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ORAL

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Increase in CD34 cells in peripheral blood following HLA randomized, ABO-matched cord blood transfusion in patients with advanced malignancy and anemia: Prognostic implications

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Abstract

Cord blood is a safe alternative of adult blood for transfusion given its content of fetal and adult haemoglobin, platelet and WBC counts, and a plasma filled with inflammatory and non-inflammatory cytokines and growth factors. It also has a hypoantigenic nature and altered metabolic profile and is rich in haematopoietic stem cells (CD34) . It has potential for treatment of anemia in diseases of different aetiologies including malignancy.

STUDY DESIGN:
In the present study, 46 sex and HLA-randomized patients suffering from advanced malignancy and anemia (Hb 8 Gm percent or less) were treated with placental cord blood transfusion. CD34 cells were collected from peripheral blood 72 hours after transfusion and variations were analyzed for prognostic implication. The study period was between 16 August 1999 and 16 May 2006.

RESULTS AND ANALYSIS:
Among the forty-six cases included in this study , Case no 2 (breast sarcoma) received the lowest amount of card blood (6 units), while Case no 46 (breast cancer) received the largest amount (32 units). The youngest patient, suffering from non-Hodgkin's lymphoma (Case 3), was a 16-year-old boy who received eight units of cord blood to combat anemia. Other patients received amounts varying from 7-15 units: Case 14 received 15 units (metachronous lymph node metastatsis), Case 19 received 14 units (breast cancer), and Case 25 received seven units (lung cancer).

There was no transfusion-related visible immunological or nonimmunological reaction in any patient. Studies of CD34 levels after 72 hours of transfusion showed an initial rise followed by a fall in twenty-two cases, two cases registered very little effect on the CD34 level, i.e., no change from the baseline, and the rest of the cases demonstrated a sustained rise from the baseline, i.e, 56% to 99% of peripheral mononuclear cells and a sustained high CD34 level.

CONCLUSION:
This preliminary study indicates that freshly collected cord blood transfusion may cause a transient transplant impact of transfused cord blood CD34 stem cells on the host without

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provoking clinical graft vs host disease perhaps due to a possible background structural or functional immune suppression in advanced malignancy.

From the cord blood transfusion impact we could clinically divide the enrolled advanced cancer patients to a relatively good (Group A) and bad prognostic(Group B) variety of cancer. The survival rate of patients where we detected a persistant rise of CD34 in peripheral blood after 3 units or more of transfusion of HLA randomized ABO matched and screened cord blood was over 3 years and the cases where there are no rise of peripheral blood CD34 level in spite of repeated transfusion of 5- 32 units of cord blood died within 3 months or earlier (p value less than .01).

Keywords

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References

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