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Transforming growth factor-β1 functional polymorphisms in myeloablative sibling hematopoietic stem cell transplantation.

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Abstract

Hematopoietic stem cell transplantation (HSCT) with **sibling** donors (s.d.) is a life-saving intervention for patients with hematological malignancies. Numerous genetic factors have a role in transplant outcome. Several **functional polymorphisms** have been identified in TGF-β1 gene, such as single-nucleotide polymorphism (SNP) at +29C>T within exon 1. Two hundred and forty five patient/donor pairs who underwent a s.d. HSCT in our centers were genotyped for this SNP. In the **myeloablative** cohort, +29CC donors were associated with an increase in severe chronic GvHD (32% vs 16%, hazard ratio (HR) 9.0, P=0.02). Regarding survival outcomes, +29CC patients developed higher non relapse mortality (NRM) (1-5 years CC 28-32% vs TC/TT 7-10%; HR 5.1, P=0.01). Recipients of +29TT donors experienced a higher relapse rate (1-5 years TT 37-51% vs TC 19-25% vs CC 13%-19%; HR 2.4, P=0.01) with a decreased overall survival (OS) (1-5 years TT 69-50% vs TC/CC 77-69%; HR 1.9, P=0.05). Similar to previous **myeloablative** unrelated donors HSCT results, we confirmed that +29CC patients had higher NRM. In addition we found that +29TT donors might be associated with a higher relapse rate and lower OS. These results should be confirmed in larger series. Identification of these SNPs will allow personalizing transplant conditioning and immunosuppressant regimens, as well as assisting in the choice of the most appropriate donor.

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Hematopoietic Stem Cell Transplantation/mortality
Hematopoietic Stem Cell Transplantation/standards
Humans
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Myeloablative Agonists/therapeutic use
Polymorphism, Single Nucleotide
Recurrence
Siblings
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Transplantation Conditioning/methods
Treatment Outcome

Substances
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