Background: Thymidine kinase (TK) is involved in nucleic acid synthesis and is therefore considered to be an important proliferation tumor marker. Our main goal was to determine significance of elevated TK levels in the context of prognosis, differential diagnosis, monitoring after treatment and relapse marker during follow up in children suffering from acute leukemia and lymphoma. Another marker beta(2)-microglobulin (2MG) was studied for the same purpose. Patients and Methods: TK and 2MG serum levels in 58 children with acute leukemia and 14 children with lymphoma were determined using radio-receptor analysis (TK) and ELISA assay (2MG). Control group included 109 patients with benign disease for leukemia group and 35 patients with benign lymphadenitis for lymphoma group. Results: Our results showed that especially TK serum levels at the time of diagnosis of acute leukemia were extremely elevated (median - 409 U/l) as well as 2MG (median - 1,96 mg/l). Both markers clearly discriminated acute leukemia from benign diseases ($p<0.0001$). In the term of prognosis, none of the markers reached significant p-value. During relapse of acute leukemia (7 cases), the marker levels increased considerably above the individual remission level and were statistically significant $p < 0.02535$ (TK) and $p < 0.04551$ (2MG). These results allowed to predict relapse three and more months before it burned. In lymphoma group, we observed that diagnostic level of 2MG could distinguish between lymphoma and benign lymphadenitis ($p < 0.0019$), all other data were not significant. Conclusion: We assume that tumor markers have different informative value in acute leukemia and lymphoma. In acute leukemia, TK serum level is very helpful for differential diagnosis and prediction of relapse in follow up. In lymphoma, 2MG represents a very good marker for discrimination between lymphoma and benign lymphadenitis.