**Peritoneal dialysis after pediatric cardiac surgery: benefits and risks**

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**Abstract**

**Objectives:** Neonates and infants having surgical repair for congenital heart disease are at risk of developing acute kidney injury (AKI). Our objectives were to determine surgeries most associated with AKI, to compare effect of peritoneal dialysis (PD) and conventional treatment, and to study the risks factors associated with PD mortality.

**Materials and Methods:** Records of Children who underwent cardiac surgery from November 2016 until December 2017 were reviewed. Clinical and biological effects of PD and conventional treatment were compared. In PD group, subgroups of survivors and non-survivors were compared to study risk factors for mortality associated with PD. We compared mortality between early and late PD (more than 24 hours after PD).

**Results:** 134 children were operated during the study period. 27 (20%) developed AKI and 9 of those (33%) received PD. Arterial switch was most associated with AKI (71.4%). PD had better effect in decreasing creatinine and blood urea nitrogen (BUN) levels after 48 hours treatment than conventional treatment (creatinine: 28.8 ± 14.5 vs 7.5 ± 12.1 micromol/L, p=0.003) (BUN: 3.08 ± 2.1 vs 0.91 ± 1.5 mmol/L, p=0.017). In PD group, survivors (n=5) had higher mean arterial pressure in the 6 hours prior to PD that non-survivors (n=4) (55.3 ± 9.6 vs 40.0 ± 3.6 mmHg, p=0.019). Survivors had also higher pH 24 hours after PD (7.37 ± 0.03 vs 7.31 ± 0.02, p=0.014), better creatinine variation (-3.6 ± 5.8 vs 29.0 ± 13.0 micromol/L, p=0.02), and better diuresis improvement (4.4 ± 3.2 vs 0.23 ± 1.1 ml/kg/h, p=0.039). There was no mortality difference between early and late PD. There were no major complications with PD.

**Conclusion:** PD is safe for AKI after heart surgery in children. It has better outcome on BUN and creatinine levels. Mortality with PD is higher in case of low cardiac output syndrome, persistence of acidosis and absence of creatinine and diuresis improvement.

**Keywords:** Acute Kidney Injury; Peritoneal Dialysis; Congenital Heart Disease; Children; Mortality