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LETTER TO EDITOR

Autologous hematopoietic stem cell transplant is safe for elderly lymphoma patients

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To the Editor,

Despite significant improvement in outcomes over the years, disease relapse continues to be a challenge in the management of lymphoma patients. Autologous stem cell transplant (ASCT) is a potentially curative option for patients with relapsed non--Hodgkin's lymphoma (NHL) and can improve progression-free survival when used as a consolidation in those who are at high risk for relapse. However, there is still uncertainty when it comes to use of this procedure in elderly patients [1].

The "cut-off" age for ASCT is dictated often by institutional practices. Patients older than 65 years are often excluded from trials [2]. Community oncologists do not often refer elderly patients to a transplant center in a timely fashion [3].

We conducted a retrospective review of all patients aged 65 years and older with lymphoma who underwent ASCT from 2000 to 2015 at our institution. Consent was obtained from the Kansas University Medical Center's Institutional Review Board (University of Kansas Medical Center, Kansas City, KS, USA) before proceeding with this study. We identified 93 consecutive patients aged older than 65 years (median age 68.6 years) with lymphoma who underwent ASCT during this period. This time frame was chosen to allow adequate follow-up at the time of data analysis.

Our primary end point was the 100-day mortality of patients with lymphoma aged >65 years undergoing ASCT. Other secondary end points measured were overall survival, progression-free survival, time to engraftment (defined as absolute neutrophil count > 0.5 x 10^9/L consecutive days), and incidence of Grade IV toxicities.

A total of 93 patients aged 65 years or older, with NHL or Hodgkin's lymphoma, underwent ASCT at our institution. (See Table 1 for patient characteristics). The most commonly used preparative regimens were BEAM/R-BEAM (37) and BEAC (46). All 93 patients received granulocyte-colony stimulating factor-mobilized peripheral blood stem cells. Engraftment data were available for 87 of 93 patients. The median time to granulocyte engraftment was 11 days (range, 9—14 days). The median number of red blood cells and platelet transfusion in this group was two (range, 0—10) and three (range, 0—39), respectively.

With a median follow-up of 744 days (range, 41—2431 days), a disease-free survival of 373 days was noted. In 63 patients who underwent transplant prior to 2013, 1- and

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Table 1 Patient Characteristics.

Disease status at ASCT	
CR1	29 (31.2)
CR2 or more	29 (31.2)
CRU	6 (6.5)
PR	19 (20.4)
Relapse 1	5 (5.4)
Relapse 2 or more	2 (2.2)
Primary refractory	3 (3.2)
Age at time of transplant, y	
Median	68.6
Range	65—80
65—70	54 (58.1)
70—75	37 (39.8)
>75	2 (2.2)
Individual subtypes of lymphoma	
Hodgkin's disease	5 (5.3)
DLBCL	35 (37.6)
Follicular	16 (17.2)
Peripheral T cell	5 (5.3)
Mantle cell	18 (19.4)
Other	14 (15.1)
Response to most recent chemo	
Complete remission	64 (68.9)
Partial remission	19 (20.4)
Progressive disease	10 (10.8)

Note. ASCT = autologous stem cell transplant; CR1 = first complete remission; CR2 = second complete remission; CRU = complete remission undetermined; DLBCL = diffuse large B-cell lymphoma; PR = partial remission CRU = complete remission unconfirmed.

2-year overall survival was found to be 84.2% and 72.1%, respectively. The 1- and 2-year progression-free survival of the cohort was noted to be 78.2% and 68.7%, respectively. Of the deaths in the 1st year, six (55%) were related to relapse/progression, two (18%) due to pulmonary toxicity (pulmonary hypertension and idiopathic pneumonitis, respectively), two (18%) due to cardiac toxicity (complications related to aortic valve replacement and new-onset heart failure, respectively), and one (9%) due to infection.

Four of the 93 patients developed Grade IV toxicities, three of them being pulmonary, and one patient with a history of pre-existing liver disease having developed Grade IV veno-occlusive disease. In 17 patients (18.2%), transplant was able to be performed completely/partially as an outpatient procedure.

The most important finding of our study is that ASCT can be safely performed in elderly patients with lymphoma. Most prior studies in this regard have been of varying sample sizes and inclusion criteria, with most including patients aged 60 years or older, and consequently having patients mostly in the 60—65-year age group [4,5].

Although retrospective in nature, these results suggest that chronological age should not be used alone in evaluating lymphoma patients for ASCT. Instead, a comprehensive evaluation that incorporates frailty measures and comorbidity indices should be used to guide decision making. As the elderly population grows, an individualized approach to each patient considering all available treatment options is needed to make a potentially curative ASCT for high-risk or relapsed lymphoma available to more patients.

Conflicts of interest

The authors have no conflict of interest to declare.

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