Investigation of Risk Factors Involved in Patients Undergoing Cranial Vault Remodeling at Children’s Hospital Los Angeles
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DISCUSSION

• Identification of a patient’s surgery’s risk factors are important in several ways: to educate families about the perioperative risks when obtaining consent, to guide the medical professionals’ predictions of intraoperative needs, to provide data for medical billing and coding, and as an essential part of outcome assessment.

• Based on this data, consent should include the certainty of transfusion, 2 intravenous lines, and arterial or CV access for sampling.

• Postoperative ventilation & ICU admission is rarely needed.

• By strict criteria, these patients are ASA Physical Status (PS) 1, but clinicians gave 84% higher PS’s in recognition of the surgical complexity. In addition, these patients have factors known to increase risk: age <1 year, long operative times, & major blood loss (1), that are not explicitly part of PS criteria.

• We propose an acuity score, such as in Table 2, as a tool to identify care the elements of risk specific to pediatrics.

• Figure 1 is our Care Algorithm derived from this data, with an added arm for more complex patients.

OBJECTIVE

• Since cranial vault remodeling (CVR) replaced strip craniectomy as the treatment for craniosynostosis (CR), the surgical times are longer and blood loss is greater.

• The purpose of this study is to characterize the perioperative course of babies undergoing CVR and create guidelines for their care.

METHODS

• Retrospective analysis of 50 consecutive patients undergoing CVR for isolated CS at Children’s Hospital of Los Angeles during 2013-2015

• Exclusion criteria: Co-existing syndromes (i.e. Apert, Crouzon, Pfeiffer), complex craniofacial repairs e.g. frontal-orbital advancement.

REFERENCES


RESULTS

• Demographics and perioperative care for the 50 cases are in Table 1.

• All patients required transfusion, with mean blood volume (BV) lost of 33%, but 27% lost >40%.

• Tranexamic acid was used in 46% of cases, but %BV lost was the same in that group.

• Once opened, all patients received the entire unit of blood, to try to avoid additional exposure. This resulted in 44% having final hematocrits >40%.

• All infants were extubated in the OR; 88% went to the PACU, while 12% went to the ICU; only 2 of the 4 ICU admissions were medically necessary.

• CS by suture: 72% of cases were Sagittal CS. Lambdaid CS (8%) had the shortest surgical time (158 min) and lowest blood loss (18.95 ml). All variants of Coronal CS (12%) had the longest surgical times (272-299 min).

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• Table 1. Summary of data from retrospective analysis of cranial vault remodeling cases at CHLA from 2013-2015 in otherwise healthy ASA 1 and 2 patients.

• Table 2. Point System to Determine Perioperative Risk for Patients Undergoing CVR
