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The role of mannose-binding lectin (MBL) in patients with haematological malignancies, receiving high-dose chemotherapy and autologous haematopoietic stem cell transplantations (auto-HSCT)

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We conducted a prospective study of 312 patients (194 with multiple myeloma, 118 with lymphomas) receiving high-dose conditioning chemotherapy and autologous haematopoietic stem cell transplantation (auto-HSCT). Polymorphisms of MBL2 gene were investigated and serial measurements of serum concentration of mannose-binding lectin (MBL) were made. Serum samples were taken before conditioning chemotherapy, before HSCT and once weekly after (totally 4-5 samples); in minority of subjects also one and/or three months post transplantation. The results were compared with data from 267 healthy controls and analysed in relation to clinical data to explore possible associations with cancer and with chemotherapy-induced medical complications. We found a higher frequency of MBL deficiency-associated genotypes (LXA/O or O/O) among multiple myeloma patients compared with controls. It was however not associated with hospital infections or post-HSCT recovery of leukocytes, but seemed to be associated with the most severe infections during follow-up. The possible association of MBL2 gene 3'-untranslated region polymorphism with cancer (lymphoma) in Caucasians was noted. Chemotherapy induced marked increase in serum MBL concentration, prolonged for several weeks. Our findings suggest that, in the context of chemotherapy of myeloma and lymphoma, MBL has little influence on infection during the short period of chemotherapy-induced neutropenia, but could have a protective effect when able to act in combination with phagocytic cells after their recovery. This work was supported by National Science Centre, Poland, grant UMO-2013/11/B/NZ6/01739.

Biography

Maciej Cedzyński is an associate professor and head of laboratory (Institute of Medical Biology, Polish Academy of Sciences). His scientific interest is focused on pattern-recognition molecules (collectins, ficolins) and associated serine proteases specific for the lectin pathway (LP) of complement activation. He is working on clinical associations of those factors in infectious, neoplastic and autoimmune diseases. Another branch of his research is interaction of LP-associated molecules with bacterial cells, their components (as LPS of Gram-negative bacteria), its molecular basis and biological consequences.

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