POSTER SESSION XIII

A109

TITLE: **RAPID AVAILABILITY OF BLOOD FOR MASSIVE TRANSFUSION IN A TRAUMA CENTER - A NEW APPROACH USING BLOOD BLOCS**

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INTRODUCTION: The American Association of Blood Banks (AABB) Standards mandate individual transfusion records and tags for each blood product except when the requirement for transfusion is urgent. Using standard blood bank procedures, the time required before 10-30 units of type specific blood are available for patients needing immediate and massive transfusion is 10-20 minutes. 90% of these patients are Code 3 trauma with an ASA score of 4E or 5E. The time taken to complete the paperwork is critical to the outcome of resuscitation. We have developed a system, using Blood Blocs and a single document, to make 10-30 units of Type Specific or Type Compatible RBCs ready for transfusion in 2-5 minutes.

METHODS: Special plastic boxes (Blocs) containing 8-10 units of RBCs are prepared and stored in Blood Bank refrigerators. A three copy "Emergency Multiple Blood Bloc Transfusion Record" (EMBBTR) is written for each Bloc documenting 1) unit numbers, 2) the Bloc ABO/Rh, and 3) dates of preparation and expiration of the Bloc. Segments containing blood samples for compatibility testing are placed in numbered tubes kept in special holes in the Blocs. After receiving an Emergency Blood Request the technologist issues the Bloc using the three copy EMBBTR by adding the patient's identification. One copy of the EMBBTR is retained by the Blood Bank. All RBCs issued in Blocs are the same ABO/Rh, and are type specific or type compatible. None of the units are individually tagged. Blocs containing 8 units of O Positive RBCs are stored in the Operating Room (OR) and 4 units of O Negative RBCs in the Delivery Area for immediate infusion. After transfusion the completed second copy of the EMBBTR is sent to the Blood Bank for record keeping. The original is placed on the patient's chart.

RESULTS:

OPERATING ROOM MULTIPLE BLOC USAGE

	Oct	Nov	Dec	Jan	Feb	Mar	TOTAL
Blocs Sent	8	7	20	21	22	31	109
Units sent	142	106	128	296	174	420	1266
Units given	92	35	68	161	117	260	733
Percent Transfused	65%	33%	53%	54%	67%	62%	58%

Use of Blocs during a six month period is shown above. 58% of the blood provided as Type Specific Blocs to the OR was transfused. Additionally, 262 O positive RBCs stored in the OR were transfused during these six months. 995 units of RBCs, 33% of all the RBCs infused to seriously injured trauma patients, were provided as Blocs. 82% of all Blocs were issued during the off hour shifts when Blood Bank staffing is reduced. No patients sustained adverse outcomes because of delays in obtaining adequate amounts of blood during this period. During a similar period prior to the use of Blocs, three patients were identified whose resuscitation failed because blood could not be obtained soon enough. There was only one transfusion complication which was a Delayed Hemolytic Transfusion Reaction. (DHTR) This DHTR could not have been prevented by routine serological testing. The additional technologist time made available by the use of Blocs permitted the Transfusion Service to accommodate a 30% increase in trauma without an increase in personnel.

CONCLUSIONS: The Blood Bloc system has proven to be a safe and effective means of rapidly providing large amounts of blood for emergency transfusion while complying with the record keeping requirements of the AABB.

REFERENCES:

1. AABB Standards, 13th Edition, 1989.
2. Roualt L, M.D., Appropriate Pretransfusion Testing, in Pretransfusion Testing for the '80s, AABB, 1980.
3. Oberman HA, The Risk of Abbreviating the Major Crossmatch in Urgent or Massive Transfusion, Transfusion 18:137, 1978.

A110

Title: PROGNOSTIC IMPORTANCE OF PREOPERATIVE HYPERTENSION

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Introduction: Whether elective surgery should be cancelled in the patient with preoperative hypertension remains unanswered. Previous studies have yielded controversial results and have been limited by the rigor and sensitivity of their outcome measurements. We recently demonstrated that the most common precursor of such outcome events is perioperative myocardial ischemia. Whether preoperative hypertension contributes to perioperative ischemia and subsequent adverse outcome has not been investigated. This study addresses the prognostic importance of preoperative hypertension in high-risk patients undergoing noncardiac surgery.

Methods: We studied 459 men, with or at risk for coronary artery disease, undergoing elective noncardiac surgery and general anesthesia. Baseline systolic BP was obtained by averaging values measured over a 5-min period prior to induction. Myocardial ischemia was assessed for 4 days perioperatively, analyzed independently by 2 blinded investigators, and defined as reversible ST-segment changes lasting ≥1 min, either ≥1 mm of ST depression (J + 60 msec) or ≥ 2mm of ST elevation (J point). Clinical decisions, including anesthetic choice, were not controlled by study protocol. Cardiac medications were continued until the morning of surgery. Adverse outcomes included cardiac death, myocardial infarction, unstable angina, congestive heart failure, and ventricular tachycardia. Chi–square analysis was used to compare incidences of ischemia and outcomes between groups, and Student t-test to compare characteristics of the ischemic episodes.

Results: Ward BP prior to surgery was well controlled with a mean (±SD) of 131/76 (± 15/8); only 1/459 had a systolic BP of ≥ 180 mm Hg. However, prior to induction, hypertension was common: mean BP was 147/82 (± 23/32), and 54/459 (12%) patients were ≥ 180 mm Hg. The severity (change in ST magnitude, Δ ST) of intra- (Fig.1) and post-operative (not shown) ischemic episodes progressively worsened as preinduction BP (absolute or relative [% increase from control]) increased. Similarly, all other severity characteristics of perioperative ischemic episodes (magnitude, duration, and ischemic burden) worsened as preinduction BP increased. The incidence of intra- and postoperative ischemia was highest when preinduction BP was ≥180 mm Hg, or ≥35% of control. There was a trend for more adverse outcomes to occur when the BP was ≥180 mm Hg (22%) vs.<180 (16%); ≥35% (23%) vs.<35% (17%).

Discussion: Our study suggests: 1. A significant association exists between preinduction blood pressure and the incidence and severity of perioperative myocardial ischemia. 2. An association exists (but is not statistically significant), between preinduction blood pressure and the incidence of cardiac outcome (warranting further study). We conclude that: Proceeding with elective surgery, in patients with hypertension prior to induction, is not without risk of increased perioperative cardiac morbidity.

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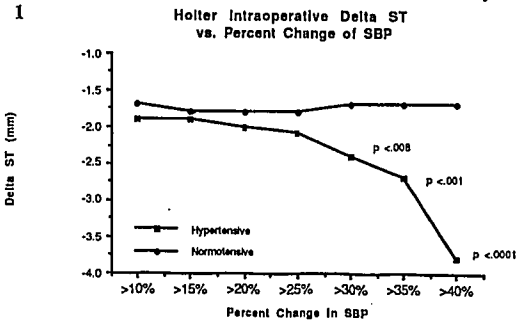

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