SHOULD ALL MS PATIENTS BE TREATED WITH STATINS?

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3-Hydroxy-3-methyglutaryl coenzyme A (HMG-CoA) reductase inhibitors, 'statins' are widely used oral cholesterol-lowering drugs. Statins competitively inhibit HMG-CoA reductase, the enzyme that catalyzes conversion of HMG-CoA to L-mevalonate, a key intermediate in cholesterol synthesis. Some metabolites of mevalonate are also involved in posttranslational modification of specific proteins involved in cell proliferation and differentiation. Thus, statins have important biologic effects independent of their cholesterol-reducing properties. Recent studies in animal models of multiple sclerosis (MS) indicate that statins have anti-inflammatory and neuroprotective properties.

A phase II, double-blind, placebo-controlled, multicenter trial tested efficacy and safety of atorvastatin (80 mg/day) in patients with a clinically isolated syndrome (CIS) patients: "Atorvastatin therapy in patients with Clinically Isolated Syndrome (CIS) and High Risk for Conversion to Multiple Sclerosis (MS): the STAyCIS study". The primary endpoint was the proportion of patients developing 3 new T2-bright brain foci or 1 new clinical exacerbation during the first 12 months. Participants were randomized to atorvastatin or placebo (3:2) within 90 days of CIS onset. The protocol called for a sample size of 152 subjects. Due to slow recruitment, enrollment was stopped after 81 patients were randomized. Overall, atorvastatin was well tolerated. While the primary endpoint was not met, likely due to the fact that the study was under-powered, the proportion of patients who did not develop new T2 lesions up to month 12 or to starting Avonex was 55.3% and 27.6% in atorvastatin and placebo groups, respectively (p=0.032).

Given that statins are safe, and that these study results are encouraging, additional studies with statins in patients with MS should be conducted. Statins may have a role as monotherapy in patients with mild disease, and they may have a role as add-on agents in patients with more active disease who fail first-line therapy.