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705.CELLULAR IMMUNOTHERAPIES: LATE PHASE AND COMMERCIALLY AVAILABLE THERAPIES

Assessment of Activities of Daily Living (ADL)Scale Can be Used to Predict Overall Survival after CAR-T Cell Therapy in Elderly Patient(over 70 years of age) with Refractory/Relapsed B-Cell Lymphoma

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Background:The advent of chimeric antigen receptor (CAR) T-cell therapy has changed the treatment landscape for refractory/relapsed B-cell lymphoma (r/r B-NHL). However, there are limited data on outcomes in older patients (age≥65 years) treated with CAR -T-cell therapy, particularly in patients older than 70 years.
Objectives:Our objective was to evaluate the efficacy of CAR -T-cell therapy in elderly patients with r/r B-NHL, including response rates, progression-free survival (PFS), and overall survival (OS), as well as factors affecting survival.
Methods:As of April 1, 2023, a total of 80 patients with r/r B-NHL in the age group 65-70 years (n=57) or older than 70 years (n=23) were included. Diagnoses included DLBCL NOS (n=58) ,HGBCL(n=6) ,TFL(n=6), Richter(n=4) and Other(n=6). Baseline characteristics are described in Table 1.All patients were heavily pretreated. 71/80 (88.75%) patients were at stage III-IV. The median IPI score was 3 (range 1-5). 8/96 (10%) patients failure of prior autologous hematopoietic stem cell transplantation (HSCT). The median assessment score of ADL scale was 95 for both the 65-70 and > 70 age groups, and 47.5% of patients received bridging therapy(BT) prior to CAR -T cell therapy. There were no significant differences in baseline data between age groups.
Prior to the study, CD19/CD22 antigen expression in tumor tissue was confirmed by pathology, and the target was selected according to antigen expression.
The kinetics and function of CAR -T cells were monitored by quantitative PCR and flow cytometry. Efficacy was assessed by PET-CT every 3 months after CAR -T therapy. All p-values were two-sided values. Survival curves were calculated by the Kaplan-Meier method.
Results: The number of patients who chose a CD19 target or a CD19/CD22 dual target for CAR -T therapy was 67/80 (%) and 13/80 (%), respectively. The median CAR -T cells infused dose in the 65-70 and > 70 age groups was 1.3 (range, 0.0485-9.5) and 1.6 (range, 0.088-3.91) (×106/Kg), respectively (P=0.9618).(Table 2).There were no differences between the 2 age groups in the occurrence of cytokine release syndrome (CRS) grade 3 or higher(P=0.6221). The proportion of patients using glucocorticoid therapy for CRS was higher in the age group > 70 years than in the age group 65-70 years, but there was no statistically significant difference (P=0.0957).
A response occurred in 35/57 (61.4%) of patients in the 65-70 years age group and in 14/23 (60.7%) of patients in the > 70 years age group (P=0.9646), with a complete response in 21/57 (36.8%) and 8/23 (34.8%), respectively (P=0.8623).
At a median follow-up of 8.05 months (95% CI: 10.27-15.20), 12-month overall survival(OS) was 54.6% (95%CI: 39.3%-67.6%) vs 72.1% (95%CI:43.9%-87.8%) at ages 65-70 vs > 70,12-month progression-free survival (PFS) was 32.8% (95%CI: 19.8%-46.5%) vs 32.9% (95%CI: 13.5%-54%), and there was no significant difference in OS (p=0.0623) and PFS(p=0.6327) by age group.
In contrast, patients aged > 70 with ADL < 95 showed significantly shorter 12-m OS (0) compared to patients aged 65-70 with ADL≥95(55.2%,95%CI:35.5%-71.1%) or ADL < 95(40.5%, 95%CI: 14.2%-59.9%), or > 70 with ADL≥95(85.6%, 95%CI:52.5%-96.3%), respectively (Figure 1: P= 0.0069).
The three negative factors comprising the prognostic tool OS: low ADL scores (P=0.0124), high IPI scores (P=0.0029), and presence of extranodal lesions (P=0.0143).
Conclusions: Our data suggest that the safety and efficacy of CAR -T-cell therapy in > 70-year-old patients is not significantly different from that in 65-70-year-olds. Elderly patients with ADL scores below 95 have poor survival after CAR -T therapy, especially those over 70 years of age. However, studies on curative approaches and long-term follow-up are needed.

Disclosures No relevant conflicts of interest to declare.

Table 1. Baseline characteristics

Characteristic	65-70 years group (n=57)	>70 years group (n=23)	P value
Median age, y (range)	67(65-70)	74(71-86)	-
Male(n,%)	27(47.4)	9(39.1)	0.5026
Diagnosis(n,%)			0.8784
DLBCL(nos)	40(70.2)	18(78.3)	
HGBCL	5(8.8)	1(4.3)	
rTFL	4(7)	2(8.7)	
Richter	4(7)	0(0)	
Other	4(7)	2(8.7)	
ECOG performance status 3-4(n,%)	8(14)	4(17.4)	0.7355
Ann Arbor stage III-IV(n,%)	51(92.7)	20(87)	0.4145
IPI(median,range)	3(1-5)	3(1-5)	0.9127
Bone marrow involvement(n,%)	7(12.3)	2(8.7)	1
Prior CNS lymphoma(n,%)	4(7)	0(0)	0.3192
Extranodal lesions(n,%)	1(0-4)	1(0-3)	0.2761
Bulky disease ≥7.5 cm(n,%)	8(14.3)	3(13)	1
Prior systemic treatment lines(median,range)	12(5-36)	11(5-30)	0.8227

Table 2.Treatment and effect of CAR-T cell therapy.

Characteristic	65-70 years group (n=57)	>70 years group (n=23)	P value
Bridging therapy(BT) prior to CAR-T(n,%)	29(50.9)	9(39.1)	0.341
ADL score prior to CAR-T(median,range)	95(50-100)	95(50-100)	0.78
Disease state before CAR-T(n,%)			0.5293
CR	4(7)	3(13)	
PR	17(29.8)	4(17.4)	
SD	5(8.8)	3(13)	
PD	31(54.4)	13(56.5)	
Target of CAR T-cell therapy (n,%)			0.2588
CD19 target	47(82.5)	20(87)	
CAR-T cell infusion dose （×10⁶/Kg)(median,range)	1.3(0.0485-9.5)	1.6(0.088-3.91)	0.9618
The median peak CAR T-cell level(PCR,%)(median,range)	29.8(0.876-902)	31.7(0.986-1310)	0.7105
The median time to peak CAR T-cell levels(range) (days)(median,range)	11(5-36)	11(7-30)	0.5679
CRS(n,%)	3(5.3)	2(8.7)	0.3281
≥3 grade CRS(n,%)	3(5.3)	2(8.7)	0.6221
ICANS(n,%)	1(1.8)	0(0)	1
≥3 grade ICANS(n,%)	0	0	-
Corticosteroids for CRS （n,%)	23(40.4)	14(60.9)	0.0957
Tocilizumab for CRS （n,%)	4(7)	1(4.3)	1

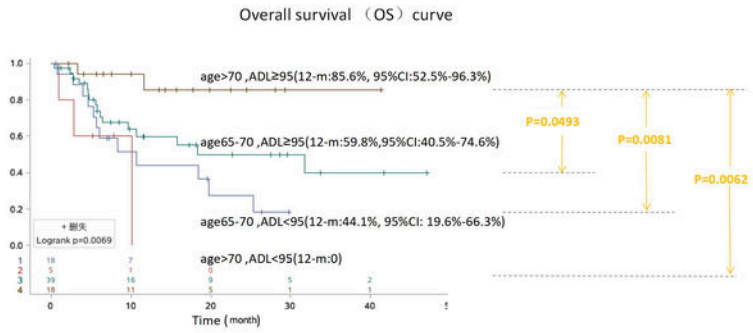

Figure 1. Overall Survival after CAR-T therapy in elderly patients in different age groups between ADL scores ≥95 or <95

Figure 1

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