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Utility of Routine Type and Cross for Anterior Discectomy and Fusion: A Retrospective Review

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Background

- Preoperative type and screen and type and cross are routinely obtained in patients undergoing elective cervical spine surgeries.
- This is despite low perioperative transfusion rates, particularly in patients undergoing anterior discectomy and fusion (ACDF).

Purpose

- The objective of this study is to assess the utility of ordering routine pretransfusion testing (blood typing, screening, and crossmatching) for patients undergoing elective ACDF.

Methods

- We retrospectively reviewed 1,162 patients undergoing elective ACDF for degenerative spine disease by nine surgeons at a single institution.
- We collected and analyzed demographic information, baseline clinical data, and preoperative and postoperative laboratory values to assess the rate of transfusion and risk of blood loss in patients undergoing ACDF.

Results

- The overall transfusion rate was less than 1% and there were no intraoperative or postoperative complications necessitating emergent blood product transfusion.
 - One patient received 2 units of platelets preoperatively for severe thrombocytopenia
- 1,318 units of blood were crossmatched, with no pRBCs transfused and only 2 units of platelets transfused, achieving a C/T ratio of 659:1.
- At our institution, the estimated cost of crossmatching 1,318 units of blood is \$1,126,560.50. Therefore, our C/T ratio is indicative of \$563,280.25 being spent on underutilized resources.

Table 1: Summary Statistics of Entire Cohort

Characteristic	N = 1,162 ¹
Age (Years)	61 (52, 69)
Female	645 (56%)
Length of Stay (Days)	2.18 (18.01)
Type and Screen	961 (83%)
Type and Cross	647 (56%)
Units Crossed	1.14 (1.07)
Pre-Operative Hematocrit (%)	41.1 (38.2, 43.9)
Pre-Operative Hemoglobin (g/dL)	13.70 (12.60, 14.70)
Pre-Operative Platelet Count (/uL)	235 (199, 280)
Post-Operative Hematocrit (%)	37.9 (35.0, 40.4)
Post-Operative Hemoglobin (g/dL)	12.40 (11.40, 13.40)
Post-Operative Platelet Count (/uL)	223 (186, 266)
Transfused	1 (0.1%)

¹Median (IQR); n (%); Mean (SD)

Results

Figure 1. Pre- and Post-operative Hemoglobin

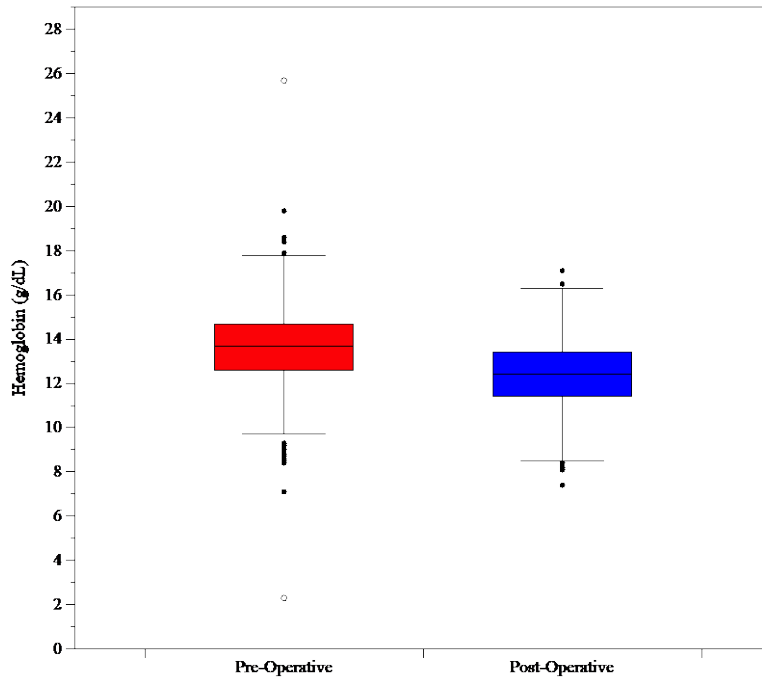
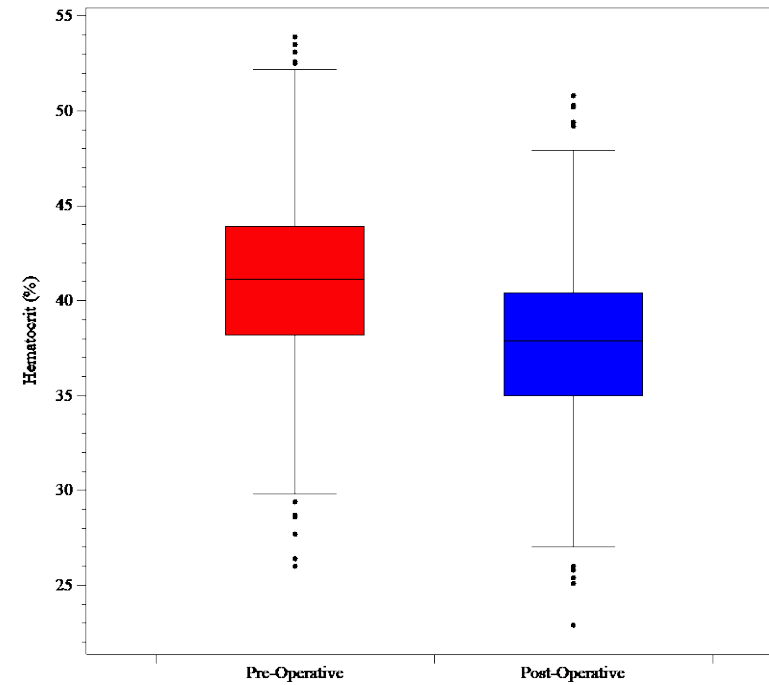


Figure 2. Pre- and Post-operative Hematocrit



Conclusion

- Our results support our hypothesis that type and screen and crossmatches in patients undergoing elective ACDF is unnecessary and results in inefficient usage of blood products.
- Routine pretransfusion testing in elective ACDF can be eliminated without negatively impacting patient care.
- Eliminating routine type and cross for elective ACDF has the potential save hospitals hundreds of thousands of dollars annually.

THANK YOU