

Statin Myopathy

Dr. Shrikant Wagh* (Rheumatologist)

Statins are drugs that lower cholesterol levels in our body. Cholesterol is manufactured in liver. Cholesterol is essential to life as it is a structural component of cell membrane. It is a precursor for synthesis of steroid hormones, Vitamin D and bile acids. Statins lower cholesterol levels by blocking hydroxyl-methylglutaryl-coenzyme A (HMG CoA) reductase enzyme in liver. This enzyme appears like Meda-Dhatwagni. Cholesterol controls its own synthesis by a feedback mechanism of this enzyme. Hypercholesterolemia is implicated in atherosclerosis and various related vascular events (coronary, cerebral and peripheral disease). Statins are frequently prescribed in these conditions as they have additional plaque-stabilization effect. Statins also possess anti-inflammatory properties and inflammation of vessel wall is a contributor in atherosclerotic process. They possibly have immunosuppressive effect too.

Lovastatin is naturally found in oyster mushroom. Various statins are used in clinical practice - atorvastatin (10-40 mg OD) being the commonest. Headache, rash and gastrointestinal upsets are common side effects of statins. Myopathy is a peculiar adverse effect of all statins. Muscle pain and weakness occurs in 1-5% patients on statins. Myopathy appears after 6-10 months of statin therapy and requires 2-3 months to resolve after discontinuation of statins. Symptoms reoccur if the drug is restarted. Rhabdomyolysis (breakdown of skeletal muscle - high levels of creatinine kinase), though rare, is a serious adverse event and can be fatal. Cervastatin was withdrawn from US market due to high incidence of fatal rhabdomyolysis. The present statins appear to be less myotoxic. Combination of statins with triglyceride (another lipid) lowering agents such as clofibrate and

nicotinic acid increases possibility of myopathy. Though the mechanism of muscle effects of statins is unclear, they appear to reduce the production of small regulatory proteins that are important for maintenance of muscle cells.

Mild to moderate elevation of liver enzymes is also reported on statins. Drugs (e.g. erythromycin, itroconazole, diltiazem, verapamil) that block statin eliminating liver enzymes such as cytochrome P-450, increase statin levels and possibility of myopathy. Statins should be administered cautiously in patients with history of liver disease and/or alcoholism.

Long term (>2years) statin use is associated with 4-14 fold increased risk of nerve damage (polyneuropathy). Interference with cholesterol synthesis may alter nerve membrane function because cholesterol is an essential constituent of cell membranes. Disturbances in energy utilization of neurons due to inhibition of mitochondrial respiratory chain enzyme (ubiquinone) may also be responsible for neuropathy.

Actions and adverse effects of statins and other lipid lowering drugs are perfect examples of Dhatu-Parinati and Dhatwagni principles of Ayurveda.

*Lupus Clinic, 1078, Shukrawar Peth, Hirabag, Tilak Road, Pune 411002

Phone: 020 2447 8993.