Surgery and Smoking at First and Second Hand

Time to Act

AN original study in this issue of ANESTHESIOLOGY shows that only 6.6% of smoking parents maintained abstinence during the period when their child underwent surgery.[1] This cessation rate is disappointingly low, probably because the parents are not informed about the increased risk for their children in relation to the operation and not offered support to quit smoking.

It is a fact that daily smoking is a heavy and independent risk factor at surgery. The threshold is so low that even secondhand smoke is a risk factor, and children with smoking parents develop more respiratory complications in relation to anesthesia.[2]

The association between smoking and surgery has been evaluated in more than 300 papers since 1944, when Dr. Morton first published the finding that smokers develop more pulmonary complications after operation.[3] Every year still more articles confirm this association; however, the time has come to act instead of repeating the same observations over and over again.

The question is therefore what to do to reduce the increased risk for smokers undergoing surgery. We could of course hope that the smoking patients or parents would stop smoking themselves, either coincidentally with the operation or because undergoing surgery is considered a teachable moment in life. However, Drs. Shi and Warner have now shown that parental smoking behavior is not affected by this hope. In addition, the spontaneous cessation rate in surgical patients is only a little higher than that of smokers not undergoing surgery.[1] The perspectives are that far too many first- and secondhand smokers develop complications that are potentially preventable.

"(regarding smoking) the time has come to act instead of repeating the same observations over and over again."

This leaves us with a great deal of room for improvement in postoperative outcomes among smokers, including children exposed to secondhand smoke.

During the last 10 yr, evidence has been gathered from randomized clinical trials (RCT) about the risk-reducing effect of perioperative smoking cessation intervention programs.[4] The first RCT was published on elective orthopaedic surgery by Dr. Møller and colleagues in 2002. It demonstrated that the postoperative complication rate was halved in the group allocated to an intensive smoking cessation intervention of 6–8 weeks, the Gold Standard Programme (GSP) (table 1).[5] Another study on elective general surgery was published in 2008 by Dr. Lindström and colleagues. They used the same program and found a similar effect, although they began the GSP only 4 weeks before surgery and continued for 4 weeks after it.[6] Other RCTs have evaluated minor and briefer smoking cessation programs without showing any significant risk-reducing effects in the surgical pathway.

It seems that only programs associated with high rates of smoking cessation, such as the GSP, influence the postoperative complication rate. From the clinical point of view (and for the benefit of the patients), we should use the interventions requiring the lowest number of patients needed to treat. Depending on the level of staff salary, the fully hospital-funded GSP is followed by a moderate or substantial reduction of direct hospital costs. The extra resources spent on the mainly outpatient program that is free of charge for the pa-

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Table 1. Gold Standard Programme (Manual Based and Performed by Certified Staff)

- Introduction through motivational conversation.
- Five meetings over 6–8 weeks (adjusted to the date of operation), with a clearly structured patient education program (for groups or individuals), including reflections on benefits and costs of continuous smoking *versus* cessation, date of cessation, teaching and training about risk situations and relapse prevention, withdrawal symptoms and medical support, and planning for the future.*
- Nicotine replacement therapy and administration according to the Fagerström score, the number of cigarettes (or gram of tobacco when smoking pipes or cigars), and patient preferences. The patients are free to choose and try the different kinds and administration methods of nicotine products and change their minds during the program.
- Hotline available during daytime hours.
- Follow-up for compliance (*i.e.,* attending meetings), for smoking at the end of the program (6–8 weeks), and for patient satisfaction.
- Follow-up for smoking after 1 yr (and/or 6 months).

* See www.whocc.dk for the program of the summer course, June 2011. Accessed April 8, 2011.

tient are lower than the resources saved from the reduced complication burden.[5,7,8]

In addition to reducing the risk at surgery, the GSP has a positive side effect. The continuing cessation rate from the end of the GSP until 1 yr after surgery has been found to be 22–33%.[5,6] The minor and briefer programs did not influence this outcome among surgical patients at all, which is in agreement with the recommendations of smoking cessation interventions for hospital patients in general.[9]

Recently a smoking cessation intervention was evaluated in an RCT for smokers undergoing acute fracture surgery. The intervention group received the program after surgery, and they experienced significantly fewer complications.[10] However, Dr Nåsell and colleagues did not use the full GSP, and they found no long-term effect on the cessation rates for their group of patients.

Special challenges for implementing preoperative smoking cessation programs are the tight surgical agenda and the short period of contact between patients and hospitals/clinics in the perioperative period, except for patients developing complications. Therefore, new arenas should be considered, such as primary care. Until now, primary care has not been convincing in efforts at systematic preoperative risk reduction, despite good will, a positive attitude, common guidelines and information material, and a 30% bonus payment.[11]

The education of staff in evidence-based programs for smoking cessation in surgical pathways is important. A natural barrier to implementation of smoking cessation intervention is the lack of competences. Another important barrier has been shown to be our own lifestyle because smoking staff members less often take the initiative to introduce smoking cessation to their patients. In addition, other important risk factors, such as alcohol abuse and excess body weight, are more often neglected.[12]

Most surgical patients have a very positive attitude to smoking cessation programs, so patients in one study who were allocated to a control group actually felt disappointed.[13]

We need more RCTs to develop evidence in the areas with little or no evidence within the field of surgery and smoking cessation intervention. Based on the results of Shi and Warner,[1] an important future intervention study would be smoking cessation intervention for smoking parents whose child is undergoing surgery. In addition, the parents' and children's attitudes to parental intervention should be studied. Other highly relevant new RCTs concern the evaluation of a delayed onset of the GSP for acute, subacute, and even elective operations; new arenas for the GSP outside the hospitals; and combined intervention programs for risk reduction, including smoking, alcohol, physical inactivity, and a malnutrition cessation intervention.

However, we can act on the basis of the evidence already gathered. *Today*, we can establish a first list of dos and don'ts for risk reduction in smokers scheduled for surgery. *Today* we can act by recommending evidence-based smoking cessation programs, such as the GSP, as part of the surgical pathway, instead of just hoping that patients and relatives will try to handle the risk reduction themselves.

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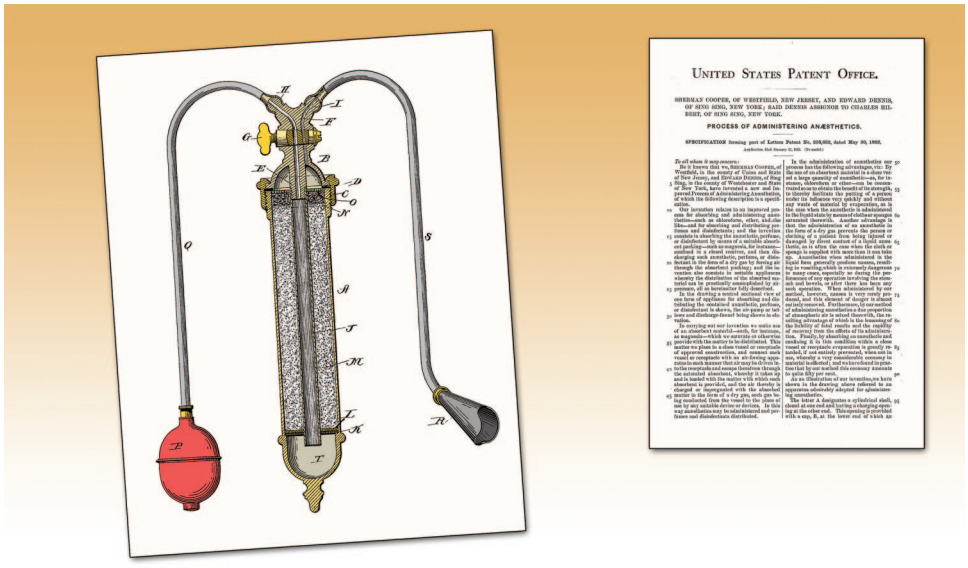
ANESTHESIOLOGY REFLECTIONS

The Cooper-Dennis "Process for Administering Anaesthetics"



UNITED STATES PATENT OFFICE.

SHERMAN COOPER, OF WESTFIELD, NEW JERSEY, AND EDWARD DENNIS, OF HONG KONG, NEW YORK; SAID DENNIS ASSIGNOR TO CHARLES HILBERT, OF HONG KONG, NEW YORK.

PROCESS OF ADMINISTERING ANÆSTHETICS.

SPECIFICATION forming part of Letters Patent No. 258,632, dated May 30, 1882.

In January of 1882, Sherman Cooper of New Jersey and Edward Dennis of New York filed a U.S. patent application for their "Process for Administering Anaesthetics." According to their application "absorbent packing . . . such as magnesia" was saturated with ether or chloroform prior to forcing air through the closed container by a rubber "bulb or other air forcing device" (*left*). Their U.S. Patent No. 258,632 claimed many advantages for their process, including greater economy and swifter onset of anesthesia, less nausea and clothing damage, and fewer injuries and fatalities. Perhaps more confident in their entrepreneurship than in their "anaesthetic process," Cooper and Dennis hedged their patent filing by noting its potential use in applying perfumes. (Copyright © the American Society of Anesthesiologists, Inc. This image also appears in the *Anesthesiology Reflections* online collection available at www.anesthesiology.org.)

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