

**Prevalence and factors associated with spontaneous laboratory tumor lysis syndrome in children with high grade tumors at Mulago Hospital.**

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## ABSTRACT

**Background:** High grade tumors like Burkitt 's lymphoma and Non-Hodgkin's Lymphoma are among the most common pediatric malignancies in Sub-Saharan Africa. These malignancies are characterized by high tumor burden and exquisitely chemo-sensitive. The rapid cell lysis leads to massive release of cellular breakdown products resulting into a constellation of hyperkalemia, hyperuricaemia, hyperphosphatemia and hypocalcaemia which constitute the Spontaneous Tumor Lysis Syndrome (TLS). Delayed recognition of this syndrome can cause a variety of biochemical abnormalities resulting in life threatening complications such as renal failure, arrhythmias, seizures and death. Identification of high risk patients and early recognition of the syndrome is crucial and lifesaving because early institution of appropriate prophylaxis and treatment is highly effective in preventing serious morbidity and mortality.

**Objective:** To determine the prevalence and factors associated with Spontaneous Laboratory Tumor Lysis Syndrome in children with high grade tumors at Mulago Hospital.

**Methods:** This was a cross sectional study conducted at Ward 16A, Mulago Hospital and Uganda Cancer Institute between October 2013 and April 2014. A hundred and eight (108) children with confirmed high grade tumors were consecutively enrolled into the study. Relevant history and physical examination findings were documented. Blood samples for full blood counts, serum electrolytes and renal function tests were taken and analyzed for prevalence and factors associated with Spontaneous Laboratory Tumor Lysis Syndrome (STLS).The data was analyzed using Statistical Product and Service Solution (SSPS). Continuous data was summarized by means, range and median. Categorical data was summarized by proportions and frequencies. Factors associated with Spontaneous Laboratory Tumor Lysis Syndrome were determined using Chi-square tests. Odds ratios with their 95% confidence intervals were used to determine the strength of the association.

**Results:** One hundred and eight (108) children were enrolled into the study. The male to female ratio was 1.8:1. The age range was 20 months to 18 years with a median age of 7.2 years (range 1.7 – 18). The prevalence of Spontaneous Laboratory Tumor Lysis Syndrome was 13 % (95 % CI: 0.098-0.162). Bulky diseases (OR= 3.33, CI: 1.03-10.75, p value= 0.037), Lactate Dehydrogenase (LDH) levels  $\geq 500$  iu/l (OR= 8.07, 95 % CI: 1.01-64.3, P value= 0.02) were significantly associated with Spontaneous Laboratory Tumor Lysis Syndrome.

**Conclusion:** The prevalence of Spontaneous Laboratory Tumor Lysis Syndrome among children with high grade tumors at Mulago Hospital was 13 %. Bulky disease and LDH were significantly associated with Spontaneous Laboratory Tumor Lysis Syndrome.

**Recommendation:** Based on the findings from this study, we recommend routine screening for Spontaneous Laboratory Tumor Lysis Syndrome in children with high grade tumors with bulky disease and elevated LDH levels.