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Impact of Preoperative Prealbumin on Outcomes After Cardiac Surgery

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Purpose: Preoperative malnutrition is increasingly prevalent in patients undergoing cardiac surgery. Although prealbumin is a sensitive indicator of nutritional status, its use in the preoperative assessment of patients undergoing cardiac surgery is not well defined. The purpose of this study was to determine the impact of preoperative nutritional status as measured by prealbumin on outcomes after cardiac surgery.

Methods: Data were prospectively gathered from February 2013 to May 2013 on 47 patients undergoing cardiac surgery. Prealbumin levels were obtained within 24 hours of surgery. Patients were divided into two groups based on a prealbumin cutoff value of 20 mg/dL. The Mann-Whitney test was used to evaluate the comparability of continuous factors. The chi-square test was used to evaluate the comparability of categorical factors.

Results: Of the 47 patients, 22 (46.8%) had a preoperative prealbumin ≤20 mg/dL. There was no difference in albumin levels between the two groups (3.88 g/dL ± 0.5 g/dL vs 3.89 g/dL ± 0.6 g/dL, p=0.950). Similarly, there was no difference in body mass index between patients with low vs high prealbumin levels (30 ± 6.5 vs 28.5 ± 6.1, p=.495). Seven out of 22 (32%) of patients with low preoperative prealbumin levels had postoperative infections compared to two out of 25 (8%) of patients with high prealbumin levels (p=0.038). Patients with low prealbumin levels also had longer hospital length of stay (11.0 ± 7.3 days vs 8.8 ± 8.5 days, p=0.026).

Conclusions: Patients undergoing cardiac surgery with preoperative prealbumin levels of ≤20 mg/dL are at an increased risk for postoperative infections and prolonged hospital stay. If feasible, nutritional optimization of such patients should be considered prior to cardiac surgery.
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Postcardiotomy Rescue Extracorporeal Cardiopulmonary Resuscitation in Neonates With Single Ventricle After Intractable Cardiac Arrest: Attrition After Hospital Discharge and Predictors of Outcome

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Purpose: Extracorporeal cardiopulmonary resuscitation (ECPR) in children with cardiac arrest refractory to conventional cardiopulmonary resuscitation (CPR) has been reported with encouraging results. We reviewed outcomes of neonates with functional single ventricle (FSV) surviving postcardiotomy ECPR after hospital discharge

Methods: Fifty-eight patients who required postcardiotomy extracorporeal membrane oxygenation (ECMO) since the introduction of our ECPR protocol (January 2007-December 2011) were identified. Forty-one were neonates. Survival analysis was conducted.

Results: Of 41 neonates receiving postcardiotomy ECMO 32 had FSV. Twenty-one had ECPR. Fourteen underwent Norwood operation (NO) for hypoplastic left heart syndrome (HLHS). Seven had FSV other than HLHS. Four of seven underwent modified NO/DKS with systemic-to-pulmonary shunt (SPS) and 2 SPS and 1 SPS with anomalous pulmonary venous connection repair. Mean age and weight were 6.8 days ± 2.1 days and 3.35 kg ± 1.6 kg, respectively. ECMO median duration was 7 days (interquartile range [IQR] 4-18). Survival to ECMO discontinuation was 72% (15 of 21 patients) and at hospital discharge 62% (13 of 21 patients). The most common causes of late death were cardiac failure and neurological complications. At last follow-up (median: 18 months; IQR: 3-36), 47% of patients were alive. Duration on ECMO and failure of lactate clearance within 24 hours from ECMO deployment determined late attrition after hospital discharge (p<0.05).

Conclusions: Rescue postcardiotomy ECMO support in neonates with FSV carries significant late attrition. ECMO duration and failure in lactate clearance after ECMO deployment are associated with unfavorable outcome. Proper patient selection, emphasis on CPR quality, refinement of management directives early during ECMO, and aggressive early identification of patients requiring heart transplantation might improve late survival.