Effects of Resident Involvement on Complication Rates after Laparoscopic Gastric Bypass

Reference:

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Tags
Clinical domain
Medical Expert
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Educational domain
Teaching and learning
Program evaluation
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(residency training)

Background

This provocative article builds on the work of a group we recently reviewed in KeyLIME Episode 48 (candidate for paper of the year: Birkmeyer et al, Surgical Skill and Complication Rates after Bariatric Surgery)¹ This group previously used the database of the Michigan Bariatric Surgery Collaborative for the outcomes of 17,057 gastric bypass patients to characterize the dramatic difference between the highest and lowest rated surgeons in terms of skills. The Birkmeyer study raised questions about patient safety, training, and surgical outcomes. However, while other studies have shown that trainee presence was safe, it was not known if trainees influenced patient outcomes independently in gastric bypass.

Purpose

The Birkmeyer group set out to look at the patient outcomes when a trainee was present vs not present for gastric bypass surgery.

Type of paper

Research: Administrative database study
Other: Cross-sectional observational study

Funding: Blue Cross/Blue Shield of Michigan;

Key Points on the Methods

(See podcast episode 48 for more details on the group's methods.)

Krell et al built upon the Birkmeyer study, in which 20/75 participating surgeons' self-selected videotaped gastric bypass procedures from Michigan hospitals were rated by peers in a blinded fashion with respect to procedural skill. These scores were then compared to patient level outcomes, such as mortality, length of procedure, and other complications. Outcomes were extracted by trained chart auditors. At the time of the original study, 10,343 patients were included, over 6 years, 2006-2012.

Krell’s substudy looked at 30-day complication rates in surgeries with vs without residents present. Resident involvement was generalized to never, <80%, and >80% of the time, and analyzed as yes (n=7601) or no (n=9456). This database included 17,057 patients in the same 6-year period. Logistic regression was used to look for the impact of resident involvement, and attempts were made to control for the effects of attending surgeons, patient characteristics, and length of procedure time.

Key Outcomes

The patients in the "Resident" group were all sicker at baseline. Krell et al report that risk-adjusted 30-day complication rates were higher with residents: 13.0% vs 8.5%, p<0.01. Wound infection had an OR of 2.06, VTE an OR of 2.01. Surgery duration was longer with residents: 129 vs 88 minutes, p<0.01. Notably, these effects are tempered when OR duration is adjusted for: wound infection OR 1.67 with CI 1.01-2.76; VTE OR 1.73 (CI 0.99-3.04). Resident-associated cases were less likely to have adequate VTE prophylaxis. Other outcomes such as UTI, C difficile colitis, shock, reoperation, ER visits, and readmission were not different.
Key Conclusions

The authors conclude that residents’ involvement in gastric bypass increased complications and this is probably mediated by length of the procedure, a known major risk factor.

The authors recommend the use of surgical checklists to improve consistency in care as well as efforts to improve procedure efficiency.

Spare Keys – other take home points for clinician educators

1. This is another example of a clever study design using existing administrative databases to answer an medical education question. CEs should look for these opportunities to move beyond satisfaction studies.
2. Beware publication series from groups that have different data for substudies without explanation.
3. Clinician educators need to scan the literature widely to find the important papers for our work; it is not all easily found in PubMed, Google, or elsewhere.

Many thanks to Med Ed Guru Dr. Brian Hodges from UToronto who flagged this paper for review!