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Advances in bone marrow transplantation

Since the first successful bone marrow transplant on a patient with aplastic anemia in 1972 by Dr. E. Donnall Thomas and colleagues using a chemotherapeutic drug cocktail that included busulfan and cyclophosphamide as the preparatory regimen, the technique has gained importance worldwide. It has become potentially curative for many neoplastic and non-malignant disorders. Hematopoietic stem cell transplantation (HCT) using autologous or allogeneic hematopoietic progenitor cells has progressed and evolved because of the ability to apply new transplant concepts with this the therapy, such as umbilical cord blood transplantation (UCBT) and more recently, haploidentical donor transplants. These advances have allowed for a broader range of donors. In addition, new regimens with high-dose cyclophosphamide have therapeutic benefits for disorders such as aplastic anemia and multiple sclerosis. On the other hand strategies to graft-versus-host disease (GVHD) prophylaxis, such as high-dose post-transplantation cyclophosphamid is a viable alternative for patients lacking HLA-matched donors. Actually many strategies for GVHD prophylaxis are in course in many preclinical or clinical studies. Pitfalls, such as graft rejection, severe GVHD and patient immune suppression are becoming less harmful as the advances in the field progresses. Further the scientific investigation is leading to the discovery of more therapeutically effective strategies for HCT as a more efficient therapy.

Biography

Marcio Alvarez-Silva was graduated in Pharmacy at the Federal University of Rio de Janeiro and PhD in Sciences at the Federal University of Rio de Janeiro. He is currently a Professor at the Federal University of Santa Catarina and coordinates the Laboratory of Stem Cell and Bioengineering at the Department of Cell Biology, Embryology and Genetics.

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