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Transplantation of Haematopoietic Cell and it's Procedure

Fried Helm Jung*

Department of Oncology, Johns Hopkins University, Baltimore, USA

Description

Hematopoietic Stem Cell Transplantation (HSCT) is a procedure that involves the intravenous administration of hematopoietic stem cells in order to restore blood cell production in patients whose bone marrow or immune system is damaged or defective. This technique has been used to treat a variety of malignant and non-malignant diseases for the past half-century.

Cells for HSCT can be obtained from the patient (autologous transplant) or from another person (allogeneic transplant), such as a sibling or unrelated donor, or from an identical twin (syngeneic transplant). Cells can be obtained from bone marrow, peripheral blood, umbilical cord blood, or, in rare cases, foetal liver.

This is the eighth report from the European Society for Blood and Marrow Transplantation (EBMT), and it covers indications for Haematopoietic Cell Transplantation (HCT) in EBMT countries and centres. For more than two decades, EBMT has considered changes in HCT practise as well as advances in non-transplant treatments.

It is considered alongside the results of non-transplant strategies, as well as the risk of disease status, the likelihood of a successful HCT outcome, assessment of patient co-morbidities, and estimation of Treatment-Related Mortality (TRM). Aside from potential survival benefits, evaluation must include quality of life and long-term effects. The recommendations are not intended to be used to select a specific transplant protocol, conditioning regimen, or stem cell source; however, we encourage practise harmonisation where possible to ensure meaningfully aggregated experience across indications *via* registry outputs.

Since the last update, the world has experienced the Coronavirus disease-19 (COVID-19) pandemic, which has impacted HCT activity for a variety of reasons, including patient safety, donor and stem cell product availability, and staffing and service maintenance. Pandemic waves impacted our geographical regions differently, necessitating broader public health measures such as vaccination uptake. There was an early recognition that outcomes following-HCT and CAR-T cell therapies were poorer in patients with SARS-2-CoV infection, and that vaccination response is reduced and variable in the HCT setting.

The EBMT updates its recommendations for SARS-COv-2 management and vaccination on a regular basis. As a result, there has been a temporary decrease in HCT rates in some indications, with necessary prioritisation between indications and treatment delays that may have impacted HCT outcomes. This guidance does not primarily address cellular therapies, but it does mention the use of CAR-T cells in conjunction with HCT in Acute Lymphoblastic Leukaemia (ALL) and lymphomas, as well as, more recently, in multiple myeloma, chronic lymphocytic leukaemia, and acute myeloid leukaemia.

Importantly, it is acknowledged that there is overlap between adult and paediatric indications, particularly in the 'Teenager and Young Adult' (TYA) group and that definition of paediatric and TYA (and thus 'adult' care differ internationally. Regardless of the age cut-offs, which are influenced by EBMT registry definitions, the indications should be interpreted with caution, especially in the TYA age group, and some 'paediatric' and TYA indications may occasionally extend into older adult age groups. Given this, we have combined 'Inherited diseases' into considerations for all ages, though the majority of HCT will be used in the paediatric age group.

For more than two decades, the EBMT indications reports have incorporated changes in HCT practise based on scientific and technological advances in HCT. We encourage practise harmonisation wherever possible in order to ensure meaningfully aggregated experience across indications *via* registry outputs. To maintain quality in HCT practise, it is recommend working according to JACIE accreditation standards and benchmarking outcomes.

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***Address for Correspondence:** Dr. Fried helm Jung, Department of Oncology, Johns Hopkins University, Baltimore, USA; E-mail: friedhelm.jung@889.org*

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