

## Unrelated cord blood transplantation for adult patients with acute myeloid leukemia: higher incidence of acute graft-versus-host disease and lower survival in male patients transplanted with female unrelated cord blood—a report from Eurocord, the Acute Leukemia Working Party, and the Cord Blood Committee of the Cellular Therapy and Immunobiology Working Party of the European Group for Blood and Marrow Transplantation

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Received 2015 Jul 16; Accepted 2015 Sep 28.

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### Abstract

Go to 

#### Background

In the setting of allogeneic human leukocyte antigen (HLA)-matched bone marrow transplantation, transplanting male patients with grafts from female donors has been associated with a higher incidence of graft-versus-host disease (GVHD) and of nonrelapse mortality (NRM). The aim of the current analysis was to compare transplantation outcomes in male patients given female unrelated cord blood (UCB) versus other gender combinations.

#### Patients and methods

Data from 552 consecutive patients with acute myeloid leukemia (AML) given a single UCB transplantation between 2000 and 2014 were included.

#### Results

In comparison with other gender combination, male patients given female UCB ( $n = 131$ ) had a trend for a higher incidence of grades II–IV acute GVHD (33 versus 25 %,  $P = 0.08$ ), a trend for a higher incidence of NRM (41 versus 33 %,  $P = 0.06$ ), and a lower leukemia-free (LFS, 30 versus 41 %,  $P = 0.01$ ) and overall survival (OS, 33 versus 45 %,  $P = 0.008$ ). In multivariate analyses, taking into consideration all patients for which data on HLA-matching and cell dose transplanted were fully available ( $n = 363$ ), male patients transplanted with a female UCB had a trend for a higher incidence of grade III–IV acute GVHD (hazard ratio (HR) = 2.0,  $P = 0.06$ ), a trend for a higher NRM (HR = 1.5,  $P = 0.06$ ), and a worse LFS (HR = 1.4,  $P = 0.04$ ) and OS (HR = 1.3,  $P = 0.06$ ).

### **Conclusions**

Our data suggest that male patients transplanted with female UCB might have higher risk of acute GVHD and of NRM leading to worse LFS and OS. These results should be confirmed in other large cohorts of patients before used for determining the choice of an UCB unit.