

11th International Conference on **Clinical Pediatrics**
&
2nd International Conference on **Pediatric Surgery**

June 29- July 01, 2017 London, UK

Perioperative blood loss in children undergoing cardiac surgery

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Cardiac surgery is a high bleeding risk surgery. Studying the predictive factors that are associated with bleeding in this specific population permits to detect the patients who are at high risk of bleeding and who will need early and adequate monitoring of their coagulation in order to be treated with appropriate blood products. First, we defined a simple probabilistic model including preoperative body weight, the presence of cyanotic heart disease, and the duration of wound closure to predict excessive post-operative blood loss in those children. It is also important to control the accuracy of the anticoagulation reversal practice. Current practice for heparin and protamine administration in children is mainly retrieved from adult coronary artery bypass graft surgery. Both residual heparin and protamine overdose are associated with increased postoperative bleeding. Different bedside assays, such as ACT and viscoelastic tests have been used to evaluate the presence of residual heparin after weaning from CPB in patients undergoing cardiac surgery. Second, we assessed the interchangeability of the ACT \pm heparinase and ROTEM clotting time tests (INTEM/HEPTM), for neutralization of heparin by protamine after separation of CPB in children undergoing cardiac surgery. We demonstrated that these tests are not interchangeable in the clinical setting. Clinicians should therefore know the advantages and disadvantages of used bedside tests and the results should be corroborated with the presence/absence of bleeding. Both studies are a prerequisite for the development of goal-oriented treatment algorithms for the management of the bleeding child undergoing cardiac surgery.

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Comparison of the Broselow tape, APLS, Luscombe and Owens, Best Guess, Nelson's, Argall formula and finger counting method in prediction of weight among Filipino children in a tertiary hospital: A prospective cross-sectional study

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The objective of this study was to compare the predictive accuracy of different methods of pediatric weight estimation among Filipino children. This is a prospective, cross-sectional study involving 776 Filipino children, aged 1 month to 14 years whose actual weights were compared to their estimated weights using the Broselow tape, Original APLS, Updated APLS, Luscombe and Owens, Best Guess, Nelson's, Argall formula and the finger counting method. In this study, it was found that the most accurate method of weight estimation for all age groups was the Updated APLS formula, with a mean difference of 0.88 kg (95% CI 0.34-1.42 kg). By age group, the Updated APLS formula was the most accurate for <1 year, the finger counting method for 1-5 years and 11-14 years, and the Best Guess formula for 6-10 years. For Filipinos, the Updated APLS formula is best used to estimate weight for <1 year, and the finger counting method for 1-14 years. All weight estimation methods showed decreasing accuracy as age increased.

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