

# **Hyperchloremia as a risk factor for Acute Kidney Injury in Septic Shock patients**

## **Thesis**

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critical care medicine **By**

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# Abstract

## Background:

Acute kidney injury and Hyperchloremia are commonly present in critically ill septic patients. Our study goal was to evaluate the association of Hyperchloremia (after fluid resuscitation) and acute kidney injury in septic shock patients.

## Methods:

In this prospective study on 30 adult patients with septic shock, Serum chloride measurements were included. Serum chloride was measured on a daily basis for 48 hours. Primary outcome was development of acute kidney injury (AKI) and association of AKI and serum chloride parameters (initial chloride concentration,  $[Cl^-]$  max which is  $CL > 110$  .and Delta CL ( $\Delta[Cl^-] = [Cl^-]_{max} - \text{initial chloride concentration}$ ) were analyzed.

## Results:

A total of 30 patients were included in the study, 16 patients (53.3 %) had Hyperchloremia within the first 48 hours of resuscitation and 14 patients (46.7 %) did not have Hyperchloremia. The study tried to correlate the serum chloride level with AKI stages. All values were insignificantly correlated with AKI stages except for Delta CL with AKI stage (1) as (P value =0.009). A moderate increase in serum chloride was associated with AKI even in patients without Hyperchloremia. ROC curve pointed out that the delta CL is the most correlated value for AKI as the AUC is (0.684).

## Conclusions:

Hyperchloremia is common in severe sepsis and septic shock and independently associated with AKI. A moderate increase in serum chloride (Delta CL) is associated with AKI stage (1) even in patients without Hyperchloremia.

## Keywords:

Chloride, Hyperchloremia, Acute kidney injury, Septic shock