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ORAL ABSTRACTS

627.AGGRESSIVE LYMPHOMAS: CLINICAL AND EPIDEMIOLOGICAL

Hematopoietic Stem Cell Transplantation for DLBCL: 55,000 Cases from EBMT As a Comparator for CAR T-Cells

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Introduction:
Autologous (auto-HSCT) and allogeneic (allo-HSCT) stem cell transplantation represent established treatments for patients (pts) with diffuse large B-cell lymphomas (DLBCL). Transplant modalities and results substantially changed over time. Due to the favorable data reported for chimeric antigen receptor T-cell (CART) treatment and other more targeted drugs, the landscape of transplantation for DLBCL is rapidly changing. We provide long-term data for DLBCL transplants reported to the European Society for Blood and Marrow Transplantation (EBMT) over 30 years as a comparator to CAR T-cell therapies.
Methods:
We conducted a registry-based analysis of auto- and allo-HSCT activities in Europe and other countries reporting to EBMT in patients with DLBCL treated between 1990 and 2022. Patients meeting the following criteria were included: age≥18 years,

diagnosis of DLBCL, auto-HSCT as first HSCT or allo-HSCT either as first HSCT or after auto-HSCT. For transplants reported between 1990-2019, information on modalities and outcomes were retrieved from the EBMT database. CART numbers from the first CART treatment reported to EBMT until 2022 were also collected.

Results:

In total, 50,776 patients received an auto-HSCT and 5,282 an allo-HSCT between 1990 and 2022. Numbers for auto-HSCT increased from 1,021 in 1990-1994 to a maximum of 2,385 in 2019; the number of allo-HSCT rose from 45 to 305 for these time periods. After 2019, transplant numbers experienced a sharp decline with only 1,548 auto- and 124 allo-HSCT performed in 2022, Conversely, the number of CART consistently increased since the first EBMT-recorded infusion in 2014, rising from 537 in 2019 to 809 in 2022.

For detailed analyses, 38,979 auto-HSCT and 4,100 allo-HSCT pts (1,753 allo-HSCT as 1 st HSCT; 2,347 after auto-HSCT) between 1990 and 2019 were identified. Important trends for auto-HSCT were an increase of median age at HSCT [42.0yr (1990-1994) to 57.4yr (2015-2019), $p<.0001$] and better performance status ≥80% [91.3% (1990-1994) vs 93.0%(2015-2019), $p=.006$]. Peripheral blood (PB) became the dominant stem cell source for auto-HSCT in 1994; numbers of patients prepared with total body irradiation decreased [16.5% (1990-1994) to 0.4% (2015-2019), $p<.0001$]. For allo-HSCT pts, the following trends emerged: significant increase in median age [35.8yr (1990-1994) to 53.0yr (2015-2019), $p<.0001$], adoption of PB as the main stem cell source in 1998 and a substantial shift towards reduced intensity conditioning [0% (1990-1994) to 60.6% (2015-2019), $p<.0001$]. The proportion of unrelated donors and haploidentical donors significantly increased over time [0% (1990-1994) vs 51.2% (2015-2019), $p<.0001$ and 0% vs 16.2%, $p<.0001$].

With a median follow-up of 3.7yr (range 0-30.8yr) for autografted pts, 3-yr overall survival (OS) significantly improved over time [57% (1990-1994) to 71% (2015-2019), $p<.001$], the relapse rate (RI) declined [50% (1990-1994) to 36%(2015-2019), $p<.001$], but non-relapse mortality (NRM) remained at 4%. Auto-HSCT patients transplanted in first CR/PR between 2016 and 2019 showed superior outcomes compared to pts treated in second or later CR/PR [3-yr PFS: 69% vs 56%, $p<.001$; 3-yr OS: 79% vs 69%, $p<.001$]. For allo-HSCT recipients, with a median follow-up of 4.7yr (range 0-28.6yr), significant improvements were noted for 3-yr OS [35% (1990-1999) to 46% (2015-2019), $p<.001$)], 3-yr PFS ($p<.001$) as well as 3-yr RI ($p<.005$). However, 1-yr NRM only improved numerically [30% (1990-1994) to 20% (2015-2019), $p=.21$].

Conclusions:

With more than 50,000 patients analyzed, we provide a comprehensive overview of changes in transplantation modalities and results over more than 30 years. We observed major changes in clinical characteristics and substantial improvements in all major outcome parameters. Patients became increasingly older and medically fit and were transplanted earlier in the course of disease. OS and PFS significantly increased, relapse incidence decreased, NRM did not show major evolution, all supposedly attributable to better patient selection and supportive care. With CART entering the clinical arena, the numbers of transplants for DLBCL sharply decreased. Auto- and allo-HSCT remain important modalities for pts failing CART or in countries where CART are not readily available. The outcomes reported here may serve as real-world benchmark data when new modalities like CART are considered.

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