ABSTRACTS COLLECTION

The 49th Annual Meeting of the European Society for Blood and Marrow Transplantation: Quality Management Group – Oral Session (O176)

23 – 26 April, 2023 ● Hybrid Meeting

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Sponsorship Statement: Publication of this supplement is sponsored by the European Society for Blood and Marrow Transplantation. All content was reviewed and approved by the EBMT Committee, which held full responsibility for the abstract selections.

Quality Management Oral Session

33 - Quality Management

O176

AUTOMATING OUTCOME ANALYSIS FOR SCT PATIENTS: THE YEARLY OUTCOME REVIEW TOOL

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Background: For quality management after hematopoietic stem cell transplantation (HSCT), yearly outcome review is required by standards such as JACIE or FACT, but comes with substantial effort and associated costs.

Methods: To reduce the effort required to perform these analyses, we created the Yearly Outcome Review Tool (YORT), a graphical tool that works on a single-center export file in the EBMT registry format. It allows users to define filters to select which patients to analyze, and groups to compare patients by.

It compares demographics, performs survival analysis for overall and event-free survival, reports engraftment, uses competing risk analysis to investigate relapse rate and relapse-free survival, and analyses complications including acute and chronic Graft versus Host Disease (GvHD).

The tool works using R and Shiny, is available as an R package, and offers a standalone installer for users without R experience. It uses an extensible, modular design, facilitating additions without modifying its source code. It allows users to export the data retrieved for analyses in Excel or SPSS.

To demonstrate the capabilities of the tool, we analyzed outcome of pediatric patients transplanted at the Willem Alexander Children's Hospital between 2019 and 2021.

Results: In the tool, we defined filters to select patients with a first allogeneic HSCT, an age below 18 at time of transplant, and a transplant between 2019 and 2021. We grouped by graft source and main diagnosis categories. All following analyses are performed using the tool.

Primary diagnosis was a primary immune deficiency in 26 patients, a hemoglobinopathy in 23 patients, bone marrow failure in 16, and Glanzmann thrombasthenia in 1 patient. Overall survival was 94% at 100 days and 92% at 1 year. Differences between diagnoses were in line with literature, with 80% survival for histiocytic disorders and 96% for hemoglobinopathies at 1 year.

Event free survival, defined as survival without relapse, disease progression or subsequent transplants, was 92% at 100 days, 86% at 1 year and 77% at three years, without difference between groups. Relapse rate and non-relapse mortality was not analyzed due to the primary diseases included.

Furthermore, the tool reported on acute and chronic GvHD, engraftment of neutrophils and of platelets, and acute and chronic GvHD. Since no patients were transplanted for malignancies, we did not analyze relapse and non-relapse mortality.

We distributed the tool to 5 HSCT centers, who tested the tool and provided feedback, and completed a security impact assessment.

Conclusions: We created YORT, a tool which performs standardized outcome analyses on an unmodified file in the EBMT registry format which can be exported by centers entering data in the registry. We extensively tested it, and passed a security impact assessment. The tool reduces the effort required to perform an outcome analysis, and allows users to easily adjust the population analyzed and groups compared.

We hope this tool will both increase the quality and standardization of outcome analyses performed, as well as increase data quality by improving data usefulness for centers entering data, and allowing centers to identify anomalies and incomplete data easily.

Disclosure: Nothing to declare.