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Research Protocol

Treatment of Acute Renal Failure in Children by Peritoneal Dialysis

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Received: March 02, 2020; **Published:** March 18, 2020

Abstract

This work report our experience during ten years (2006 to 2016), in peritoneal dialysis applied to children with acute Kidney failure. We retrospectively studied 15 children cases with acute kidney failure treated with peritoneal dialysis average age was 3 years with a range from newborn to 15.5 years old, male in 86% and only 14% female. Our findings are: etiology is a hemolytic-uremic syndrome in 100% of cases. They received continuous ambulatory peritoneal dialysis (CAPD) with symptomatic treatment: transfusion of red blood cells in 53% of cases, antihypertensive treatment in 23% of the cases, platelet transfusion in 11% of cases, only one patient benefits from a specific treatment based on eculizumab. The placement of the catheter was surgical in all the cases. Indications for dialysis was anuria in 4 cases, volume overload in 8 cases, Uremia in 4 cases and Hyperkalemia in 3 cases. The children were dialysed for an average period of 10 days. Dialysis began with a volume of 10 ml/kg. One patient developed a bacterial peritonitis. Recovery occurred in 80% of the cases, 13% died and 6% developed. End-stage renal disease (ESRD).

Keywords: *End-Stage Renal Disease (ESRD); Continuous Ambulatory Peritoneal Dialysis (CAPD); Acute Renal Failure; Peritoneal Dialysis*

Introduction

Acute renal failure (AKI) is less common in children than in adults, but it can be fatal due to the risk of acute pulmonary edema and hyperkalaemia, requiring early treatment.

Peritoneal dialysis (PD) remains the technique of choice for infants and young children.

In 1963, the Necker hospital proposed for the first time in France to put on dialysis children with acute renal failure. Children who at the time died of terminal uremia, because if dialysis was already practiced for adults (it was still in its infancy). Today, things have changed and increasingly younger children, from the first days of life, can benefit from extra renal purification by peritoneal dialysis [1-9].

Methods

The objective of this work is to determine the prevalence of acute renal failure in children treated by peritoneal dialysis between 2006 and 2016 covering 15 cases.

The placement of the catheter was surgical in all the cases. Indications for dialysis was anuria in 4 cases, volume overload in 8 cases, Uremia in 4 cases and Hyperkalemia in 3 cases, the study parameters are: age - sex - duration of dialysis - etiology and evolution.

Results

The average age of these children was 3 years and ranged from newborn to 15.5 years. Children are male in 86% of the cases and only 14% female.

Etiology of renal failure was a hemolytic uremic syndrome in 100% of cases.

They received continuous ambulatory dialysis (CAPD). The children were dialysed for an average period of 10 days. Dialysis began with a volume of 10 ml/kg. Symptomatic treatment was: transfusion of blood cells in 53% of the cases, antihypertensive treatment in 23% of the cases, a transfusion of platelets in 11% of the cases, only one patient received treatment specific to eculizumab. According to a rate of exchange, every 2 to 4 hours, over the 24 hours, depending on the case.

One patient developed a bacterial peritonitis.

Healing occurred in 80% of cases, 13% died and 6% developed chronic renal failure during growth.

Conclusion

Peritoneal dialysis is the extra-renal purification method that should be proposed as a first-line treatment for acute renal failure in children.

Disclosures

The authors have no financial conflicts of interest to report.

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Volume 3 Issue 4 April 2020