PATIENT SAFETY I

A871

TITLE: PREOPERATIVE TRANSFUSION STUDY IN SICKLE CELL ANEMIA (SCA): PRELIMINARY REPORT

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INTRODUCTION: As a consequence of high perioperative morbidity in SCA, preoperative transfusion (tx) with normal red blood cells is frequently given to suppress sickle erythrocyte production, dilute circulating sickle erythrocytes and improve blood viscosity. There is no consensus on the best tx regimen to obtain such effects, nor has there been a controlled, prospective study to determine what method of preoperative tx decreases perioperative complications (1, 2). To answer these questions and to examine the effects of perioperative care including anesthesia on outcome, a collaborative study involving 39 institutions has been initiated. Herein we describe the study, and we report its progress and preliminary findings.

METHODS: The study was approved by the human studies committee of all institutions. Perioperative care guidelines (tx protocols, fluids, laboratory measurements, etc.) were established and patients are randomized to one of two tx arms: Arm A) aggressive tx to lower Hgb S < 30% and correct anemia to 10 gm/dl; or Arm B) simple tx to correct anemia to 10 gm/dl only. Patients who do not meet entry criteria or are felt by the participating institution not to be candidates for tx are prospectively studied on Arm C) no preoperative tx; or Arm D) nonrandomized tx. Type of anesthesia was not prescribed. At the conclusion of the study, data will be analyzed to compare perioperative morbidity and mortality between the various treatment arms and to develop predictors of outcome.

RESULTS: As of March '91, 565 pts (359 children/206 adults) from 35 institutions have been enrolled. Types of surgery include: 157 cholecystectomies, 113 ENT procedures, 69 orthopedic procedures, 49 vascular access ports, 42 splenectomies, 35 Ob-gyn procedures, 35 GU procedures, and 65 miscellaneous procedures. The mean preoperative Hgb and % Hgb S in the 4 groups are: A) 11.2 & 33%; B) 10.7 & 57%; C) 8.3 & 90%; D) 10.3 & 31%. Analysis of the first 319 is complete, including 169 patients in the randomized arms A and B, which are matched for ASA score, surgery risk category, and type of surgery. Preliminary results show that 23% of patients had preoperative oxygen saturation < 95%, 18% had abnormal preoperative chest x-rays. Preoperative fluid guidelines were followed in 72%; complete intraoperative monitoring was used in 83%; general anesthesia was used in 93%; and intraoperative complications occurred in 10% (hypothermia, hypoxia, hypertension, hypotension, airway obstruction, acidosis). Significant perioperative complications were: acute chest syndrome (12%); pain crisis (12%); fever/infection (10%); new red blood cell antibody formation (9%); tx reactions (5%); neurologic events (2%); death (2%); renal failure (1%).

DISCUSSION: The preliminary results reveal a profile of perioperative care and complications for SCA patients. The cooperative participation of the institutions in this study makes it likely that we will determine which tx method is optimal and what perioperative factors are predictive of outcome for SCA patients. In addition, the results should provide a data base for a randomized nontransfusion study in the future.

REFERENCES:

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2. Esseltine DW, et al. Can J Anaesth 35: 385-403, 1988.

A872

TITLE: ASA PHYSICAL STATUS AND AGE PREDICT MORBIDITY FOLLOWING THREE SURGICAL PROCEDURES.

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Introduction. Detailed analysis of comorbidity (coexistent disease), an important risk factor to predict surgical outcome, is expensive, time consuming and complex. We evaluated whether age and/or the American Society of Anesthesiologists' physical status (ASA-PS) score, a surrogate for comorbidity and the burden of illness, could predict non-fatal outcomes, specifically length of hospital stay (LOS), postoperative complications (COMP) and postdischarge physician visits (MDVISITS) following total hip replacement (THR), transurethral prostate resection (TURP) and cholecystectomy (CHO).

Methods. A random sample of 1099 patients discharged with the three surgical study conditions from six teaching hospitals in California and Massachusetts were studied. Data were obtained from detailed chart review and self-administered questionnaires, and analyzed using ANOVA (LOS data); Chi-square, and Cochran-Mantel-Haenzel tests described significant effects for postoperative COMP and number of MDVISITS.

Results. (Table) Results differed by procedure. THR: Both age and ASA-PS were positively correlated with increasing LOS, COMP rate and MDVISITS, though age was the more important predictor. TURP: LOS increased with age, but even more so with ASA-PS. COMP and MDVISITS following TURP increased significantly with ASA-PS, but not with age. CHO: LOS increased with both age and ASA-PS, while COMP and MDVISITS following CHO increased significantly only with ASA-PS.

Conclusions: In general, increasing ASA-PS and/or age correlated with more complications and resource use in patients treated in different hospitals and geographic settings. Although the data set was not designed to examine anesthetic morbidity, these findings are consistent with other recent studies that used ASA-PS to predict anesthesia-related morbidity and mortality.[1-3] When the Resource-Based Relative Value Scale is implemented, physician reimbursement will be averaged by surgical procedure which may undercompensate teaching hospitals and their practicing physicians (who see sicker and older patients). Age and ASA-PS can easily be used to stratify patients for more equitable reimbursement.

Table*

	ASA-PS I &age <65*	ASA-PS III/IV &age ≥75*	p
THR (n=354)			
LOS (days)	11	17	<0.0001
COMP (%)	16	56	<0.001
MDVISITS (#)	2	6	0.004
TURP (n=369)			
LOS (days)	4	8	<0.001
COMP (%)	14	23	0.043
MDVISITS (#)	1	5	0.005
CHO (n=376)	[age <32]	[age >62]	
LOS (days)	5	10	<0.001
COMP (%)	5	19	<0.001
MDVISITS (#)	2	4	0.051

*Presentation of all data between these two extremes was precluded by lack of space.

References:

1. J Clin Epidemiol. 1989; 42:1193-1206
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