Cord blood progenitor cells (CBPC) are an important alternative to bone marrow transplantation (BMT). The incidence and severity of acute and chronic GvHD after transplantation of HLA-compatible and incompatible CBPC have been reported to be lower than after BMT. This important phenomenon is thought to be related to the functional immaturity and the distinctive immunophenotypic features of cord blood T cells. Th1 cells are involved in cellular immune responses and a Th1-like response is mainly involved in the development of acute GvHD, whereas Th2 lymphocytes determine humoral immune responses and a Th2-like response is responsible for chronic GvHD. The authors performed a study on the Th1/Th2 cytokine profile of activated T cells from 20 samples of cord blood and 20 samples of blood from normal donors. The lymphocytes were stimulated by specific mitogens and cytokine secretion was blocked at the cytoplasmic level. The surface expression on CD4+ and CD8+ cells of the very early human activation antigen CD69 was analyzed as well as the intracellular production of IFN-γ and IL-4 as the expression of Th1-like and Th2-like cytokine responses, respectively. T lymphocytes from cord blood were shown to be incapable of performing a Th1-like or Th2-like response in contrast to normal peripheral T cells. All lymphocytes were normally activated as shown by the expression of CD69. The data suggest that the low response of cord blood T cells to stimulation by mitogens may be the basis of the decreased incidence of acute and chronic GvHD after transplantation of CBPC.
RNA in 31 patients with well-documented fulminant non-A-E hepatitis and 5 patients with sub-fulminant hepatitis from three locations in the USA. HGV was detected in 14 of the 36 patients (38.8%). Twenty percent of the patients of the NE, 11% of those from the SE and 50% of those from the Mid-Atlantic regions of the USA had circulating HGV. The use of therapeutic blood products was significantly related to the presence of serum HGV (p < 0.2). The authors conclude that HGV is not causally related to non-A-E FH. The presence of HGV RNA in the serum of these patients is probably related to the administration of blood products after the onset of FH.

K.A. West, D.R. Anderson, V.C. McAllister et al.

Alloimmune Thrombocytopenia after Organ Transplantation

Transplanted organs carry passenger lymphocytes that may induce alloimmune disorders such as hemolytic anemia. The authors describe 3 patients who developed severe alloimmune thrombocytopenia, 2 after a kidney and 1 after a liver transplantation from the same donor. Anti-HPA-1a was detected in 2 of the patients, no serum being available of the third patient. All 3 patients were HPA-1a homozygous. The donor was homozygous HPA-1b and anti-HPA-1a was detectable in her serum 20 years after her last pregnancy. The thrombocytopenia was refractory to all forms of treatment (high dose IVlg, plasma exchange) except transfusion of HPA-1a-negative platelets. The thrombocytopenia contributed to the death of 1 patient, resolved after splenectomy in 1 and after an episode of severe rejection in another. The high degree of HLA compatibility between the donor and the 3 patients may have allowed a long survival of the donor’s B cells.

J.P. Allain, P.E. Hewitt, R.S. Tedder et al.

Evidence That Anti-HBc but not HBV DNA Testing May Prevent Some HBV
Transmission by Blood Transfusion

In spite of the availability of sensitive tests for the detection of HBsAg, HBV is still, be it very rarely, transmitted by blood transfusion. This may be due to a recent infection of the donor in whose blood HBV may be present before HBsAg becomes detectable (window period). Testing for HBV DNA may detect some of such donors. Another cause is that the level of HBsAg may decline to such a level in the course of HBV infection that is becomes undetectable. In such cases, antibodies against the core antigen of HBV may be the only detectable serological marker of HBV infection. The authors investigated the efficacy of screening for anti-HBc and for HBV DNA to detect such donors. It was found that in none of the donors with anti-HBc as the only serological marker (51 of 103,869 donations) and in none of the donations with anti-HBc and weak anti-HBs (97 of 103,869 donations) was HBV DNA detectable. Although there was no formal proof, there was strong evidence that 2 patients were infected with HBV by blood from donors with anti-HBc as the only serological marker. Four other patients may have been infected in the same way, although the evidence is less strong. The authors suggest caution in the interpretation of genomic screening of plasma pools and individual donations and that screening for HBV DNA in blood donors is unlikely to eliminate infections related to the tail end of chronic HBV infection corresponding to subjects with isolated anti-HBc. For that purpose, screening for anti-HBc according to a more cost-effective algorithm may prevent at most 1 HBV infection in 50,000 blood donations.

F.T.H. Lim, J.M. von Beckhoven, A. Brand et al.

The Number of Nucleated Cells Reflects the Hematopoietic Content of Umbilical Cord Blood for Transplantation
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Umbilical cord blood progenitor cells (UCBP) have become an important alternative to bone marrow transplantation. A single collection of umbilical cord blood may contain sufficient hematopoietic stem cells to achieve engraftment and repopulation of the hematopoietic system of children and adults after myeloablative therapy. The hematopoietic potential of a UCB unit is usually defined by the number of CD34+ cells or the number of colony-forming units measured in semisolid cultures of hematopoietic progenitor cells (HPC). However, the assays to establish the number of CD34+ cells or the number of colony-forming units are difficult to standardize and are not well reproducible. The number of nucleated cells has been reported to also be a significant factor in the speed of recovery of neutrophils and platelets after transplantation. In order to investigate the parameters that can be used to evaluate the hematopoietic potential of a UCB unit, the authors investigated almost 300 UCB units. A strong correlation was found between the numbers of CD34+ cells and the number of colony-forming units measured in semisolid cultures of hematopoietic progenitor cells. These results indicate that the total number of nucleated cells correlates better with the HPC content and the number of CCD34+ cells than the number of any of the leucocyte subpopulations. This clearly indicates that the total number of nucleated cells probably reflects the hematopoietic potential of a UCB graft and my therefore be correlated with the speed of engraftment after transplantation.