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Block 11 CAT

Citation: Powell, EK et al. "Shorter times to packed red blood cell transfusion are associated with decreased risk of death in traumatically injured patients." *J Trauma Acute Care Surg.* 2016 Sep;81(3):458-62.

Clinical Question: In trauma patients, is early blood transfusion associated with lower mortality than later transfusion initiation?

Introduction: The leading cause of death in trauma is hemorrhage. While there are suggestions to allow for permissive hypotension in certain cases, evidence to support early pRBC initiation had been limited.

Methods: This was a single-center retrospective cohort study. Although the study focused on trauma patients who arrived via helicopter transport, the concept of early blood transfusion was maintained throughout. They included 94 patients brought in by helicopter to a level one trauma center who received at least one unit of packed red blood cells. These severe trauma patients, with a mean ISS of 29. Most of the patients got their first unit within an hour of the estimated time of injury. The investigators used logistic regression to determine odds of death.

Results: At 30 days, 29 of 82 patients (35%) who received a pRBC transfusion within one hour of ED arrival died, compared to 2 of 12 patients (16%) who received delayed transfusion (difference, 19%; 95% CI, -5% to 42%). When they considered all the patients combined, an increase in time to administration of pRBC of 10 minutes was not associated with decreased odds of death. However, looking solely at the 82 of 94 patients who received pRBCs within one hour, the investigators used their logistic regression model to show there was a higher probability of death for each 10 minute delay in administration of pRBCs with an odds ratio of 1.27, even when they adjusted for the severity of injury.

Discussion: The timing of blood administration is important, more so than where it is administered. More consideration should be given to administration of pRBCs in the pre-hospital setting. Although we want to minimize transfusion-associated coagulopathy with a 1:1:1 ratio, we shouldn't delay giving pRBCs just to maintain ratios.