

Routine testing before cataract surgery did not reduce medical adverse events

Schein OD, Katz J, Bass EB, et al., for the Study of Medical Testing for Cataract Surgery. The value of routine preoperative medical testing before cataract surgery. *N Engl J Med.* 2000 Jan 20;342:168-75.

QUESTION

In patients having cataract surgery, does routine preoperative medical testing reduce medical adverse events?

DESIGN

Randomized (allocation concealed*), blinded (outcome assessors)*, controlled trial with 1-week follow-up.

SETTING

9 clinical centers in the United States and Canada.

PATIENTS

18 189 patients (mean age 74 y, 61% women) who were scheduled to have 19 557 cataract operations between 1995 and 1997. Exclusion criteria were age < 50 years, general anesthesia, myocardial infarction within the previous 3 months, pre-operative medical testing in the previous 28 days, or inability to speak English or Spanish. 19 250 cataract operations were done, and 19 217 operations (98% of enrolled operations) had 1 week of follow-up.

INTERVENTION

Each patient received a preoperative medical assessment. Each patient with a scheduled cataract operation in a single eye was allocated to routine preoperative testing ($n = 9775$ operations) or no testing

($n = 9782$ operations). Routine testing included a 12-lead electrocardiogram; a complete blood count; and measures of serum electrolytes, urea nitrogen, creatinine, and glucose. Tests could be ordered in the no-testing group only if a patient had a new or worsening medical problem that would require testing even if surgery were not planned.

MAIN OUTCOME MEASURES

Adverse events during and after surgery.

MAIN RESULTS

Analysis was by intention to treat. Events were counted on a per-operation basis. The groups did not differ for number of adverse events (including death and subsequent hospital admissions) overall: 301 events occurred in both groups (Table). On the day of surgery, 190 events occurred in the routine-testing group, and 185 occurred in

the no-testing group (Table). 116 adverse postoperative events occurred in the routine-testing group, and 121 occurred in the no-testing group (Table). The occurrence of different types of adverse events was similar in the 2 groups, except for that of bronchospasm, which occurred 8 times in the no-testing group and 2 times in the routine-testing group.

CONCLUSION

In patients having cataract surgery, routine preoperative medical testing was no more effective than no testing in reducing medical adverse events.

Source of funding: U.S. Agency for Health Care Policy and Research.

For correspondence: Dr. O. Schein, 116 Wilmer Building, Johns Hopkins Hospital, 600 North Wolfe Street, Baltimore, MD 21287-9019, USA. FAX 410-614-9651.

*See Glossary.

Adverse events associated with routine testing vs no testing before cataract surgery†

Adverse events	Number of events/1000 patients		Relative risk (95% CI)
	Routine testing	No testing	
Overall	31.3	31.3	1.0 (0.9 to 1.2)
Intraoperative	19.7	19.2	0.97 (0.8 to 1.2)
Postoperative at 1 wk	12.1	12.6	1.04 (0.8 to 1.3)

†All comparisons are not significant.

COMMENTARY

This well-designed study by Schein and colleagues suggests that routine laboratory evaluation is not warranted for a low-risk procedure, such as cataract surgery. The study population was selected because patients presenting for this elective procedure usually do not have serious medical comorbid conditions. This fact is borne out by the high proportion (99%) of patients who had an American Society of Anesthesiologists (ASA) classification of \leq III. These are indeed the patients for whom we would like to confirm that we are not missing important outcomes by omitting these tests.

A more complex issue is the link between preoperative evaluation and outcomes. In the no-routine-testing group in this study, patients having no tests had a lower rate of events than those having some tests (29.1/1000 operations vs 52.6/1000 operations). One wonders what prompted health care providers to order the tests and whether acting on the results made any difference to patient outcomes. Overall, although higher ASA class and poorer health status predicted more adverse events, this stratification did not reveal differences in events between the routine-testing and no-testing groups.

Minor questions remain about the level of training of the screening physicians (i.e., are specialists better able to predict events?) and whether the short follow-up of 1 week excluded relevant events.

This study supports results from previous studies (1–3) that have shown that routine preoperative laboratory tests add little to the prevention of surgical complications. Assessing the value of laboratory tests directed by an appropriate history and physical examination for patients having surgical procedures remains a research priority.

*Neil Gibson, MSc, MD
University of Alberta
Edmonton, Alberta, Canada*

References

1. Velanovich V. Preoperative laboratory screening based on age, gender, and concomitant medical diseases. *Surgery.* 1994;115:56-61.
2. Wattsman TA, Davies RS. The utility of preoperative laboratory testing in general surgery patients for outpatient procedures. *Am Surg.* 1997;63:81-90.
3. Velanovich V. The value of routine preoperative laboratory testing in predicting postoperative complications: a multivariate analysis. *Surgery.* 1991;109:236-43.