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Mobilization and collection of CD34+ cells for autologous transplantation of peripheral blood hematopoietic progenitor cells in children: Analysis of two different G-CSF doses

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Introduction: In the mobilization for autologous transplantation the classical dose of G-CSF is 10 µg/kg of patient body weight in a single dose. There is a theory that higher doses of G-CSF applied twice daily could increase the CD34+ cells collected with a lower number of leukapheresis procedures.

Objective: The aim of this study was to compare a fractionated dose of 15 µg G-CSF /kg and the conventional dose, aimed at reducing the number of leukapheresis procedures required to allow the minimum target of 3×106 CD34+ cells/kg to be reached.

Methods: Patients were divided into two groups. Group 10: Patients who received a single dose daily of 10 µg G-CSF /kg and Group 15: Patients who received a dose of 15 µg G-CSF/kg twice daily. The autologous transplantation was carried out when the minimum number of 3×106 CD34+ cells/kg was reached.

Results: Group 10 comprised of 39 patients and Group 15 of 26 patients. A total of 146 apheresis procedures were performed: 110 (75.3%) for Group 10 and 36 (24.7%) for Group 15. For Group 10 a median of 3 (1-7) leukapheresis procedures and a mean of 8.89×106 CD34+ cells/kg bw (±9.59) were collected whereas for Group 15 the corresponding values were 1 (1-3) and 5.29×106 (±4.95). An important statistical difference was in relation to the number of apheresis procedures ($p<0.0001$).

Conclusions: To collect the minimum target of 3×106 CD34+ cells/kg bw the application of a fractionated dose of 15 µg G-CSF/kg decreased significantly the number of leukapheresis procedures performed.

Biography

Katia Aparecida de Brito Eid has graduated from Faculty of Medical Sciences at the State University of Campinas (1989). She has completed her Medical Residency in Internal Medicine, Department of Internal Medicine UNICAMP Medical 1991, Residência in Hematology FCM/UNICAMP (1993), Residence in Bone Marrow Transplantation of HEMOCENTRO the Hematology Division (1994), Master's degree in Clinical Medicine at the Faculty of Medical Sciences, State University of Campinas (2001) and PhD in Child and Adolescent at the Faculty of Medical Sciences, State University Campinas (2015). She is the Medical responsible for the emergency care of blood donors of autologous bone marrow transplant unit, the apheresis sector transfusion at Boldrini Children's Center since 2007.

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