Introduction

Infants (post-conceptual age of 48 weeks) are at increased risk of bleeding after open-heart surgery requiring cardiopulmonary bypass (CPB). This patient population has decreased circulating clotting factors, as well as immature platelet function, and fibrin clot formation (Rinder C, 1994 Jan. (107)). In addition the CPB circuit dilutes these coagulation components to extreme levels (Petaja J, 1995;109). In addition to cyanotic congenital heart disease and associated polycythemia and/or hypofibrinogenemia, coagulation abnormalities have been associated with deep hypothermic circulatory arrest, long CPB times, hemodilutions, repeat sternotomies, and procedure-related factors (Szkeley A, 2009). The CPB circuit also consumes these products, and ushers an inflammatory response that further disrupts the coagulation profile (Ignjatovic V, 2012 Feb: 33(2)). Further additional risk factors are present in some subpopulations of infants from medical management.

Objectives

The objective is to identify associations between one or more preoperative, and intra-operative variables and post-operative bleeding in these patients, if the association(s) exists.

Materials and Methods

After IRB approval, a retrospective chart review was conducted of infants (up to post-menstrual age 48 weeks) who have had open-heart surgery with cardiopulmonary bypass (CPB) from January 2009 to March 2013. Data collected included: demographics, the type of cardiac anomaly and surgical intervention (STAT and RACH-1 scores), along with other intra-operative factors. Chest tube output was measured in each infant over the course of the first 24 hours after surgery. Demographic and clinical characteristics of study participants were summarized using descriptive statistics. The association between putative associated factors and chest tube output was evaluated using univariate and multivariate linear regression. Statistical analysis was performed using SAS 9.3 and all tests were two-sided with a p-value ≤ 0.05 considered statistically significant.

Results

AA neonates may have increase in postoperative chest tube output at 24 hours. Retrospective studies are limited as to what exactly can be concluded: multiple sources of data, reliability of the data, limited number of patients. Number of AA is low in this study multivariate regression analysis shows that only race is associated with post-operative chest tube output over the initial 24 hours with African Americans having an average of 60 mls (95% confidence interval=22.7-96.6, p=0.002) more than non-African Americans. Our management works.