

## **Hydration Effect On Kidney Function & Serum Electrolyte in Children with Tumor Lysis Syndrome (TLS) And Risk of TLS**

### **ABSTRACT**

**Background** - Tumor lysis syndrome (TLS) is a life-threatening oncology emergency disorder, characterized by hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia. TLS may cause acute kidney injury (AKI), arrhythmias, seizures, and sudden death. Hydration is used to prevent TLS in medium-high risk patients and treatment in TLS patients according to the pediatric protocol in dr. Soetomo Teaching Hospital, which requires close monitoring to prevent the progression of hematological malignancy towards TLS.

**Objective** - The study aimed to analyze the hydration effect on potassium, calcium, and phosphate levels; creatinine serum, and BUN level after hydration usage in pediatric with TLS and risk of TLS.

**Methods** – This was an observational and prospective study conducted at dr Soetomo Teaching Hospital Surabaya for four months on 15 pediatric hemato-oncology patients who got TLS and in the risk of TLS. Patients with a history of serum electrolyte abnormalities and *chronic kidney disease* (CKD) were excluded. Data including laboratory parameters were white blood cell (WBC), serum creatinine; potassium, calcium, and phosphate levels maintaining in 11 days.

**Results and Conclusions-** Among 15 patients who met the inclusion criteria, 8 patients were found to have TLS. Achievement of the normal serum electrolytes level and kidney function parameters in TLS patients after hydration therapy were 67%, 75%, 0%, 50%, and 50% in potassium, phosphate, and calcium levels; Scr, and BUN, respectively. Whereas in patients with risk of TLS met 100% normality in all parameters. The difference in normal levels of achievement in TLS and the risk of TLS patients was due to disease progression. TLS patients have a higher mortality rate (75% died) than patients with the risk of TLS (100% alive). Early recognition and hydration prophylaxis are essential to decrease morbidity and mortality.

**KEYWORDS:** Hyperhydration, tumor lysis syndrome, TLS, hyperkalemia, hypocalcemia, hyperphosphatemia