Anesthesiology
V 75, No 3A, Sep 1991

A1053

TITLE: MORTALITY AND MORBIDITY OF REGIONAL VS. GENERAL ANESTHESIA: A META ANALYSIS

AUTHORS: RM. Sorensen, M.D., N.L. Pace, M.D.
AFFILIATION: Anes. Dept., University of Utah, Salt Lake City, Utah 84132

Numerous studies have compared regional and general techniques of anesthesia and show inconsistent results regarding any patient benefit between the two. These studies have all been limited by a variety of factors and these limitations have prevented a difinitive answer to the question. Review articles have been restricted to narrative summaries that also do not resolve the issue. Meta-analysis consists of statistical methods for systematically combining evidence from existing reports. We used meta-analysis to compare outcomes from regional vs. general anesthesia.

A medline literature search of all english language reports making a comparison between spinal or epidural and general anesthesia since 1966 was conducted. The bibliographies of each of these reports was searched for other studies, and these studies were obtained. The bibliographies of these new studies were likewise reviewed. The reference lists of relevant chapters in current anesthesia textbooks were searched. No abstracts or reports of meeting presentations were included and no attempt was made to obtain unpublished studies. This resulted in identification of fifty-nine studies.

Each of these studies was classified by surgery type, cohort or case control, experimental design, deliberate vs. observatonal data, parallel vs. external controls and random vs. non-random allocation of subjects into the study groups. Only randomized controlled clinical trials (RCT) were included in the analysis. Deaths and morbid events of the cardiovascular, pulmonary, neuro/psychological and gastrointestinal systems were tabulated for analysis. A noniterative random effects variance components approach was used for the statistical analysis. For each study, the specification of the observed treatment effect was summarized by the risk difference which is the absolute difference in frequency of outcome between control and treatment groups.

This meta-analysis indicates that there is little difference in outcome betwen regional (epidural or spinal) and general anesthesia (TABLE). The mortality rate from general anesthesia is about 3% greater than that from regional anesthesia; however, the lower bound of the confidence interval for the treatment effect is only marginally different from zero. The rate of deep venous thrombosis is 23% greater for general anesthesia. All other events show no significant difference between general and regional anesthesia.

Large multicenter RCT's are the definitive method for resolving questions of treatment efficacy. Meta-analysis may provide provisional answers from the existing literature until conclusive trials are performed. This meta-analysis shows little evidence for the superiority of regional (spinal or epidural) anesthesia over general anesthesia with exception of a much lower rate of DVT.

TABLE: META-ANALYSIS RESULTS

EVENT	TOTAL STUDIES	TOTAL N	MEAN RISK DIF	CONFIDENCE INTERVAL
Death	15	2248	0.02	0.000 to 0.048
DVT	8	504	0.23	0.077 to 0.388
CV	4	330	-0.001	-0.004 to 0.040
Pulm	9	1059	0.024	-0.007 to 0.054
PE	6	337	-0.003	-0.007 to 0.046
Neuro	7	345	0.059	-0.004 to 0.122
N/V	7	951	0.063	-0.008 to 0.134

A1054

Title: DO ASYMPTOMATIC INDIVIDUALS BENEFIT FROM PREOPERATIVE LABORATORY SCREENING?

Authors: JL Apfelbaum, MD, MF Roizen, MD, WJ Murray, MD, AW Grogono, MD, G Gronert, MD, P Duke, MD, R Thisted, PhD, G Rupani, MD, P Texidor, PhD, J Schmittner, AB, D Coalson, MD, JL Lichtor, MD, R Finn, MD, A Uitvlugt, MD, N Malhotra, MD, E Disbrow, AB

Affiliation: Dept of Anesthesia and Critical Care, Univ of Chicago, Chicago, IL 60637;
Depts of Anesthesia at Univ of Calif Davis; Tulane Univ; Duke Univ; Univ of Manitoba; and Washington Univ, St Louis

Previous studies suggest that the number of preoperative laboratory tests can be reduced without adversely affecting patient care.[1] Furthermore, unnecessary testing may be hazardous to patients because it can lead to pursuit and treatment of borderline positive or false-positive results. The benefits of decreasing unproductive and possibly harmful testing are considerable. Among these are the avoidance of iatrogenic disease, postponements necessitated by further testing, anxiety provoked by extra tests and delays, and exponentially increased costs. We undertook this study to determine how often asymptomatic patients benefit from preoperative laboratory screening.

With the approval of the review board of each institution and with patient consent, patients completed an automated health history questionnaire, HealthQuiz. This device provided a printout of suggestions for preoperative laboratory tests based on an algorithm utilizing the patient's symptoms. Surgeons and/or anesthesiologists also ordered tests for each patient. Abnormal and significantly abnormal test results were prospectively determined and noted. Significantly abnormal results are those values outside of reported limits that might warrant treatment of a specific abnormality.[1] On the day of surgery, the patients' anesthesiologists (different from the physician who ordered the tests and blinded to the method of test selection) were queried postoperatively to determine whether abnormal test results changed perioperative management and if so, whether such a change resulted in harm or benefit to the patient.

Of the 10,419 tests results obtained for the symptomatic patients, 1,800 (17.3%) were abnormal, 606 (5.8%) were significantly abnormal, and 124 (1.2%) affected patient care. Of the 10,899 test results obtained for asymptomatic patients, 919 (8.4%) were abnormal, 121 (1.1%) were significantly abnormal, and 13 (0.1%) affected patient care. Five asymptomatic patients were harmed (0.5%), and only one asymptomatic patient (0.009%) benefited from a change in care. Symptomatic patients had a significantly higher rate of test results that were abnormal, significantly abnormal, affected care or caused benefit, and a lower rate of test results that caused harm than did asymptomatic patients (all $P \leq 0.001$, except harm and benefit, $P \leq 0.05$).

This study suggests that preoperative medical assessments including history and physical examination are much more effective and safer than indiscriminate preoperative laboratory testing as a means of screening for disease in asymptomatic individuals. Approximately 1 in every 2000 asymptomatic patients will be harmed—compared with 1 in 10,000 who will benefit—by the pursuit of abnormalities on their preoperative test results.

1. JAMA 253: 3576-3581, 1985