EPH157

Length of stay (LOS) and associated healthcare resource use (HCRU) for an infusion of axi-cel or liso-cel in second line for large B-cell lymphoma in France: differences observed from comprehensive hospital databases

Thieblemont C[1], Colrat F[2], Caillot D[3], Caron. A[4], Nevoret C[4], Torreton E[4], Branchoux S[2], Despas F[5]

[1] Hematology-Oncology Department, Saint Louis Hospital, Assistance Publique des Hôpitaux de Paris AP-HP, Paris; [2] Health Economics and Outcomes Research Department, Bristol Myers Squibb, Rueil-Malmaison; [3] Hematology Department, Institut de Cancérologie de Bourgogne, Dijon ; [4] Cemka, Bourg-La-Reine; [5] Social Oncopharmacology, University Hospital Center CHU of Toulouse, Toulouse

*Current affiliation line goes here

Objectives

- Since 2018, treatment with CAR-T cells (T lymphocytes genetically modified to specifically target and destroy tumor cells) has rapidly shown promising therapeutic results and is now the standard of care for patients treated for certain types of non-Hodgkin lymphoma.[1,2]
- Since 2022, axi-cel and liso-cel have been granted early access authorization for second-line treatment of patients with a large B-cell lymphoma (LBCL), before being integrated into routine care in February 2023 and September 2023, respectively.[3,4]
- Axi-cel and liso-cel have been evaluated through 2 phase 3 clinical trials, randomized, controlled with standard of care at time of conducting the trials (autologous stem cell transplantation): ZUMA-7 and TRANSFORM trials.
- In France, CAR-T cells must be administered at hospital. After CART-T administration, patients must stay close to the hospital, as per French guidelines. Due to the funding of hospital stays in France, based on diagnosis-related-group (DRG) funding (e.g., based on prespecified tariffs, related to the disease but not on what is really performed), there is an interest in lowering length of stay. Also, some drugs can be funded on top of the DRG tariffs, when they represent a high proportion of the tariff and are not usually used. These drugs, called "expensive drugs" are inscribed on the "*liste-en-sus*" defined by French Ministry in charge of health.
- The progressive accreditation of qualified centers has facilitated access to this therapeutic innovation. To date, no study conducted in France has described access to care for patients receiving second-line CAR-T cell. The aim of this study was to describe the characteristics of patients treated with axi-cel and liso-cel in the second-line setting, as well as the features of their administration-related hospital stays.

Methods

Study design and data sources

- A retrospective cohort was assembled including patients with a complete hospital stay (defined as both admission and discharge dates) for the administration of axi-cel or liso-cel between January 1, 2022, and December 31, 2023. Data were obtained from the comprehensive French hospital discharge databases (*Programme de Médicalisation des Systèmes d'Information*, PMSI) for medicine, surgery and obstetrics.
- The index stay was defined as the first hospital stay for CAR-T cell infusion in the period 2022–2023.
- Diagnosis of lymphoma was identified during the four-year period preceding CAR-T cell administration using the Diagnosis-Related Groups (DRGs).
- CAR-T cell stays were characterizer according to the following dimensions:
  - Length of stay: calculated as the time from admission to discharge and subdivided into pre-infusion period (from admission to CAR-T cell infusion) and post-infusion period (from CAR-T cell infusion to discharge);
  - Admission to intensive care unit ("*réanimation*"), as identified in the Medical Unit Summary;
  - Expensive treatment administered (other than CAR-T cell) identified using the FICHCOMP "*Liste En Sus*" (LES) and MEDATU/MEDAPAC files;
- Discharge destination, as coded in the standardized discharge summary (home, death or mutation/transfer to another facility or medical ward).

Inclusion criteria

- Patients with a complete hospital stay for the administration of axi-cel in second line (common dispensing unit (UCD) code 9440456 and indication code CAXIC02) and liso-cel (UCD code 9002451 and indication code CLISO01) during the study period were included.

Analysis methodology

- A descriptive analysis of patients' characteristics and the CAR-T cell administration hospital stay was conducted.
- Disease history and comorbidities were assessed over the four years preceding index stay.
- All analysis were conducted overall and by CAR-T cell administered. Numbers, percentages, mean, standard deviation, median, interquartile range were calculated when relevant.
- In accordance with French requirements, numbers below 11 are not presented.

Results

Study population (Table 1)

- In France, between January 1, 2022, and December 31, 2023, a total of 380 patients received second-line CAR-T cell and were included in the study. Among them, 90.3% (n=343) were treated with axi-cel and 9.7% (n=37) with liso-cel.
- In 2022, 29 patients underwent second-line CAR-T cell (exclusively axi-cel), compared with 351 patients in 2023.
- The mean age of patients was 58.7 years (±13.7) and was similar across both treatments (axi-cel: 58.7 years [±13.4], liso-cel: 59.2 years [±16.5]). Median age differed between treatments, patients treated with axi-cel were aged 61.0 vs. 65.0 for those treated with liso-cel. Also, 7% of patients treated with axi-cel were aged 75 years of age or more, compared with 11% of those treated with liso-cel.
- The proportion of male patients was 63.2% across both arms (63.3% for axi-cel, 62.2% for liso-cel).
- Regardless the administered CAR-T, most of patients were diagnosed with a diffuse large B-cell lymphoma (n=319, 83.9%). Transformed follicular lymphoma was diagnosed in 8.9% of patients, primary mediastinal large B-cell lymphoma in 3.7% of patients and transformed marginal zone B-cell lymphoma in 2.1%.
- In patients treated with axi-cel, 287 (83.7%) of them were diagnosed with a diffuse large B-cell lymphoma and 34 (9.9%) with a transformed follicular lymphoma.
- In patients treated with liso-cel, 32 (86.5%) of them were diagnosed with a diffuse large B-cell lymphoma.

Table 1. Patient characteristics

	Axi-cel n=343	Liso-cel n=37	Total n=380
Baseline characteristics			
Age, years[a]	58.7 ± 13.4	59.2 ± 16.5	58.7 ± 13.7
Age, years[b]	61.0 [51.0;68.0]	65.0 [56.0; 71.0]	61.0 [51.5; 68.5]
Gender, male[c]	217 (63.3)	23 (62.2)	240 (63.2)
Diagnosis[c]			
Diffuse large B-cell lymphoma	287 (83.7)	32 (86.5)	319 (83.9)
Transformed follicular lymphoma	34 (9.9)	0	34 (8.9)
Primary mediastinal large B-cell lymphoma	<11	<11	14 (3.7)
Transformed marginal zone B-cell lymphoma	<11	0	<11
Unknown type of B-cell lymphoma	<11	0	<11

[a] Mean ± Standard error; [b] Median [First quartile; third quartile]; [c] N (%)

Expensive treatment administered during the index stay (other than CAR-T cell) (Figure 1)

- During the index stay, expensive drugs were administered to 54.2% patients treated with axi-cel and 16.2% with liso-cel.
- Most expensive drugs were monoclonal antibodies (tocilizumab or siltuximab) for 48.7% of patients with axi-cel and 13.5% with liso-cel.
- Immunoglobulins were administered to 5.8% and 2.7% of axi-cel and liso-cel patients. Only patients treated with axi-cel received fibrinogen or voriconazole (1.7% for each).

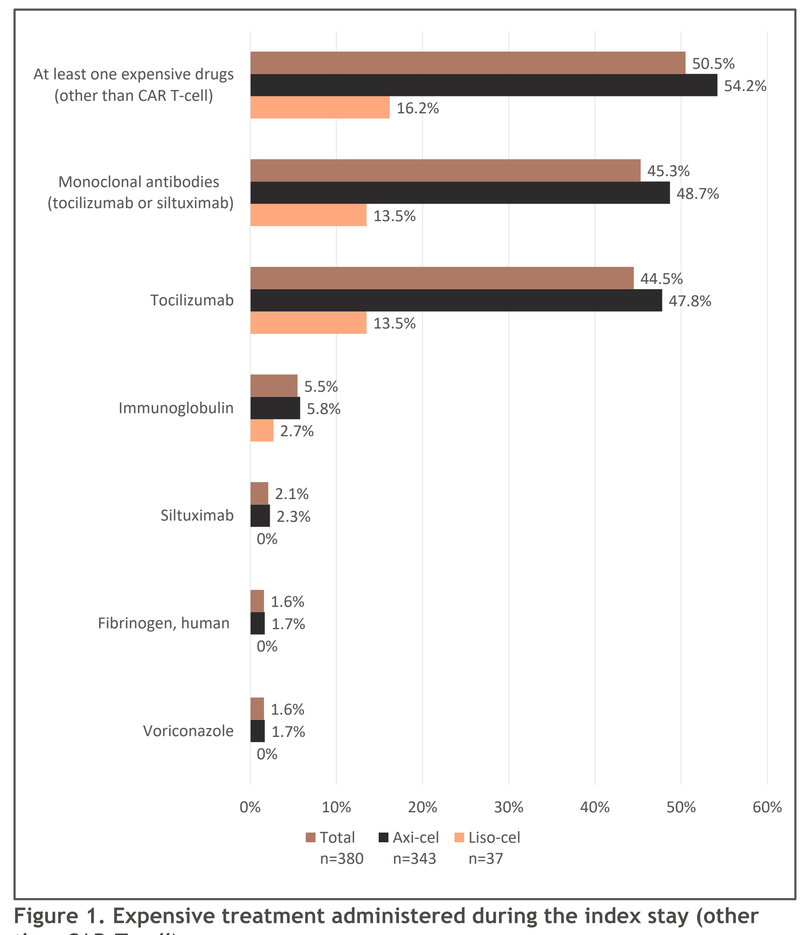

Figure 1. Expensive treatment administered during the index stay (other than CAR-T cell)

Characteristics of the hospital stay for second-line CAR-T cell infusion

- The duration of the bridging period preceding the administration stay was 37.4 days (±15.1) for axi-cel and 48.1 days (±8.3) for liso-cel.
- The mean length of stay for second-line CAR-T cell administration was 20.4 days (±9.1), with a duration of 20.8 days (±8.3) for patients treated with axi-cel and 16.7 days (±5.7) for those treated with liso-cel.
- The 4.1-day difference in favor of liso-cel was attributable to a shorter mean time between infusion and hospital discharge (axi-cel: 15.2 days [±8.3]; liso-cel: 11.0 days [±2.5], −28%) (Figure 2).
- Half of the patients treated with axi-cel remained for more than 14 days in the ward where the infusion was administered, compared with 11 days for those treated with liso-cel.
- During the administration stay, 13.4% (n=46) of patients receiving axi-cel and 2.7% (n=1) of those receiving liso-cel were admitted to the intensive care unit, with a mean duration of 5.7 days (±7.4) (Figure 2).
- The proportion of patients discharged home at the end of the administration stay was 73.8% (n=253) for axi-cel and 86.5% (n=32) for liso-cel. The mortality rate was 2.9% among patients treated with axi-cel and 0% among those treated with liso-cel.

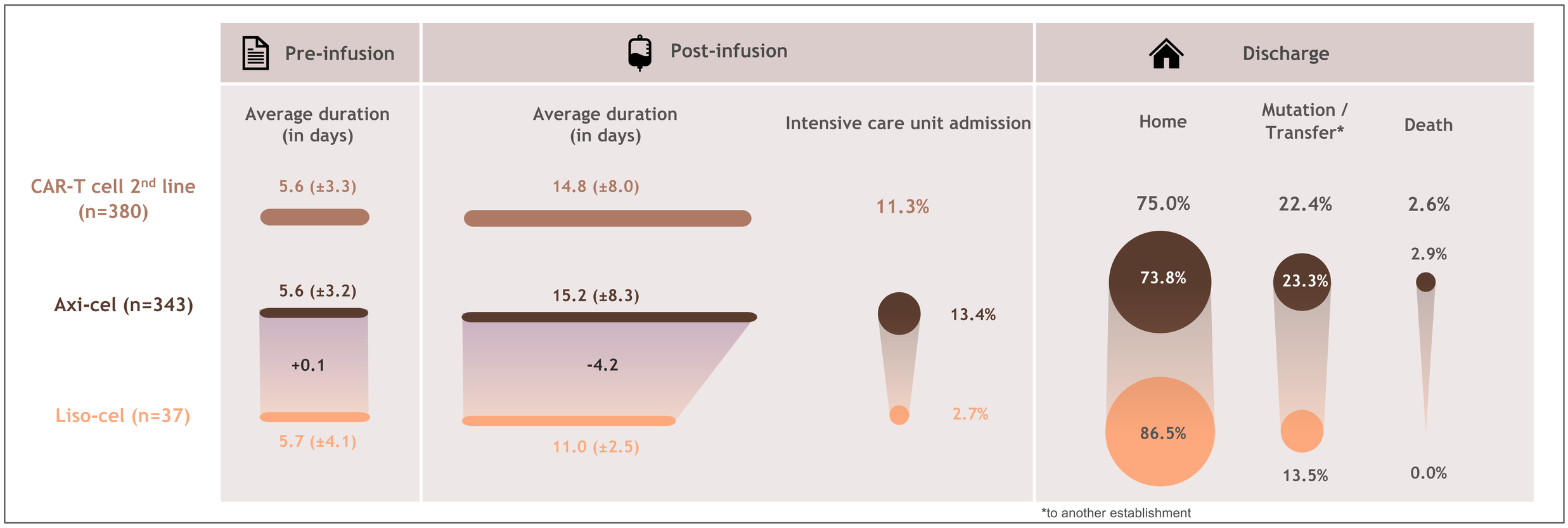

Figure 2. Hospital stay for second-line CAR-T cell infusion: pre- and post-infusion duration, admission to intensive care, and discharge status

Conclusion

- This is the first real-world study estimating the healthcare resource use in France for patients treated with a CAR-T cell in second line for large B-cell lymphoma.
- Despite the limited number of patients, a shorter length of stay was observed among those treated with liso-cel compared with axi-cel, along with fewer intensive care admissions, fewer other expensive drugs and a higher proportion of patients discharged home.
- Liso-cel may help optimize hospital length of stay, which is essential to reduce the inpatient care burden associated with CAR-T cell.
- Conducting a similar study including patients treated in 2024 would allow confirmation of these differences in a larger patient cohort.

References

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Email: <florian.colrat@bms.com>