

## Assessing the Value of Preoperative Anesthesia Consultation

Wijeyesundera DN, Austin PC, Beattie WS, et al. A population-based study of anesthesia consultation before major noncardiac surgery. *Arch Intern Med* 2009;169:595–602.

### Study Overview

**Objective.** To assess whether preoperative evaluation by an anesthesiologist for patients undergoing intermediate- to high-risk elective noncardiac surgery is associated with reduced length of hospital stay and mortality.

**Design.** Population-based cohort study using administrative databases.

**Setting and participants.** 271,082 patients aged  $\geq 40$  years who underwent selected elective intermediate- to high-risk noncardiac surgical procedures in Ontario, Canada, between 1 April 1994 and 31 March 2004.

**Main outcome measures.** The association between consultation within 60 days before surgery and hospital length of stay and postoperative mortality at 30 days and 1 year. Mortality was assessed using inpatient and outpatient databases. Propensity score methods were used to construct a matched-pairs cohort, which resolved differences between patients who underwent consultation and those who did not.

**Main results.** 104,716 (39%) patients underwent preoperative consultation. The median time between consultation and surgery was 8 days. Consultation rates increased from 19% of cases in 1994 to 53% in 2003. The majority (93%) of consultations were ordered by surgeons. Consultation was associated with higher rates of testing (echocardiography, myocardial perfusion tests, and pulmonary function tests). Of patients who underwent consultation, 90,127 (86%) were successfully

matched to similar patients who did not. Within the matched cohort, mean length of stay was significantly shorter among patients who underwent consultation (8.17 vs. 8.52 days; difference,  $-0.35$  days [95% confidence interval (CI),  $-0.27$  to  $-0.43$ ];  $P < 0.001$ ). The reduction in overall length of stay resulted from reduced length of stay before surgery (difference,  $-0.23$  days [95% CI,  $-0.20$  to  $-0.26$ ];  $P < 0.001$ ) and after surgery (difference,  $-0.12$  days [95% CI,  $-0.04$  to  $-0.12$ ];  $P = 0.003$ ). Consultation was not associated with reduced 30-day mortality (relative risk, 1.04 [95% CI, 0.96–1.13];  $P = 0.36$ ) or 1-year mortality (relative risk, 0.98 [95% CI, 0.95–1.02];  $P = 0.20$ ).

**Conclusion.** Although there was no clear survival benefit associated with consultation, there was a statistically significant reduction in hospital length of stay.

### Commentary

A previous randomized clinical trial demonstrated no benefit from preoperative consultation for cataract extraction (a low-risk procedure) [1]. No randomized controlled trial has been performed to demonstrate the value of preoperative consultation for intermediate- and high-risk procedures. Even so, preoperative consultation is the standard practice for low-, intermediate-, and high-risk procedures [2,3].

The study by Wijeyesundera et al is the only population-based study to date that addresses the question of whether preoperative anesthesia consultation is valuable for intermediate- and high-risk procedures. Results of this study suggest that preoperative consultation mainly impacts hospital length of stay, a finding that has been demonstrated

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in previous studies [4]. The reduction of hospital days may suggest important economic benefits, such as reducing costs for inpatient care, scheduling more surgical procedures, or using hospital beds for other nonsurgical patients. However, consultation increased fourfold from 1994 to 2003, and there is significant testing associated with consultation that may negate any economic benefit accrued from decreased length of hospital stay. The study uses standard methods to overcome differences between patients who underwent consultation and those who did not. However, the best methods available may not be able to overcome differences between the 2 groups.

### Applications for Clinical Practice

Consultation with an anesthesiologist was associated with a reduced length of hospital stay; however, there was no clear survival benefit. Routine preoperative consultation has become the standard of care despite the lack of demonstrated benefit. This study provides some evidence that consultation before intermediate- and high-risk surgeries may be ben-

eficial, but given the associated increased resources it is not clear if consultation is cost-effective. In this era of rising costs, research should focus on the type of preoperative evaluation that may improve outcomes and identify specific populations that would clearly benefit from it.

—Review by Salomeh Keyhani, MD, MPH

### References

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