Differences in healthcare resource utilisation between 3L DLBCL treatments: A UK HCP survey

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Theme 04. Lymphoproliferative Disorders (Lymphoma, CLL)

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BACKGROUND

Introduction

- In the UK, there is a poor understanding of the differences in healthcare resource utilisation (HCRU) between third-line (3L) treatments of diffuse large B cell lymphoma (DLBCL), a type of non-Hodgkin lymphoma.

Study aims

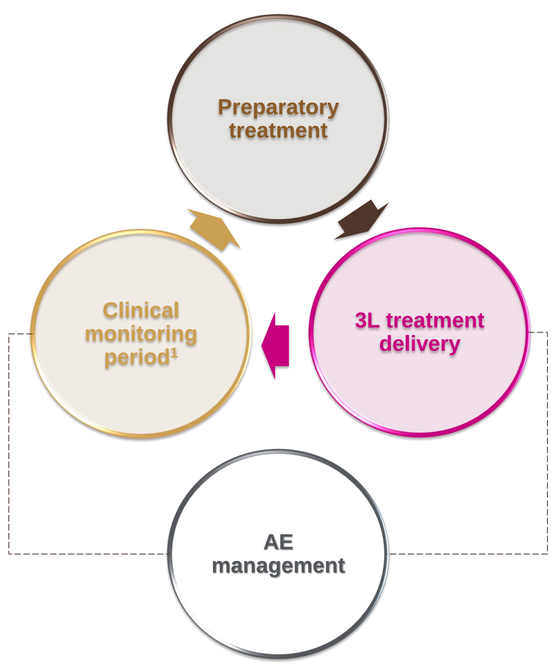
- Map HCRU points in the treatment pathway for 3L DLBCL
- Survey healthcare professionals (HCPs) to understand real-world HCRU linked to selected treatments (epcoritamab, glofitamab, loncastuximab tesirine, polatuzumab vedotin with bendamustine and rituximab [Pola-BR], rituximab with gemcitabine and oxaliplatin [R-GemOx; as a commonly used chemo-immunotherapy[1]]) in a typical patient (≥18 years with relapsed/refractory (R/R) DLBCL after ≥2 systemic treatments without further comorbidities), with the aim to:
  - Compile a comprehensive database of HCRU for the treatment of 3L DLBCL in the UK
  - Estimate HCRU for a single 3L DLBCL treatment cycle

METHODS

Mapping HCRU points in the treatment pathway for 3L DLBCL

- We mapped the current 3L DLBCL treatment pathway in the UK using summaries of product characteristics and National Health Service guidelines[2].
- HCRU determinants were categorised by preparatory medication dose and 3L treatment drug infusion time along with adverse event (AE) management and the extension of the clinical monitoring period if an AE occurred in a previous cycle (Figure 1, Table 1).
- AEs analysed in this study:
  - Frequently reported AE events (anaemia, thrombocytopenia and neutropenic sepsis)
  - Rare but high-level HCRU AEs (cytokine release syndrome [grades 2–4] and immune effector cell-associated neurotoxicity syndrome [grades 1–4])

Figure 1. The patient pathway over a single 3L DLBCL treatment cycle



Abbreviations: AE, adverse event; DLBCL, diffuse large B cell lymphoma; 3L, third line.
Notes: [1] If AE occurs, additional clinical monitoring will be added in future treatment cycles.

Table 1. HCRU inputs for a single 3L DLBCL treatment cycle

Treatment pathway category	Data points collected
Preparatory medication	Dose[1], administration route (oral, IV or SC) and frequency, delivery setting, patient and medicine infusion time, HCP responsible and time for delivery
3L treatment drug infusion time	Per 3L treatment: Dose[1], monitoring type, setting and time, HCP responsible and time for monitoring
AE treatment	Per AE treatment: Dose[1], administration frequency, delivery setting and time, HCP responsible and time for delivery
AE	Per AE additional monitoring time: HCP responsible and time for additional monitoring

Abbreviations: 3L third line AE, adverse event; IV, intravenous; NHS, National Health Service; SmPC, summary of product characteristics; SC, subcutaneous.
Notes: [1]Dosing regimens for 3L treatment cycles, including preparatory medications and AE management requirements are based on summaries of product characteristics and National Health Service guidelines.

HCP survey design

The questionnaire asked questions related to:

- The relevance of the treatment pathway (Table 1) to clinical practice
- Data gaps identified in desk research

HCP survey piloting

- 3 HCPs (1 clinician, 1 pharmacist, 1 nurse) completed a pilot survey to validate survey assumptions and ensure survey usability, robustness, accuracy and clinical relevance

HCP survey fielding

- Hosted online by SurveyEngine GmbH
- Recruited HCPs by searching NHS hospital websites and LinkedIn based on experience, location and care level, then sent expression of interest emails and screeners
- Fielded survey in August 2024 with 17 HCPs (7 clinicians, 5 pharmacists, 5 nurses) from a large geographical spread (5 Northern England, 10 Southern England, 1 Scotland, 1 Northern Ireland) and range of care levels (2 district general hospital, 8 specialist centre, 7 tertiary centre)
- Gave HCPs 7 days to complete the survey

Data cleaning and analysis

- Downloaded raw survey data into Excel and cleaned in R and Excel
- Summarised preparatory medication, 3L treatment drug infusion time, AE treatment and AE data in R
- Summed relevant mean data based on dosing regimens per treatment cycle for each treatment to calculate total chair time; produced data plots in Excel

Calculation of HCRU for a single 3L DLBCL treatment cycle assumptions

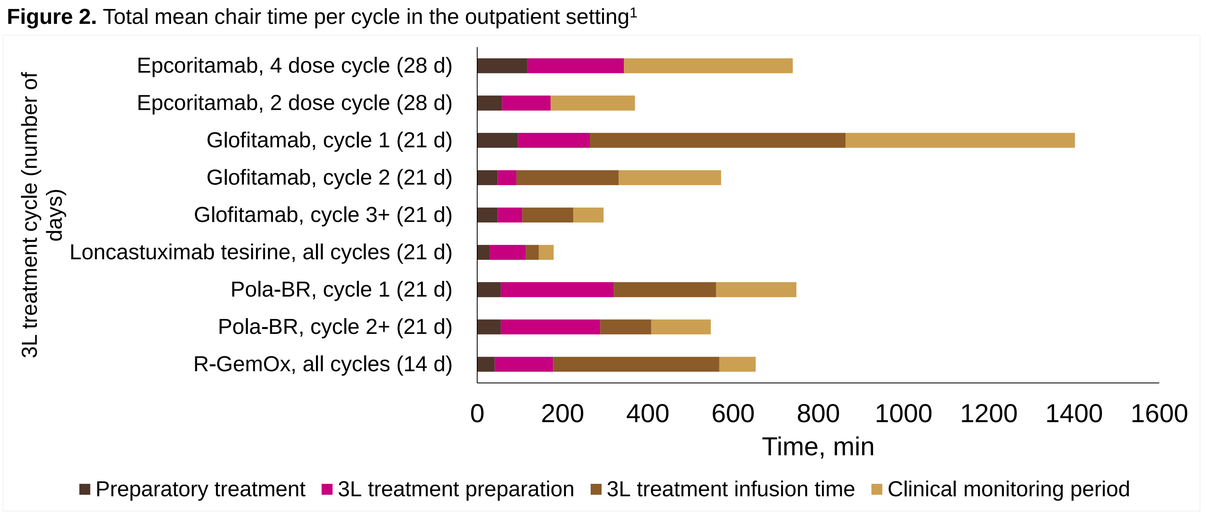
- HCRU was independent from treatment cycle.
- All 3L treatments are administered in either the outpatient or inpatient setting; both categorisations were explored for bispecific treatments (epcoritamab and glofitamab) because they require at least one inpatient admission.
- AE occurrence and management were independent from 3L treatment and treatment cycle.
- Oral drugs incurred nil HCRU.

RESULTS

HCRU for 3L treatment

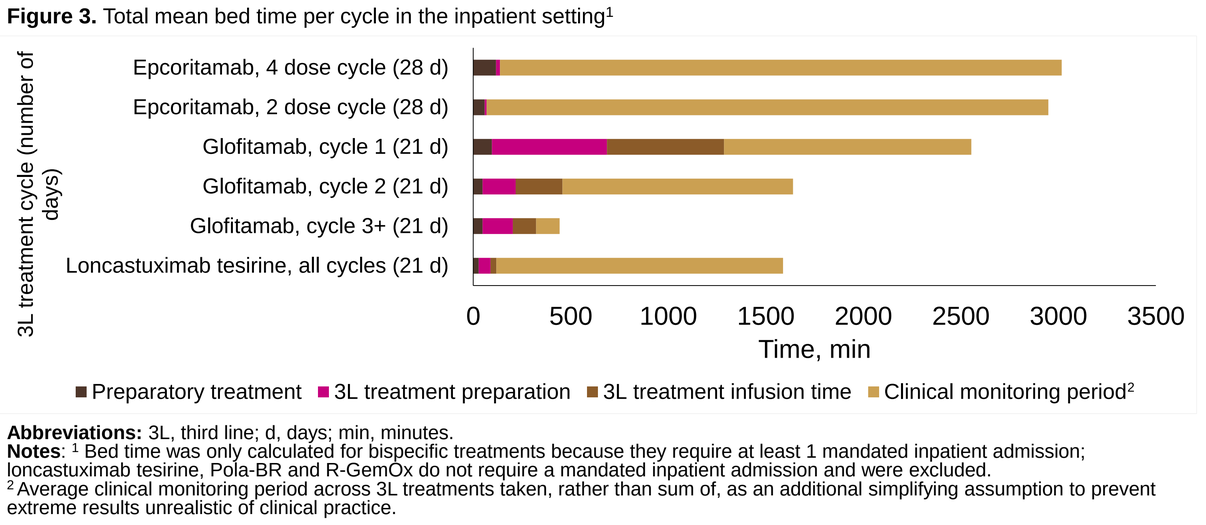
- Preparatory treatment requires minimal resource and is similar between 3L treatment cycles, while infusion frequency contributes more to overall 3L treatment chair time than to infusion time.
- 3L treatment infusion accounts for most total chair/bed time:
  - For outpatients, loncastuximab tesirine and 2-dose cycles of epcoritamab have the lowest overall chair time per cycle (Figure 2).
  - For inpatients, glofitamab cycle 3+ has the lowest overall bed time per cycle (Figure 3).
- Clinical monitoring time is a major driver of HCRU and is highest for bispecific treatments that carry a risk of high-grade cytokine release syndrome (CRS) and cell-associated neurotoxicity syndrome (ICANS).

Figure 2. Total mean chair time per cycle in the outpatient setting[1]



Abbreviations: 3L, third line; d, days; min, minutes.
Notes: [1] Chair time was calculated for all 3L treatments because they require at least 1 outpatient administration over a treatment course,

Figure 3. Total mean bed time per cycle in the inpatient setting[1]



Abbreviations: 3L, third line; d, days; min, minutes.
Notes: [1] Bed time was only calculated for bispecific treatments because they require at least 1 mandated inpatient admission; loncastuximab tesirine, Pola-BR and R-GemOx do not require a mandated inpatient admission and were excluded.
[2] Average clinical monitoring period across 3L treatments taken, rather than sum of, as an additional simplifying assumption to prevent extreme results unrealistic of clinical practice.

HCRU for AE management

- Although rare, management of high-grade (3–4) CRS and ICANS is the most resource-intensive part of 3L DLBCL management, on average requiring 5.9 ICU and 6.4 inpatient-step down days.
- Average additional clinical monitoring period time following AEs in prior treatment cycles varied substantially by AE, from 14.5 (anaemia, thrombocytopenia) to 1887.1 minutes (grade 4 ICANS).

CONCLUSIONS AND LIMITATIONS

- HCRU is highly variable in 3L DLBCL treatments, with treatment cycles of loncastuximab tesirine demonstrating the lowest outpatient chair time across 3L treatment cycles.
- Inpatient data demonstrates the resource-intensiveness of bispecific treatments for DLBCL.
- Limitations
  - HCPs indicated that total chair time across 3L treatment cycles is likely overestimated, and comparative totals may differ. 3L treatment drug infusion and clinical monitoring times in later treatment cycles are often reduced.
  - Results may be skewed towards specialist and tertiary centres because the survey sample was small (n=17), with less district general hospital (DGH) representation.
  - The DLBCL population is largely >65 years and often has comorbidities that may increase their resource requirements compared with the patient population assumed in the survey[3,4].

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