Poster #1150

Past Informs the Future: Outcomes Post Allogeneic Stem Cell Transplantation in Chronic Lymphocytic Leukaemia (CLL)

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01 AIM OF RESEARCH

Emerging immunotherapies for CLL, bispecific antibodies and CAR-T, may challenge the established role of allogeneic stem cell transplantation (alloSCT) for eligible patients. This retrospective study analysed characteristics and survival outcomes for patients with CLL following alloSCT, including impact of *TP53* aberrancy, over a 22-year period.

02 METHODS

All patients with CLL who underwent first alloSCT between January 2000 – April 2022 (data cut-off 6/12/2022) at Royal Melbourne Hospital (RMH), Australia, were identified from the institutional alloSCT database. Additional patient details were extracted from institutional records.

Relapse-free survival (RFS) and overall survival (OS) estimates/comparisons were analysed by Kaplan-Meier method/log-rank analyses on GraphPad Prism v.9.5.1.

03 RESULTS

Characteristics of 62 patients identified for analysis are summarised in table 1. Eighty-six percent (n=49) were purine-analogue-, 15.8% (n=9) venetoclax-, 15.8% (n=9) Bruton's tyrosine kinase inhibitor (BTKi)-, and 3.5% (n=2) PI3 kinase inhibitor-exposed respectively. Two further patients had received alemtuzumab (3.5%). Overall, 26.3% (n=15) were treated with a targeted agent immediately prior to alloSCT and 45.6% (n=26) with chemoimmunotherapy.

Sixty-four percent (n=38) were in partial response (PR) (n=21) or CR (n=17) prior to alloSCT; 7/31 of whom had peripheral blood/bone marrow undetectable MRD by flow cytometry. The remaining patients had stable or progressive disease as best response to therapy immediately prior to alloSCT (n=17), or had untreated progressive disease (n=4).

Seventeen (27.4%) had prior history of Richter transformation (RT), sixteen of whom received alloSCT in first complete response (CR1). Sixteen (35.6%) patients exhibited del(17p) +/- TP53 mutation (5/10, all del[17p] positive), four of whom had history of RT.

03 RESULTS (cont.)

	Value (range or %)
Age (years), median (range)	**52 (25-75)**
Male sex	**49 (79%)**
History of Richter transformation	**17 (27.4%)**
Median prior lines of treatment	**2 (1-9)**
Disease response prior to alloSCT	
CR	**17 (28.8%)**
PR	**21 (35.6%)**
SD/PD/untreated	**21 (35.6%)**
CR/PR uMRD	**7 (22.6%)**
Adverse genomic lesions*	
CKT (≥3 lesions)	**14 (36.8%)**
Del(11q)	**15 (30.6%)**
Del(17p)	**16 (35.6%)**
TP53 mutation	**5 (50%)**
Unmutated IGHV	**7 (70%)**
Peripheral blood HPC	**59 (95.2%)**
Donor source	
Sibling	**38 (61.2%)**
Unrelated	**23 (37.1%)**
Haploidentical	**1 (1.6%)**
Myeloablative conditioning	**18 (29%)**
CyTBI	**18 (100%)**
Non-myeloablative/reduced-intensity conditioning	**44 (71%)**
FluLDCy+/-TBI	**5 (11.4%)**
FluHDCy	**11 (25%)**
FluMel	**28 (63.6%)**
Median days to neutrophil engraftment, median (range)	**18 (10-49)**

Table 1. Patient characteristics. *Denominator according to available information. CR – complete response, PR – partial response, SD – stable disease, PD – progressive disease, CKT – complex karyotype, HPC – haematopoietic stem cells, Cy – cyclophosphamide, LD – low-dose, HD – high-dose, TBI – total body irradiation, Flu – fludarabine, Mel – melphalan.

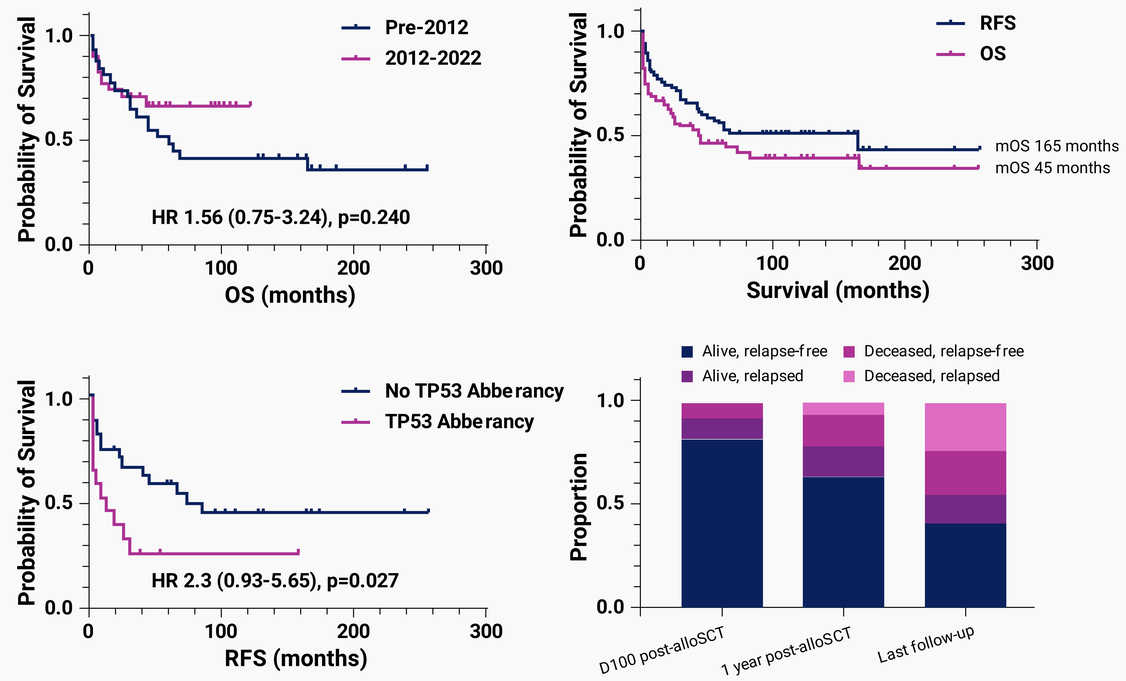

Figure 1. A – Kaplan-Meier estimates of relapse-free and overall survival for cohort. B – Kaplan-Meier estimates of overall survival stratified by year of alloSCT. C – Kaplan-Meier estimates of relapse-free survival as stratified by presence or absence of TP53 aberrancy. D – Proportions of patients alive or dead with or without disease relapse.

One-year RFS and OS rates were 66.6% and 79.0%, and 5-year RFS and OS rates were 46.5% and 55.5% respectively. Twenty-two patients (35.5%) relapsed during study follow-up, including six (27.3%) with RT, four of whom had prior history of RT. For patients treated with alloSCT prior to 2012, two (20%) received BTKi following subsequent relapse compared with eight (66.7%) from 2012 onwards.

04 CONCLUSION

RFS, OS, and NRM outcomes for CLL following alloSCT are consistent with other national and international registry data with inferior survival outcomes post-alloSCT for CLL exhibiting TP53 aberrancy. Despite greater availability of targeted therapies following relapse, post-alloSCT OS was not significantly longer for those receiving alloSCT from 2012 onwards. This is likely to reflect the small numbers of patients included in the study as an expected limitation. These data serve as future comparator for local outcomes following newer immunotherapies.