EXPLORING THE RELATIONSHIP BETWEEN HEMOCONCENTRATION AND OUTCOME IN PATIENTS UNDERGOING NORWOOD OPERATION

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Advances in Congenital Heart Surgery
Abstract Category: 10. Congenital Heart Disease: Pediatric
Presentation Number: 1227-271

Authors: Stephanie L. Siehr, Hu Zhongkai, Jin Bo, Ling Xuefeng Bruce, Andrew Shin, Stanford University, Palo Alto, CA, USA

Background: The practice to raise hematocrit in cyanotic patients following palliative congenital heart surgery is controversial. The purpose of this study is to understand the relationship between hemoconcentration and clinical outcome for patients with Hypoplastic Left Heart Syndrome (HLHS) following the Norwood operation.

Methods: Infants with HLHS (or HLHS variants) admitted to our medical center from September 2009 to December 2012 undergoing Stage 1/ Norwood operation were identified. Charts were abstracted for baseline demographic and clinical information, including first recorded post-operative hematocrit and subsequent mean, median and nadir hematocrits during the first 72 hours post-operatively. The primary outcomes were in-hospital mortality and length of hospitalization.

Results: Thirty-two patients were included in the analysis. Hemoconcentration (Hct > 50%) was associated with longer CVICU stay [51.0 (±38.6) vs 21.4 (±16.2) days, p=0.002] and total hospital length of stay [65.0 (±46.5) vs 36.1 (±20.0) days, p=0.034]. Patients did not differ by operative factors (cardiopulmonary bypass time, cross clamp time), severity of illness (vasoactive infusion score, lactate, saturation, P/F ratio) or mortality. In a multivariate analysis, hemoconcentration remained independently associated with length of hospitalization after controlling for amount of red blood cell transfusion [OR 78 (95% CI 3.84-1590), p=0.036].

Conclusions: Hemoconcentration in the first 3 days following Norwood operation is independently associated with longer length of hospitalization even after controlling for blood cell transfusion practices. Our study suggests that hemoconcentration may be used as an early marker of disease severity complicating the concept of an ‘optimal hematocrit’ for post-operative cyanotic patients.