The Cost of Smoking

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Should smokers be denied elective orthopedic surgery until they quit smoking? The answer is not simple and has stimulated a “healthy” discussion of the cogent issues within our institution.

This year marks the 50th anniversary of the release of the US Surgeon General’s first report on smoking and health.1 This and an additional 31 reports documenting the health risks of smoking have turned the tide against tobacco use in the United States. Once perceived as a habit of free choice, tobacco use now is considered a true drug dependency.2 The role of physicians in reducing and treating tobacco use has evolved during these 50 years from treatment of morbidity from smoking to prevention of its sequelae. In the April 11, 2013, issue of The New England Journal of Medicine, debate raged regarding the ethical implications of societal pressures on smokers vis-à-vis nonhiring by health care institutions.3,4

The prevalence of adult smoking in the United States decreased from 42% in 1965 to an estimated 19% in 2012.5 Despite this reduction in smoking, approximately half a million Americans die prematurely each year from diseases directly caused by cigarette smoking. Smokers die approximately 13 years earlier than nonsmokers. Tobacco use is economically staggering, leading to almost $200 billion in added health care and lost productivity costs annually.6

The cause-and-effect relationship between tobacco use and chronic obstructive pulmonary disease, lung cancer, and coronary artery disease is now well recognized by the public. However, the musculoskeletal effects of cigarette smoking are relatively unknown to patients. There are numerous physiological and pathological effects of nicotine on the musculoskeletal system. Reduced blood supply and tissue hypoxia observed in smokers decrease bone metabolic activity.7,8 Osteoblast formation and function are inhibited in heavy smokers.9 Osteoblast-mediated stimulation of osteoclasts and decreased calcium absorption may also contribute to decreased bone formation and increased bone resorption.10,11 Smoking has been associated with delayed fracture union, nonunion, and infection.12-16 Studies suggest that smokers are at increased risk for wound and soft tissue complications.17 Tendon healing, such as for rotator cuff repairs, and ligament healing, such as in anterior cruciate ligament reconstructions, appear to be negatively affected by cigarette smoking.18-20

The upshot is that the deleterious effects of smoking on the musculoskeletal system seem to be partially reversible. Compared with current smokers, former smokers have lower fracture risk,21 decreased bone resorption,22 and improved outcomes regarding systemic postoperative complications, infections, outcome scores, return to work, and recovery rates.23,24 A recent meta-analysis of 6 randomized trials on the effects of preoperative smoking cessation demonstrated a pooled relative risk reduction of 41% for postoperative complications. Cessation programs beginning at least 4 weeks preoperatively appear to have a greater beneficial effect.25

In our experience, encouraging rather than requiring tobacco abstinence preoperatively rarely leads to smoking cessation. However, if smokers are informed of these differences and accept the increased risk of a less than optimal outcome, should surgeons be compelled to proceed with surgery?

In an effort to improve patient outcomes and reduce perioperative complications, an orthopedist in our department started requiring smokers to stop smoking for at least 4 weeks before elective musculoskeletal reconstructive surgery. The surgeon required confirmation of smoking cessation with urine nicotine testing. This surgeon’s policy led to patients’ complaining to the hospital’s Guest Services department. Because our hospital is the main safety net hospital in our community, at issue is that...
the policy has delayed access to surgical treatment in most cases, a few patients have changed providers, and some patients have been denied access to surgery. Although the policy may have had a positive effect on the care of surgical patients, it has led to surgeon distress in dealing with patient complaints.

The hospital’s Legal Department was asked for an opinion. It had no legal concerns with the policy of not performing elective surgery on smokers.

The hospital’s Ethics Committee was consulted to offer opinions on the surgeon’s policy of no smoking before elective orthopedic surgery. This committee consists of a diverse group of individuals from the medical and nursing staff, the Board of Directors, social work, pastoral care, and the community. At our institution, the committee, having a deliberative and consultative function, examined the policy in light of several ethical principles. A city-wide consortium of ethics committees also discussed the policy.

**Patient Autonomy**

Once considered paramount, increasing even as paternalism was condemned, patient autonomy is assuming a shared role with a combination of justice and nonmaleficence. It does not trump sound medical decision-making but demands informed discussion. Patients have the right to make decisions that are not in their best interest. A shared decision-making model is emerging that includes an emphasis on “high value cost conscious care” in which treatments offered are those “likely to be of benefit” rather than extending the possibility of “doing everything.”

**Physician Autonomy and Nonmaleficence**

“First do no harm.” A surgeon must not be compelled to perform a procedure with questionable indication or believed to have an unfavorable risk–benefit ratio. In addition, it is a surgeon’s prerogative, even duty, in cooperation with the patient to align all modifiable risk factors into the most positive position possible.

**Justice and Disparities of Care**

Because our hospital is the major safety net hospital in our region, elective surgical treatment at our institution may be the only option for some patients. With this policy, patients’ smoking status may become an absolute barrier to surgery. Evidence indicates higher smoking rates and less favorable quit rates among lower socioeconomic groups and those with mental health problems. This raises concerns about disparities of care. Are adequate resources available to aid smoking cessation?

Albeit an elective procedure, arthroplasty usually favorably affects quality of life. However, an unsuccessful or infected joint arthroplasty can incur costs of $50,000 that may remain uncompensated. Can an individual demand surgery when this financial burden is at stake? This policy could then be considered a form of rationing, but there are examples of similar preoperative requirements in other surgical specialties (eg, stopping smoking prior to cardiac surgery and discontinuing drinking alcohol prior to liver transplant).

**Beneficence**

Doing what is best for the patient can be a matter of opinion. Surgery is not a solution to pain without a definite, identifiable surgical lesion.

**Important Nonethical Considerations**

Complaints lodged against a physician caregiver because of a policy can lead to “moral distress.” Caregiver distress also manifests when a provider believes that the course of action requested is not in the patient’s best interest. Although uncomfortable and difficult decisions are common in medical practice, there comes a point where this is not sustainable.

**Informed Consent**

When pain, mobility, and the desire for improved quality of life are involved, can true informed consent be obtained? Is a patient able to knowledgeably consider the risk? Adequate discussion takes time and skill. Thus, concern about the consistency and quality of “informed consent” (autonomy) regarding the decision for surgery is a cogent issue.

**Public Relations**

Policy variation across an institution may result in misunderstandings and ill will. Patients’ satisfaction with their providers may be affected by a policy of quitting smoking preoperatively.

**Conclusion**

Discussions with the hospital’s Ethics Committee were beneficial to members of our department. The surgeon, other faculty, and our residents became much better informed on the issues. The take-home messages from our review and deliberations were:

1. Orthopedic surgeons should be aware of the adverse effects of smoking on the treatment of their patients’ musculoskeletal conditions, educate their patients about these negative effects, and encourage and help their patients to quit smoking.

2. Orthopedic surgeons who do not operate on smokers may have better outcomes than surgeons who do. Their patients may realize higher healing rates and less frequent complications.

3. The decision regarding elective surgery should be made by the surgeon and the patient together after a thorough discussion of the risks, including the modifiable risk of smoking; benefits; and alternatives to treatment.

4. A policy of not performing elective musculoskeletal reconstructive surgery on smokers may be an acceptable prerogative
of a surgeon in some instances, but the ultimate decision must be made on a case-by-case basis.

REFERENCES