1-2020

Blood Transfusion Requirements for Patients on Extracorporeal Membrane Oxygenation

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SI/CTR Abstract

Word count: 250 words

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Introduction: Extracorporeal membrane oxygenation (ECMO) is a rescue device used for cardiac and pulmonary dysfunction. Patients on ECMO often require blood transfusions from bleeding complications. Goals of the study are to determine: 1) transfusion requirements while on ECMO, 2) incidence of bleeding complications, 3) transfusion requirements for bleeding complications.

Methods: Packed Red Blood Cell (PRBC) transfusions and bleeding complications were identified by retrospective chart review of patients on ECMO from 2010 to 2018 at our institution. Patients were categorized into those who did not bleed (group A) and those who bled (group B). Site, incidence, and transfusion requirement for each bleeding event were determined.

Results: Among a total of 217 patients, we identified 62 patients (29%) without bleeding complications (group A) and 155 patients (71%) with bleeding complications (group B). PRBC transfusion requirement was higher in group B (1.6 PRBC/day) than group A (0.5 PRBC/day) [p=<0.0001]. In group A, number of PRBC requirements was 0.6 PRBC/day for VA ECMO (n=42) and 0.2 PRBC/day for VV ECMO (n=20) [p=0.0015]. In group B, number of PRBC requirements was 1.8 PRBC/day for VA ECMO (n=106) and 1.1

PRBC/day for VV ECMO (n=49) [p=0.0006]. In group B, incidence and number of PRBC given per major bleeding complication during ECMO were: mediastinal/thoracic bleed (7.3 PRBC, n=84), GI bleed (7.1 PRBC, n=59), cannulation site bleed (5.2 PRBC, n=88), and ENT bleed (4.1 PRBC, n=103).

Discussion: Transfusion requirements increased once patients developed bleeding complications. Patients on VA ECMO required more PRBC/day compared to those on VV ECMO.