On Patient Safety

Optimizing the Safety of Surgery, Before Surgery

Michael J. Lee MD

As the healthcare environment continues to progress to a pay-for-performance model, physicians and medical centers are under increasing pressure to demonstrate the safety of care through a

myriad of mechanisms including checklists, surgical timeouts, and quality metrics. Safety is measured not only by the occurrence and rate of the egregious never events (wrong site surgery, retained foreign body), but also by the occurrence and rate of known adverse events (deep venous thrombosis, infection, and readmission). The vast majority of the attention in improving safety in surgery has appropriately focused on how surgery is done, and how patients are managed afterwards. But we tend to ignore what is done for the patient before surgery. How can we optimize patients before surgery, so as to minimize the risk of a complication afterwards?

As surgeons, we constantly assess risk factors for complications. Most of us would be unwilling to offer a total hip replacement for an alcoholic who binge drinks regularly because of issues of noncompliance and complication. Similarly, most of us would be hesitant to recommend elective surgery in a patient with uncontrollable congestive heart failure. The difference between these two is that one risk factor is entirely modifiable, whereas the other may not be. A recovering alcoholic with a suitable period of abstinence may well be treated with a hip replacement. The patient with

severe congestive heart failure may never be well enough to undergo elective surgery.

In an ideal world, all patients with modifiable risk factors would be optimized before elective surgery, but how often does that really happen? Do we get patients to the best health before elective surgery, or do we settle for “healthy enough”?

Consider cigarette smoking. Smoking is a known risk factor for complications after surgery for musculoskeletal conditions [1]. For spine arthrodesis surgery, it is universally acknowledged that smoking is a risk factor for pseudarthrosis. According to the Centers for Disease Control (CDC), 19% of adult Americans smoke cigarettes [3]. According to unpublished Washington State Spine Surgical Care and Outcomes Assessment Program (SCOAP) registry data, roughly 20% of all lumbar fusion patients smoke cigarettes. Despite what we know about smoking and musculoskeletal conditions, the SCOAP data suggest that minimal, if any, smoking cessation occurs before lumbar fusion.

What about obesity? More than one-third (35.7%) of citizens in the United States are obese, according to the CDC [2]. In orthopaedic surgery, obesity has been associated with

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M. J. Lee MD (✉)

Department of Sports Medicine and Orthopaedic Surgery, University of Washington Medical Center, 1959 NE Pacific St., Seattle, WA 98195, USA
e-mail: jihoon2000@hotmail.com;
mjl3000@uw.edu

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higher rates of complications, including infection, deep venous thrombosis, prosthesis failure, and malunion [4]. Yet, how often do we as physicians actually require optimal weight loss before elective surgery? How about diabetes, nutritional status, physical fitness, or mental fitness, for that matter? There are several modifiable risk factors that can be optimized before surgery.

That is where a program like the state of Washington's Strong for Surgery can help. Strong for Surgery is an initiative that maximizes a patient's health before surgery through working with surgeons in the clinics, and by providing options and resources for patient optimization [5]. Thomas Varghese MD, Medical Director at Strong for Surgery, and a cardiothoracic surgeon at Harborview Medical Center in Seattle, states: "If you think about the journey of a patient, we first engage with them for elective surgery at the time of the clinic visit. We talk to them about the risks and benefits of their surgical intervention. Then, the next time we typically see the patient is when he or she shows up for the procedure in the hospital. What happens if you shift to engaging patients with evidenced-based best practice from the first time we see them in the clinic?"

Imagine I have a patient with a symptomatic lumbar spondylolisthesis and stenosis who smokes a half-pack

of cigarettes a day. In the past, I have counseled patients to quit smoking before surgery, especially a fusion operation. But that is as far as I went. I did not prescribe medication or discussed the strengths and weaknesses of various cessation techniques. I would not know where to begin. However, a program like Strong for Surgery can help me guide that patient to a number of smoking cessation resources (in addition to the primary care physician) so he or she can get a running start. Strong for Surgery is focused on improving patients' nutrition, glyce-mic control, smoking cessation and medication, but as the program grows, additional modifiable risk factors can be addressed.

Of course, there are challenges. How does a program like this affect the flow of care? How many fewer patients will be seen in the clinic as this is incorporated? How many fewer patients will receive the surgical care they need because of these requirements? And in the end, will it make much of a difference? If I do not offer an operation for that patient because he smokes, why wouldn't he just go see someone else to have his surgery done?

The healthcare environment is changing. In the past, providing quality care was dependent largely upon doctors and providers acting in the best health interests of the patient. Today, policies are structured with the intent to

ensure that high quality care is provided. Already, the quality of surgery is being judged by a number of ever-growing process- and outcomes-based metrics. These metrics are expected to expand in the future, and it is possible that presurgical optimization may be monitored. As with all quality metrics, low performance can result in negative grading and financial penalty. Beyond that however, as the scope of these metrics expand, so too will the public's access to these data. The patient will be able to critically assess the practice patterns of physicians and medical centers, and make treatment decisions accordingly. The patient knows how often hospital X and hospital Y adheres to Surgical Care Improvement Project measures, and that may affect where they choose to pursue care. Similarly, the patient will know which hospitals and doctors participate in a program like Strong for Surgery and that may affect where they choose to pursue care. Payors will know the same information, and that may affect how and with which hospitals they contract. Therefore, hospitals and providers can get stung on multiple fronts: negative grading, financial penalty from payors, and patients leaving their system. While all participants in healthcare (medical centers, physicians, patients, payors) will be incentivized to participate for slightly different reasons, the ultimate motivation for presurgical optimization

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that we can all agree upon is the safety of the patient.

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