Q 12. IT ALL COMES OUT IN THE WASH: AUTOTRANSFUSION IS SAFE DESPITE ENTERIC CONTAMINATION

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Background: Autotransfusion (AT) is a frequently utilized method in which shed blood is collected by a specialized device and returned to the patient during an operation. This has the benefit of reducing the number of allogeneic blood transfusions a patient may require during the procedure. Despite little evidence, utilization of AT in trauma surgery is limited due to concerns that enteric contamination (EC) from hollow viscus injuries or an otherwise non-sterile field may increase the risk of infection. However, allogeneic transfusions carry risks as well, including transmission of blood borne disease, immune reactions, immune suppression and transfusion related acute lung injury (TRALI). The purpose of this study is to determine if AT increases infection rates in patients requiring trauma laparotomy with EC.

Methods: A retrospective review of all trauma patients requiring laparotomy from October 2011 to January 2020 was performed. Patients without EC, who did not receive blood or died within the first 24 hours of arrival were excluded. Demographics, labs, blood use, use of AT, and infectious complications were collected. AT vs non-AT patients were also case matched by estimated blood loss (EBL) and injury severity score (ISS). Infection rates for the two groups were compared. Regression analysis was used to identify independent risk factors for infection.

Results: 235 patients met inclusion criteria; 60 (26%) received blood from AT. Abbreviated injury score (AIS) abdomen, lactic acid (6.2 vs 4.0 mmol/L, $p < 0.001$), and EBL (5.9L vs 1.3L, $p < 0.001$) were significantly higher in the AT group and initial systolic blood pressure was significantly lower (86 vs 103mmHg, $p < 0.001$). The AT group received a mean 1.6L of returned blood. Mortality rate was higher in the AT group (15% vs 6%, $p = 0.03$), but bloodstream infections (BSI) (12% vs 5%, $p = 0.08$) and overall complications (60% vs 46%, $p = 0.067$) were not significantly increased. Case matching by EBL and ISS resulted in 49 AT with 49 non-AT matches. The AT group received significantly more blood (7.0 vs 4.7L, $p = 0.002$), but there was no difference in positive blood cultures (8% vs 4%, $p = 0.40$), overall complications (59% vs 61%, $p = 0.84$), or mortality (17% vs 10%, $p = 0.35$). On regression analysis, EBL was strongly associated with infectious complications while AT was not.

Conclusion: The use of AT was not associated with an increased rate of infectious complications in trauma laparotomies with EC. While mortality was higher in the non-

case matched AT group, this is likely due to higher blood loss and more severe shock (as evidenced by higher initial lactic acid and lower initial SBP). When ISS and EBL were controlled for by case-matching, BSIs, complications and mortality were not significantly different. Regression analysis showed that EBL was associated with increased risk for BSIs and other complications, while AT was not. In patients requiring laparotomy with EC, AT is not associated with increased infection rates.