INTRODUCTION

There is growing evidence that statin use is associated with a reduction in perioperative morbidity and mortality. Statins inhibit 3-hydroxy-3-methylglutaryl coenzyme A reductase, a mechanism that effectively reduces low-density lipoprotein cholesterol. Numerous randomized controlled studies have shown that this intervention effectively impedes the development of atherosclerosis and attenuates cardiovascular risk in non-surgical patients. Interestingly, at relatively high doses statins also improve short term outcome in patients with acute coronary events. The latter is more difficult to relate to the change in circulating lipoproteins and triglycerides. Similarly, the proposed beneficial effects of statins in the perioperative period are unlikely to result only from a modification in lipid profile and other interesting explanations have been forwarded.

PLEIOTROPIC EFFECTS OF STATINS

In addition to their general lipid modifying properties, a number of statins were shown to have specific effects such as 1) anti-oxidation, 2) modulation of endovascular function, 3) induction of NO-synthase, 4) stabilization of atherosclerotic plaque, 5) reduction of inflammation 5) inhibition of platelet activation and 6) inhibition of thrombus formation. Many of these mechanisms are known to play a key role in the pathophysiology and development of acute cardiovascular events. Since inflammation and thrombosis are also increasingly being implicated in the pathogenesis of perioperative events it seems reasonable to expect that statins may indeed modify perioperative morbidity and mortality via their pleiotropic effects.

CLINICAL EVIDENCE

Until now almost every clinical study has shown better perioperative outcome in patients treated with statins either in cardiac, vascular or general surgery. However, the majority of published studies had a retrospective design or only a limited number of patients included. It is hoped that data from an ongoing large randomized controlled trial will become available soon as these may initiate the writing of official guidelines. Meanwhile, several groups have started to highlight other important aspects such as the dose-dependency of statin related effects, the risks associated with interruption of chronic statin therapy and the possible side effects of statins. Other investigators are exploring the therapeutic potential of statins as modulators of inflammation in preventing atrial fibrillation after cardiac surgery or as a treatment of SIRS and sepsis.

CONCLUSION

Statins are expected to become increasingly important as a perioperative risk reduction strategy. While definite evidence from randomized trials is still awaited, it appears advisable at this stage not to interrupt chronic statin therapy during the perioperative period.

Recommended Reading