

There are two issues at play in terms of counseling someone to stop smoking

First is the issue of nicotine replacement. There had been some fear that nicotine replacement therapy could potentially interfere with wound and bone healing based on animal studies. However, the doses used in the animal models were high doses of nicotine and not the lower doses in typical replacement therapy. A recent human study has shown that nicotine replacement therapy along with smoking cessation actually decreased wound complications.¹ Thus, if a patient is using nicotine replacement therapy, it makes sense to continue it perioperatively.

The 2nd issue is what time interval is appropriate for smoking cessation. In terms of the acute physiology that occurs when smokers first quit, what was theorized were the following time intervals:

- First 48 to 72 hours: Quitters may have increased secretions and more reactive airways
- 2 to 4 weeks: Decreased secretions and decreased airway reactivity
- 4 to 6 weeks: Immune and metabolic function normalize
- 12 weeks: Complete improvement of the airway lining mucociliary function and small airway function

Dr. Shi and Dr. Warner² correctly pointed out that the argument that brief postoperative abstinence from smoking increases pulmonary risk was based on two large papers from the Mayo Clinic.³⁻⁴ In both studies, the authors did find that longer periods of cessation (greater than eight weeks before surgery) were statistically associated with decreased pulmonary complication rates (20% vs. 48% for those who continued to smoke). For the shorter time periods, there was no statistical difference in rates, even though it appeared that those who recently quit had higher complication rate percentages (hence, if not statistically significant, we cannot say for certain that the differences noted may have arisen purely by chance). Thus, the authors of the studies were careful not to make this conclusion but instead concluded that longer periods may be needed for pulmonary benefit.

In 1990, a major anesthesia textbook (*Miller's Anesthesia*) incorrectly stated that the above two studies had conclusively shown that those who quit for less than eight weeks had higher complication rates. As Dr. Shi and Dr. Warner pointed out, this then led to this incorrect assertion in practice guidelines, review articles, and other textbooks. A recent systematic review⁵ and meta-analysis⁶ demonstrated that there is no "increased risk" by having smokers stop even for a short period of time before surgery. There is of course some justifiable debate about the quality of evidence that all of these reviews are scrutinizing, as most studies have been primarily observational studies. Thus ongoing analysis of the issue is needed (which fits in with the goals of the Strong for Surgery program).

In summary:

- Diagnoses of diseases such as cancer and the prospect of having surgery are ideal opportunities to engage patients in the benefits of smoking cessation.
- Other than the first 72 hours where quitters may have increased secretions and more reactive airways which may interfere with anesthesia, there isn't any study that has shown that brief preoperative smoking cessation carries with it an increased risk. There is one recent study⁷ that didn't find an increased cough in the first few days in a good proportion of people.
- The ideal role of the surgeon is to identify tobacco users, advise them to quit, and then refer the patients to those evidence-based resources that can provide assistance.
- At present we are not prescribing a defined period of time patients should be off of cigarettes. It seems reasonable that a couple of weeks would be sufficient, but this is another opportunity for the surgeon and patient to have an extensive discussion about the same.

References

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