# Serum Immunoglobulin Levels in Children with Acute Lymphoblastic Leukemia During Maintenance Chemotherapy and its Association with Severe Febrile Illness

## Original Article

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## ABSTRACT

**OBJECTIVES**

To determine the proportion of children with acute lymphoblastic leukemia (ALL) with hypoglobulinemia during maintenance chemotherapy and to determine its association with severe febrile illnesses.

**METHODS**

Children with ALL receiving maintenance chemotherapy were prospectively recruited and serum immunoglobulin levels (IgG, IgM, IgA) were measured by turbidimetric method. Children were followed up for severe febrile illnesses for 6 months or till the completion of treatment.

**RESULTS**

We enrolled 199 children with mean (SD) age 82.03 (39.34) months; 58, 52, 47, and 42 children had received 0–6, 7–12, 13–18 and 19–24 months of maintenance chemotherapy, respectively. Hypo-IgG, hypo-IgA, and hypo-IgM were seen in 56.8%, 80.4%, and 86.4% of children. 91 (45.7%) children developed 147 episodes of severe febrile illness. Older age (> 5 years) was associated with decreased risk [odds ratio 95% CI] of hypo-IgG [0.540 (0.297, 0.982), P = 0.044], hypo-IgA [0.030 (0.011, 0.088), P = 0.001], and hypo-IgM [0.323 (0.117, 0.894), P = 0.030] and female gender had decreased risk of hypo-IgG (0.539 (0.305, 0.953), P = 0.033). Older age decreased the risk [0.585 (0.328, 1.041), P = 0.014] and girls were at increased risk [(1.118, 3.488), P = 0.019] of severe febrile illness. Hypoglobulinemia did not increase the risk of severe febrile illness.

**CONCLUSION**

Hypoglobulinemia was not found to be an independent risk factor for severe febrile illnesses in children with ALL receiving maintenance chemotherapy.

**Keywords:** ALL · Febrile neutropenia · Hypoglobulinemia · Immunity · Immunocompromized

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