Genetic Variants of the MBL2 Gene are Associated with Neutropenia in Children with Acute Leukemia

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INTRODUCTION: Infection during the induction phase of childhood acute leukemia (AL) is a major cause of morbidity and mortality. Several studies have indicated that genetically determined low serum levels of mannose-binding lectin (MBL), a component of innate immunity, are associated with increased risk for infections in patients receiving chemotherapy. We measured baseline MBL2 gene in 87 patients with childhood AL to determine their predictive value for the development of febrile neutropenia or specific infections. The aim of this study was to determine the frequency of the polymorphisms of exon 1 (alleles A/O) and promoter region -221 (alleles Y/X) and -550 (alleles H/L) of MBL2 and to verify its association among children with AL and infections. MATERIAL AND METHODS: The determination of the polymorphism of exon 1 and the promoter region of MBL2 was performed by SYBR GREEN® and Taqman® system, respectively. DISCUSSION AND RESULTS: Of the 87 patients, the mean age was 12 years old with a range of 6.47, of which 79.31% are ALL, 17.24% are AML and 3.45% have biphenotypic leukemia. Patients with AL, have a frequency of the haplotype related to high production of MBL of 31.0% (HYA) and 37.42% (LYA) and for low production of 11.7% (LXA), 2.33% (HYO) and 17.55% (LYO). There was no significant difference in the presence or absence of the framework of febrile neutropenia associated with different genotypes of the promoter region and structural. We can observe that all patients with genotype OO, patients were classified as High Risk by the Protocol GBTLI 99. The literature reports a relationship between febrile neutropenia in patients with genotype OO, but larger studies are needed so that you can perform an analysis of the association. CONCLUSION: This study brings preliminary data, which suggest no association between genotype MBL2 for produced MBL of these patients for febrile neutropenia in AL.

Key words: polymorphism, MBL2, acute leukemia
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