REAL-WORLD CHARACTERISTICS OF PATIENTS WITH PERIPHERAL T-CELL LYMPHOMA RECEIVING FRONTLINE BRENTUXIMAB VEDOTIN WITH CHEMOTHERAPY: A RETROSPECTIVE ANALYSIS WITH PROPENSITY SCORE MATCHING

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Background

- Peripheral T-cell lymphomas (PTCLs) are a group of rare, aggressive non-Hodgkin lymphomas (NHLs) that originate from post-thymic or mature T cells and natural killer (NK) cells[1] and have a poor prognosis.[2]
- PTCL accounts for approximately 10–15% of newly diagnosed NHL, equating to around 7,000 new cases of PTCL in the United States (US) in 2020 (among 77,240 estimated new cases of NHL[3]), with 5-year survival rates <50% for most types of PTCL.[2,4,5]
- In the phase 3 ECHELON-2 study (NCT01777152),[6] treatment with brentuximab vedotin (BV) plus cyclophosphamide, doxorubicin, and prednisone (A+CHP) demonstrated significantly longer progression-free survival (PFS) and overall survival (OS) compared with cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP) in the frontline (FL) treatment of patients with systemic anaplastic large cell lymphoma (sALCL) or other CD30-expressing PTCL.
    - This study supported the November 2018 US Food and Drug Administration (FDA) approval of BV for the treatment of adult patients with previously untreated sALCL or other CD30-expressing PTCL, including angioimmunoblastic T-cell lymphoma (AITL) and PTCL not otherwise specified (PTCL-NOS), in combination with CHP.[7]

Objective and Methods

This study described the patient characteristics, PTCL subtypes, and supportive care use of FL A+CHP and CHOP outside of the clinical trial setting in the US since FDA approval.

- **Study design**: Retrospective cohort study using medical and pharmacy claims data in the Symphony Health Solutions Patient-Level Claims database.
  - Patients are uniquely identified and can be tracked over 10 years across all settings.
  - Captures a significant portion of total medical and pharmacy activity in the US and is geographically representative, with all payment and payer types represented.
- **Study population:**
  - Patients ≥18 years with 1 inpatient or 2 outpatient ICD-9/10 PTCL diagnosis codes.
  - Newly initiated on A+CHP or CHOP (index date) between November 2018 and January 2020; ≥6 months of continuous enrollment before and ≥3 months after the index date.
- **Analysis:** 1:1 propensity score matching analysis was performed based on age, gender, baseline comorbidities, geographic region, and length of follow-up.

Results: Selected characteristics of patients with PTCL treated with FL A+CHP vs CHOP before and after 1:1 propensity score matching

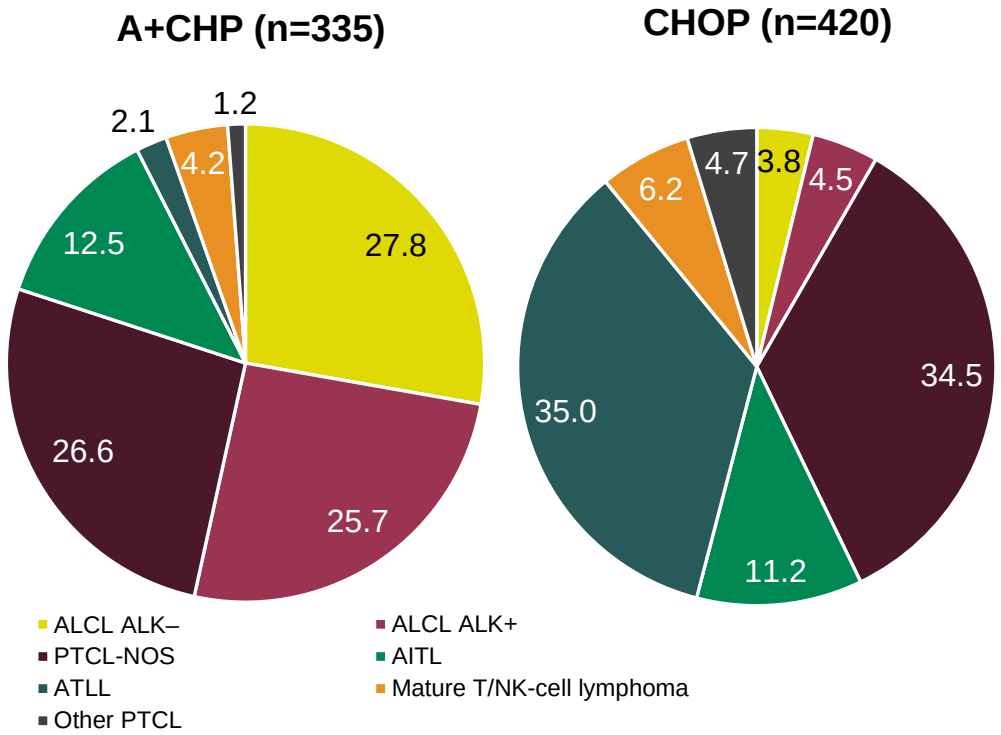
- A total of 755 patients met the inclusion criteria (335 A+CHP; 420 CHOP).
- In the unmatched cohorts, 61% and 60% were male, and the median age at index was 62 and 69 years for A+CHP and CHOP, respectively.
- The prevalence of select comorbidities based on the Charlson Comorbidity Index was similar between the cohorts.

Baseline characteristics	Unmatched			Propensity score matched		
	A+CHP (n=335)	CHOP (n=420)	p-value	A+CHP (n=335)	CHOP (n=335)	p-value
Age, median (IQR), years	62 (49, 71)	69 (61, 76)	<0.001	62 (49, 71)	66 (58, 73)	<0.001
Male, %	61	60	0.9	61	59	0.5
≥1 comorbidity, %	50	58	0.066	50	50	>0.9
Common comorbidities, %						
Diabetes, no complications	20	24	0.2	20	18	0.7
Diabetes, complications	7.2	8.8	0.5	7.2	3.9	0.091
Chronic pulmonary disease	15	17	0.5	15	14	>0.9
Congestive heart failure	8.1	7.9	>0.9	8.1	6.0	0.4
Mild liver disease	9.3	11	0.5	9.3	9.6	>0.9
Peripheral vascular disease	6.6	10	0.12	6.6	9.0	0.3
Renal disease	6.9	14	0.004	6.9	8.4	0.6
Length of follow-up, median (IQR), months	10.1 (7.1, 14.0)	10.6 (7.1, 14.6)	0.5	10.1 (7.1, 14.0)	10.4 (6.9, 14.5)	>0.9

A+CHP, brentuximab vedotin plus cyclophosphamide, doxorubicin, and prednisone; CHOP, cyclophosphamide, doxorubicin, vincristine, and prednisone; IQR, interquartile range.

Results: Distribution of PTCL subtypes of patients treated with FL A+CHP vs CHOP, before propensity score matching

- The majority of PTCL subtypes treated with A+CHP included sALCL (anaplastic lymphoma kinase [ALK] positive [ALK+] and ALK-negative [ALK–], 54%), PTCL-NOS (27%), and AITL (13%).
- The majority of subtypes treated with CHOP included PTCL-NOS (35%), adult T-cell leukemia/ lymphoma (ATLL; 35%), and AITL (11%).

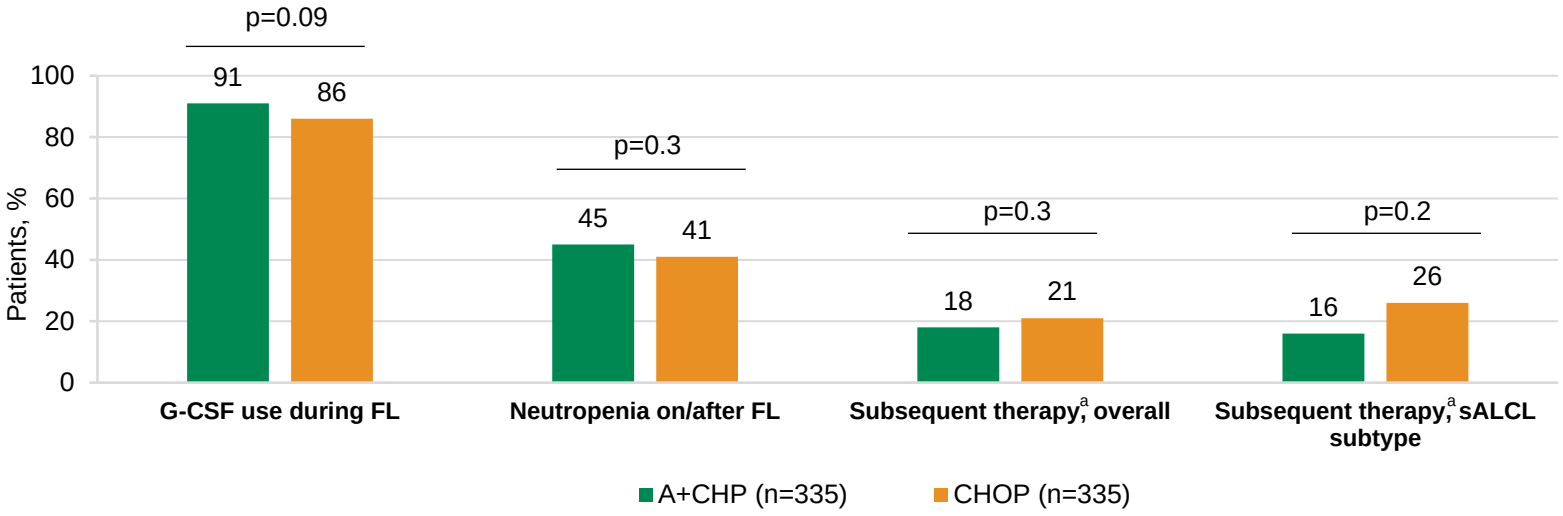


Note: other PTCL includes subtypes with <3% of patients in each cohort (ALCL, enteropathy-associated lymphoma, extranodal NK/T-cell lymphoma, hepatosplenic T-cell lymphoma, subcutaneous panniculitis-like T-cell lymphoma).
A+CHP, brentuximab vedotin plus cyclophosphamide, doxorubicin, and prednisone; AITL, angioimmunoblastic T-cell lymphoma; ALCL, anaplastic large cell lymphoma; ALK–, anaplastic lymphoma kinase-negative; AKL+, anaplastic lymphoma kinase-positive; ATLL, adult T-cell leukemia/lymphoma; CHOP, cyclophosphamide, doxorubicin, vincristine, and prednisone; NK, natural killer; PTCL, peripheral T-cell lymphoma; PTCL-NOS, PTCL not otherwise specified.

Results: Treatment characteristics after 1:1 propensity score matching

- The proportion of patients who received granulocyte-colony stimulating factor (G-CSF) and the incidence of neutropenia during FL therapy was similar between study cohorts.
  - Among patients receiving G-CSF, 89% of A+CHP and 85% of CHOP patients received it as primary prophylaxis (p=0.2).

- Rates of subsequent therapy were similar between cohorts overall and for the sALCL subtype.
  - Among patients receiving subsequent therapy, 32% of A+CHP and 23% of CHOP patients were retreated with a BV-containing regimen.



[a]Subsequent therapy is defined as a therapy change after FL treatment.
A+CHP, brentuximab vedotin plus cyclophosphamide, doxorubicin, and prednisone; CHOP, cyclophosphamide, doxorubicin, vincristine, and prednisone; FL, frontline; G-CSF, granulocyte-colony stimulating factor; sALCL, systemic anaplastic large cell lymphoma.

Limitations

- Claims data have inherent limitations such as selection bias and reliance on complete and accurate coding.
- Confounding by unmeasured characteristics (eg, disease stage, CD30 testing, and response outcomes) cannot be ruled out due to inherent limitations in claims data.
- Although the data represent ~40% of the US market and provide important information about real-world treatment use and patient characteristics, results may not be generalizable to all patients with PTCL or to all practice settings.

Conclusions

- Patients in this real-world analysis were older than those in the ECHELON-2 trial; the high comorbidity burden is a potential reflection of the older population.
- A+CHP was more commonly used than CHOP in sALCL, as would be expected due to the high rate of CD30 positivity in this subtype.
    - For PTCL subtypes in which CD30 is more variably expressed, A+CHP and CHOP were used with similar frequencies.
- CHOP was commonly used in ATLL, and A+CHP was used in PTCL subtypes not included in ECHELON-2, such as NK/T-cell lymphomas.
- G-CSF was used as primary prophylaxis in the large majority of patients in both cohorts.
- Use of BV-containing regimens in subsequent therapy was more common in A+CHP vs CHOP patients, which is likely due to these patients having CD30-expressing tumors.
- Characteristics and management of this real-world population with PTCL vs a clinical trial population underscore the importance of real-world studies in assessing the impact of new regimens on clinical practice and identifying areas for further education of practitioners.

References and Disclosures

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