prospectively investigate short- and mid-term changes of heart rate variability (HRV) in patients with relapsing-remitting multiple sclerosis (RRMS), being started on fingolimod.

Methods:

Patients (n=33) with RRMS starting treatment with fingolimod underwent a time-domain-based analysis of HRV (breathing at rest, deep breath, and in response to the Valsalva maneuver) shortly before, 4.5 hours and 3 months after first intake. Blood pressure changes after the Valsalva maneuver were used as a marker of the sympathetic noradrenergic system. We used a non-invasive continuous beat-to-beat heart rate and blood pressure monitoring. Additionally, the Fatigue Severity Scale and the refined and abbreviated Composite Autonomic Symptom Score were applied.

Results:

Significant changes in HRV in RRMS patients, following treatment with fingolimod, were detected. After an initial increase in HRV, 4.5 hours after the first intake of fingolimod, a substantial decrease in HRV occurred after 3 months on continuous treatment.

Conclusion:

Treatment with fingolimod in RRMS patients significantly decreases HRV after 3 months. Our findings might have implications for the long-term cardiac safety of fingolimod treatment, especially in patients with cardiovascular risk factors. Treatment with more selective sphingosine 1-phosphate receptor agonists might be more favorable in this population. Long-term effects (> 3 months) of fingolimod on HRV in RRMS patients remain to be investigated.

keywords

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