The Algorithm of the Choice of an Alternative Donor: MUD, Cord Blood or Haploidentical Transplant.

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Patients with high-risk hematological malignancy eligible for HSCT should promptly proceed to be transplanted.

Background: To date, all retrospective studies comparing transplants from volunteer matched unrelated donor (MUD), umbilical cord blood unit (CBU) or haploidentical related donor (HRD) have shown no substantial differences in terms of final outcome. Based on this statement and changing the concept of "donor versus no donor" with that of "transplant versus no transplant, the first aim in the strategy of the Rome Transplant Network (RTN), a JACIE accredited metropolitan transplant program, was the identification of a suitable donor in order to perform transplant in adequate timing.

Methods RTN strategy considers an early familiar HLA typing, including parents, followed by high resolution HLA determination of patients lacking an HLA identical sibling. For these last patients, a donor search was simultaneously launched towards either the International Bone Marrow Donor Registry or the Cord Blood Banks. The HRD option was at the same time considered. Preliminary search is always performed to assess the potential of MUD identification in order to drive the subsequent search strategy. The selection criteria for MUD consist of a at least 8/8 HLA loci matching and a guesswork of <3 month waiting time to HSCT. In alternative, single CBU was selected according the cell dose with the HLA matching (4/6 HLA loci: TNC >3.5x107/kg and CD34+ >2x105/kg; 5/6 HLA loci: TNC >2.5x107/kg and CD34+ >1x105/kg). Patients for whom an unrelated donor (MUD) or a CBU were not available in adequate timing proceed towards a transplant from an haploidentical family donor (**table 1**).

RTN allogeneic policy consider the use of a unique conditioning regimen based on the myeloablative (MAC) and reduced intensity (RIC) version of the Thiotepa, Busilvex and Fludarabine (TBF) combination regardless of the disease and stem cell source

used for transplant. All patients received TBF-MAC or RIC according to age (55 years) and Sorror Index, whereas GVHD prophylaxis depends on the type of transplant. (**table 2**).

Results: From April 2006 to December 2012, 731 pts have been candidates to receive an HSCT for hematological malignancy. HLA identical sibling donor was available in 232 out of 731 (34%) cases, while a search for an alternative donor was activated for 448 patients. Of 448 patients, 13 (3%) were too early at time of analysis to be evaluated, 33 (8%) failed the identification of an alternative donor and 47 (12%) lost the eligibility during the search process. Finally, 382/415 (92%) evaluable patients and lacking an HLA identical sibling identified an alternative donor. Out of these 382 patients, 335 (88%) underwent an alternative HSCT (149 MUD, 64 CBT, 118 Haplo) or were scheduled to proceed (4 pts). Conclusions: For all 731 candidates to HSCT, the eligibility was confirmed for 680, a suitable donor could be identified for 618 of them (91%) and an HSCT could be performed for 567 (83%) of the 680 eligible patients. Our analysis shows that, by adopting the RTN policy based on a widespread donor search and multiple transplant options, the allogeneic transplant can be offered as potential therapeutic procedure to a large majority of patients.

Table 1

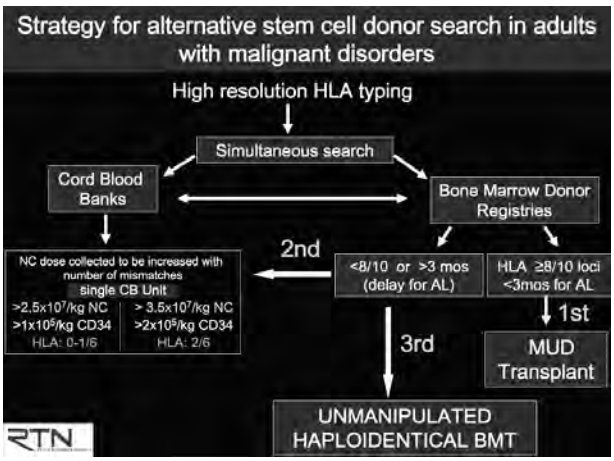

Table 2