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LETTER TO THE EDITORS

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Lower percentages of monocytes with CD80, CD86 and HLA-DR molecule expression in pediatric cancer

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Dear Editors,

Dr Selma Ugurel et al. [5] found down-regulation of HLA class II and the costimulatory molecules CD86/B7-2 on monocytes from peripheral blood in melanoma patients. These results are similar to our own observations. In a group of 67 children with cancer (acute lymphoblastic leukaemia, Hodgkin's and non-Hodgkin's lymphoma, neuroblastoma, Wilms' tumour, osteosarcoma, Langerhans cell histiocytosis and rhabdomyosarcoma), we assessed critical costimulatory (CD80, CD86), activatory (HLA-DR) and adhesion (ICAM-1, CD54) molecules on monocytes from peripheral blood by flow cytometry. In contrast to Ugurel et al. [5], we examined isolated mononuclear cells after incubation with lipopolysaccharide (LPS), which leads to the release of proinflammatory cytokines and presentation of antigens to T-helper lymphocytes [2]. We assessed percentages (not mean fluorescence intensity, MSFI) of $CD14^+CD80^+$, $CD14^+CD86^+$, $CD14^+$HLA-DR^+, and $CD14^+CD54^+$ cells before LPS stimulation and $CD14^+CD80^+$ and $CD14^+CD86^+$ cells after LPS stimulation. Examination was performed at the time of diagnosis, after remission induction, during maintenance treatment, and during the 1st year after treatment termination—as well as in the case of infection.

We found, compared with the control group, lower percentages of $CD14^+CD80^+$ cells before LPS stimulation and $CD14^+CD86^+$ cells after LPS stimulation at the time of diagnosis, and also—after remission induction—a lower percentage of $CD14^+CD86^+$ cells after LPS stimulation. We observed diminished percentages of $CD14^+$HLA-DR^+ cells after remission induction and no difference in percentage of $CD14^+CD54^+$ cells at any time. Ugurel et al. [5] observed decreased expression of HLA-DR, HLA-DQ, HLA-DP and CD86 on monocytes, but they did not find any differences in expression of HLA class I antigens and CD80. Very interesting results concerned CD71 expression—it was increased and stage-dependent. In contrast, Brown et al. [1] showed that up-regulation of CD80 expression on the monocytes of patients with myeloma was the same as in the control group.

In our opinion, a lower number of activated monocytes may be responsible not only for impaired immunity against neoplastic cells but also for defective responses against infection. In a separate group with severe/resistant infections (i.e. pneumonia of unknown aetiology, multiorgan damage and unfavourable outcome, ganciclovir-resistant cytomegalovirus pneumonitis, *Aspergillus* pneumonitis and varicella) we found lower percentages of $CD14^+$HLA-DR^+ cells during infection compared with the control group (37.38% vs 86.48%; $p = 0.0002$). These results confirm our previous observations [3, 4]. According to Höflich et al. [2], diminished numbers of HLA-DR^+ monocytes in peripheral blood correlate very closely with clinical outcome in severe infections/sepsis. Down-regulation of HLA II class molecules on these cells in cancer patients can explain therapy resistance and poor outcome in infections of viral and fungal origin.

Together, Dr Ugurel's [5] and our results support the concept that circulating monocytes from cancer patients have an impaired function, and it is possible that this is one of the mechanisms whereby neoplastic cells can escape immune recognition.

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