Background - Aim

Acute kidney injury (AKI) is an independent risk factor for morbidity and mortality in critically ill children. Renal replacement therapy (RRT) is a cornerstone of therapy to correct uremia and fluid overload. Provision of maintenance dialysis to neonatal and infants implicate many challenges: blood flow rate, UF settings and accuracy, catheter size and length, extracorporeal circuit volume, circuit functional survival and the anticoagulation strategy. CRRT is becoming the treatment of choice to support critical pediatric patients with AKI and fluid overload (FO). This therapy is usually performed with machines designed for adults thus necessarily with an over-dimensioned catheter. This is a case of a newborn with severe FO who received CRRT primarily to remove fluid excess.

Material and Methods

Patient 3.165 Kg was a 39 gestational week female, born with dystotic delivery and Agar score 2-5(1-5-10m). Patient was immediately intubated and transferred to the PICU with hemorrhagic shock and MOFS due to subgaleal hemorrhage. A total of 18 transfusions of blood product was done during the first 48h. Oligoanuric despite continuous diuretic infusion and the need of fluid intake to preserve the hemodynamic, result in a 63%FO.

Results

CVHV was performed, PRISM2=32, using a double lumen 4FR(2in) catheter placed in the femoral vein. A total of 401 hours of CRRT was done. Mean blood flow was 112ml/min and Net UF 20.21±5.6ml/h. Infusion was setting to maintain the Filtration Fraction<20.

Hyperbilirubinemia due to hematoma adsorption suggests the need of SPAD. We also perform, 4 plasma exchange (PE) and 2 exchange transfusion (ET) done successfully with our development of these new techniques on the CARPEDIEM machines. Figure 1

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Conclusions

Conclusions: New CRRT, Plasma Exchange, Exanguino Transfusion device is safe and effective to treat newborn with small and adequate catheter.

References

(**) The effect of vascular access location and size on circuit survival in pediatric continuous renal replacement therapy. A report from the PFCRRT registry. R. Hackbarth et Al. Int J Artif Organs. 2007 Dec