

# Delayed CRRT in Children with multiple organ failure, consequences for late diagnosis of AKI



Karla S. Cano-Hernandez, MD<sup>1</sup>; Mario Morales-García, MD<sup>1</sup>; Diana Maldonado-Tapia, MD<sup>1</sup>; Monica Lopez-Mendoza, MD<sup>1</sup> Veronica X. Amaro Triana, MD<sup>1</sup>

<sup>1</sup>National Medical Center "20 de Noviembre", Mexico City

## Introduction

The diagnosis of Acute Kidney Injury (AKI) in the Pediatric Intensive Care Unit (PICU) in developed countries is often misdiagnosed; thus, managing it's hard; Continuous Renal Replacement Therapy (CRRT) allows this treatment to be performed for the hemodynamically unstable patient with good results, but it's not available all the time for many reasons, we analyzed the final status in children with Multiple Organ Failure (MOP) treated with delayed CRRT.

## Methods and Materials

Retrospective and observational study of critically ill pediatric patients with MOP undergoing CRRT at the National Medical Center "20 de Noviembre" from January 2015 to December 2021, performing an analysis of clinical and biochemical evolution.

## Results

We included 11 patients, 9 (3-17) years old, dry weight 42 (18-60) kg, and seven women (63%). The principal underlying diagnosis was hematopoietic malignancy (45.5%), and the main reason for admission was a septic shock (54.5%).

The renal angina index was 24 (12-48) points in the first 24 hours of access; all the patients had high doses of diuretics with poor response, 27% received peritoneal dialysis, the fluid overload was 22 (5-50)%, all the patients have MOP before start CRRT, with pediatric Sequential Organ Failure Assessment (pSOFA) more than 15 points in ten patients (90%), final pSOFA was more than 15 points in eight patients (72%) all they died. (Graphic 1).

The time to develop AKI to initiation of CRRT was 8 (4-31) days; all the patients have fluid overload, high values of nitrogen levels, creatinine levels, anuria, and sepsis, in 45% have hyperkalemia; the modality used was CVVHDF, in all patient's nitrogen, potassium and procalcitonin decreased significantly. (Table 1)

Graphic 1. Evolution of pSOFA in children with delayed CRRT

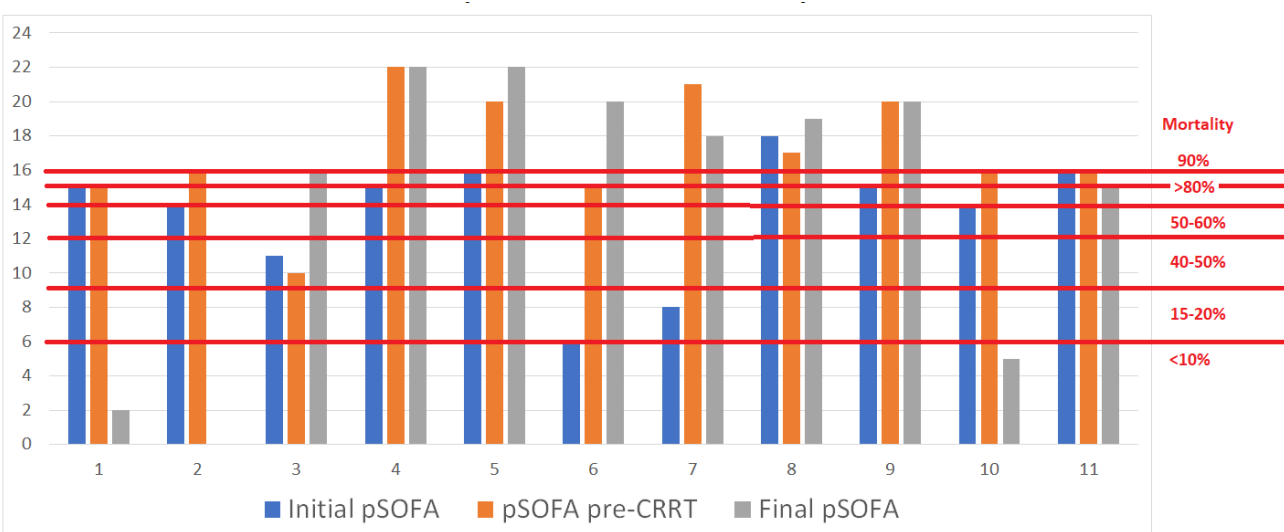


Table 1. Biochemical values in children with delayed CRRT before and after therapy.

Variable	Before CRRT Median (IQR)	After-CRRT values Median (IQR)	P value
Creatinine (mg/dl)	1.93 (0.82-3.58)	1.08 (0.33-1.86)	<b>0.01*</b>
BUN (mg/dl)	61 (39-100)	35 (19-79)	<b>0.008*</b>
Urea (mg/dl)	130 (83.5-214)	74 (0-169)	<b>0.008*</b>
Potassium (mmol/L)	4.2 (3.7-5.5)	4.1 (3.8-4.8)	<b>0.033*</b>
Procalcitonin (nmol/L)	68 (25-162)	60 (4.7-134)	0.42

IQR= Interquartile range; \* Statical significance

## Conclusions

Delayed CRRT was effective in all critical pediatric patients, achieving survival of 27% against the expected 1%. The early diagnosis of AKI is crucial, as avoiding high doses of diuretics and fluids restrictions for many hours because the renal function still worsened; The therapy should be started early while the critical condition of the patient does not reach irreversibility to try to avoid a fatal outcome.



THE 28TH INTERNATIONAL CONFERENCE ON  
ADVANCES IN CRITICAL CARE NEPHROLOGY

# AKI & CRRT 2023

MARCH 29 - APRIL 1 SAN DIEGO, CALIFORNIA