THE ROLE OF MANNOSE BINDING LECTIN IN INFECTIOUS COMPLICATIONS OF HEMATO-ONCOLOGIC DISEASES

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Introduction
The appropriate function of the complement system is essential for protection against infections in oncologic patients; partly because of the developing neutropenia due to the malignant disease and partly because of the chemotherapy induced immunosuppression. The key element in the activation of the complement system via the lectin pathway is the appropriate functioning of mannose-binding lectin (MBL) and mannose-binding lectin-associated serine protease 2 (MASP2) complex. One of the limiting factors of this activation may be the low serum concentration of MBL.
The aim of our study was to find association between polymorphisms resulting in low MBL level and activation of the MBL-MASP2 complex, and find connection between these abnormalities and the frequency and severity of febrile neutropenic episodes in children suffering from hemato-oncological diseases.
Methods
97 children with hemato-oncological diseases (76 ALL, 10 AML, 11 NHL) were enrolled and followed from the beginning of the therapy for 8 months and several characteristics of febrile neutropenic episodes were recorded. Genotypes of 4 MBL polymorphisms (-221C/G, R52C, G54D, G57E) were determined by real-time PCR. Activation of the MBL-MASP2 complex was evaluated by ELISA from samples obtained at the time of diagnosis and during an infection.
Results
The number of febrile neutropenic episodes was lower and the time until the first episode was longer in patients with normal MBL level coding genotypes, than in patients with low MBL level coding genotypes ($p<0.01$). Patients with wild type genotypes have higher chance for a longer period without febrile neutropenia according to the Kaplan-Meier survival analysis ($p=0.01$). A correlation between the MBL-MASP2 complex activation and the MBL genotype was found, moreover activation level decreased significantly during infections ($p=0.004$) in patients with low MBL level coding genotypes.
Conclusion
Our results suggest that infections after immunosuppression therapy in children suffering from hemato-oncological diseases are associated with the MBL genotype. Changes of MBL-MASP2 activation confirm the important role of the lectin pathway in infections. Our results may contribute to the estimation of risk for infections in the future, that may modify therapeutic options for individuals.