Clinical Practice Committee
Perioperative Statin Use

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Statins should be continued perioperatively for most patients…

Summary
Our patients have at times heard a mixed message when it comes to whether or not they should discontinue statins prior to surgical procedures employing general anesthesia. Some experts have advocated discontinuation based on the possible risk of rhabdomyolysis during the perioperative period in patients undergoing general anesthesia. On the other hand, published observational studies suggest that statins reduce incidence of perioperative mortality. The Evidence-Based Medicine (EBM) working group has reviewed the available evidence and has concluded that at present the balance tilts toward continuation of statins perioperatively. This recommendation does not extend to niacin or fibrates which should be discontinued perioperatively.

Discussion
The CPC-sanctioned EBM working group conducted a Medline literature search and sought evidence from databases that have been approved by the working group as sites that review medical evidence in a rigorous EBM approach. General Surgery, Anesthesia, Pharmacy, and Cardiology, were all asked to review and comment on findings.
Case reports associating statins with rhabdomyolysis perioperatively were found. These reports appear to have led to the expert recommendation that statins be discontinued prior to surgery requiring general anesthesia. Closer review of this literature found that the reported patients having the complication had other risk factors that could contribute to rhabdomyolysis. One study in particular based the association on faulty analysis that actually demonstrates no association. The expert recommendation mentioned does not actually reference any case reports of rhabdomyolysis in its bibliography. Two experimental studies were found that contradicted the belief that statins only have long-term effects and can safely be discontinued in the short term. The studies provide physiologic evidence on platelet aggregation in humans and stroke protection in mice. Both are adversely affected within 1-2 weeks of discontinuation of the statin.

Two observational cohort studies reported that statin discontinuation perioperatively was associated with an increase in perioperative mortality.

At present we do not have a randomized prospective clinical trial to answer this question definitively.

UptoDate has a topic review on this subject which points out that the manufacturers of atorvastatin and pravastatin recommend discontinuation of their agent perioperatively. However, the reviewer also points out the reported cohort evidence on the increase in mortality in patients stopping statins perioperatively. The stated recommendation is to continue statins through the perioperative period, especially in patients with high cardiovascular risk.

Dean Clinic providers responded as follows,
- General Surgery opinion on this subject is for primary care physician to decide this question during the preoperative exam.
- Cardiology has recommended that statins should be continued perioperatively.
- Pharmacy has reviewed process above and is in agreement with conclusions formulated.
- Anesthesia concluded that statins should not be stopped prior to general anesthesia.

Conclusion
On the basis of available evidence the EBM working group recommends that pre-operative exam physicians advise patients taking statins and contemplating major surgery to continue statins unless there is compelling reason to recommend otherwise.
Bibliography


**TYPE OF STUDY TABLE 1**

<table>
<thead>
<tr>
<th>STUDY QUALITY</th>
<th>DIAGNOSIS</th>
<th>TREATMENT/ PREVENTION/SCREENING</th>
<th>PROGNOSIS</th>
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<td><strong>Level 1</strong></td>
<td><strong>Good quality patient-oriented evidence</strong></td>
<td><strong>SR/meta-analysis of RCTs with consistent findings</strong></td>
<td><strong>SR/ meta-analysis of good quality cohort studies</strong></td>
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<td>Validated clinical decision rule</td>
<td>High quality individual randomized controlled trial (RCT)</td>
<td><strong>Prospective cohort study with good follow-up</strong></td>
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<td>Systematic Review (SR/meta-analysis of high quality studies</td>
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<td>High quality diagnostic cohort study</td>
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<td><strong>SR/meta-analysis of lower quality cohort studies or with inconsistent results</strong></td>
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<td><strong>Case series</strong></td>
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<td><strong>Level 3</strong></td>
<td><strong>Other evidence</strong></td>
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<td>Consensus guidelines, extrapolations from bench research, usual practice, opinion, disease-oriented evidence (intermediate or physiologic outcomes only), and case series for studies of diagnosis, treatment, prevention, or screening.</td>
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