

Title: Is Routine Blood Typing and Screening Necessary for Degenerative Cervical Spine Surgery Patients in Specialty Surgical Hospitals?

Background: Blood loss warranting transfusion is a relatively rare complication for degenerative cervical spine surgery. Despite this rarity, pre-transfusion testing (blood typing, screening, and cross-matching) has become routine. Despite a large amount of blood being donated free, the processing of blood after donation make the blood so expensive. Moreover, the blood reserves are no infinite.

Research question: We sought to determine if such routine testing is necessary for patients who undergo degenerative cervical spine surgery patients in specialty surgical hospitals by (1) measuring the current rate of intraoperative transfusions in degenerative cervical spine surgery and (2) identifying risk factors for transfusions.

Design: A retrospective review of patients who underwent cervical spine surgery from January of 2012 to December of 2017 at 2 Specialty Surgical Hospitals was performed.

Methods: Demographic and baseline clinical and laboratory data were collected and analyzed to identify predictors of transfusion. Bivariate and multivariate logistic regression analysis was performed to identify perioperative transfusion risk factors

Results: Overall transfusion rate was 1.9% (7/372), with no emergent transfusions. Decreases between preoperative and postoperative hemoglobin and haematocrit were 1.4 (SD 1.1) g/dL and 7.2 (SD 4.1) %, respectively. Multivariate logistic regression identified preoperative Hgb lower than 12 gr/dl (OR 27.62; 95% CI 4.31 - 176.96; $p < 0.001$) as significant independent transfusion risk factor. The ROC curve for the model showed a very good discriminatory power with an are under the curve of 0.91.

Discussion: Due to low transfusion rate and lack of emergency transfusions, we do not recommend routinely pre-transfusion testing for all degenerative cervical spine surgery patients. We recommend that only patients with preoperative Hgb lower than 12 gr/dl would routinely need pre-transfusion testing.