Increased Operative Time Is Associated With Higher Complication Rates in Plastic Surgery Patients

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ABSTRACT

Background
Historically, prolonged operative time has been associated with increased risk for morbidity and mortality. However, there is a paucity of clear data regarding the effect of longer operative times on outcomes in the field of plastic surgery. We endeavored to investigate the impact of operative time on postoperative morbidity and mortality in plastic surgery.

Methods
Utilizing a multi-institutional surgical outcomes database spanning from 2006-2010, we identified 15,289 plastic surgery procedures. Operative time was tracked in 30-minute increments. Multivariate logistic regression was utilized to investigate the relationship between operative time and primary outcomes of interest (medical complications, surgical complications, overall complications, and mortality). Subgroup analysis explored the relationship between operative time and outcomes in a homogenous high-risk cohort.

Results
When progressing from the shortest surgical duration cohort to the longest, we see an incremental increase in overall complications (6.22% to 24.86%), surgical complications (2.73% to 13.08%) and medical complications (3.68% to 15.89%) (Figure 1). Furthermore, for every 30 minute increase in operative time, there was a corresponding increased risk for 30-day overall complications (OR 1.13, 95% CI 1.08-1.18), medical complications (OR 1.14, 95% CI 1.06-1.23) and surgical complications (OR 1.14, 95% CI 1.09-1.20). There was no significant association with 30-day mortality. Findings were substantiated through subgroup analysis.

Conclusion
Drawing from data on over 15,000 plastic surgery procedures, we determined that increased operative time was associated with a higher risk of medical, surgical, and overall complications. As outcome measures take a more prominent role in the care of plastic surgery patients, these findings will advance patient education and practice management.

Figure 1

Morbidity and Mortality with Increased Operative Time

- Medical Complications %
- Surgical Complications %
- Overall Complications %
- Mortality %