Follicular Lymphoma: Epidemiology and Real-World Practices in France (EpiCART STUDY)

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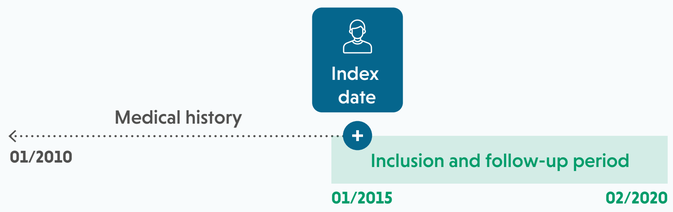
OBJECTIVES

CAR T-cells therapy has recently been approved in relapsed/refractory follicular lymphoma (FL), but few real-world data exist on this population. The primary objective was to describe the different treatment lines of FL patients from 2015 to 2020 in France. The secondary objectives were to estimate the economic burden of FL patient, time to next treatment (TTNT) and overall survival (OS).

METHODS

This was a retrospective cohort study based on medical administrative data of the French National Health System database (SNDS). All adult patients treated for symptomatic FL were included from January 2015 to February 2020. They were followed from the first information about symptomatic FL identified in the database until death, end of study period, or transformation into diffuse large B-cell lymphoma (DLBCL). Follow-up ran through February 2020 to avoid bias from the COVID-19 pandemic.



An artificial intelligence algorithm (ATLAS) and Aalen Johansen estimator were used to identify the different treatment lines and durations [1, 2]. To compute the average total cost of FL treated patients per treatment line, in €2022 from the French National Health Insurance (NHI) perspective while accounting for censored cost data, the method proposed by Bang and Tsiatis was used [3]. The Kaplan-Meier method was used to estimate overall survival in the study population (only for patients affiliated with Statutory Health Insurance Scheme), and by line of treatment.

CONCLUSION

Results are generally consistent with the literature. Due to the maximum 5 years of follow-up, the indolence of the disease, and the efficacy of 1L therapy, a certain proportion of long-term responders may not be identified, potentially leading to underestimation of TTNT and misidentification of line of treatment. This study reflects French real-world practices and may support reimbursement assessment.

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References :

[1] Laurent M, Guilmet C, Javelot M, Guigand G, Pierrès M, Augusto V, et al. ATLAS, nouvelle méthode d'analyse des lignes de traitements à partir du SNDS - Exemple de l'étude MYLORD, sur les patients français atteints du Myélome Multiple (en cours de publication). Revue d'Épidémiologie et de Santé Publique. 2020;

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SNIIRAM study registered with the HDH on March 24, 2021 and authorized by the CNIL on May 4, 2021. (DR--2021-140 (request 921191)) - CNAM agreement signed on October 27, 2021.

RESULTS

PATIENTS' CHARACTERISTICS

17,102 FL treated patients were included in the study with a stability of incidence between 2015-2020 and an increase of patients treated in advanced lines. Patients were followed up for a mean duration of 2.8 (±1.8) years and had a mean retrospective follow-up duration 6.2 (±2.2) years. Median age was 67 years, 47% were women. Comorbidities in the population included cardiovascular diseases (19.5%), diabetes (12.5%), and bronchopulmonary diseases (10.5%). 73% were treatment-naïve or without treatment for a FL at least 5 years before the index date and 7% had a DLBCL transformation. Mean time to treatment initiation was 5 (0-120) months (median [IQR] of 0.3 [1.8] months) and 12% had a watch and wait period before initiating treatment (ie. a time to treatment initiation greater than 6 months).

In 2019: 2,097, 643, 241, 131 patients initiated 1L (first line), 2L, 3L, 4L+, respectively.

Study population

17,442 patients

Excluded: 340 patients excluded due to non-unique identifiers

17,102 patients treated during study period

12,470 newly treated patients
1,272 DLBCL occurrence

Number of FL patients included per year

2015	2016	2017	2018	2019	2020*
6,060	6,023	6,269	6,275	6,406	3,847
2,444	2,408	2,469	2,337	2,366	446

Patients treated during year N ● Newly treated patients

*Only jan-feb

REGIMENS DISTRIBUTION

Overall regimens distribution per treatment line, per year

XX-XX% : min-max among 2017-2020

	Line 1	Line 2	Line 3	Line 4+
Patients	4,631 - 4,816	995 - 1,089	281 - 389	93 - 203
R-CHOP/R-CVP	61.7 - 68.1%	17.5 - 23.2%	10.7 - 13.7%	8.6 - 15.0%
Obinutuzumab-CVP/Obinutuzumab-CHOP	0.0 - 9.6%	0.2 - 3.3%	0.3 - 6.9%	0.5 - 2.5%
R-B	9.5 - 14.7%	16.2 - 29.2%	8.2 - 19.7%	5.4 - 14%
R-Mono	7.0 - 8.3%	8.8 - 11.6%	7.1 - 9.9%	5.4 - 10.9%
Idelalisib		1.6 - 3.1%	8.2 - 19.7%	21.2 - 28.0%
ASCT		1.0 - 1.6%	1.1 - 1.6%	
Undefined	6.0 - 9.5%	24.3 - 27.7%	20.7 - 28.3%	20.2 - 20.4%

R-CHOP/R-CVP: Rituximab, Cyclophosphamide, Hydroxydaunorubicin, Oncovin, Prednisolone / Rituximab-Cyclophosphamide, Vincristine, Prednisone; **R-B:** Rituximab-Bendamustine; **ASCT**: Autologous Stem Cell Transplant ; **Allo-SCT:** Allogeneic Stem Cell Transplant

Overall, the distribution of treatment regimens for the first line was mainly composed of R-CHOP/R-CVP. The two types of regimen most represented in second line were R-CHOP/R-CVP and R-B. For the third treatment line and further, several treatments were identified including Idelalisib, allo-SCT, undefined treatments (including non identifiable experimental treatments).

ECONOMIC BURDEN

Resource use distribution per treatment line, per patient

	Line 1	Line 2	Line 3	Line 4+
Average total weighted costs (€2022)	35,090.4	28,155.1	30,958.3	33,169.7
Outpatient hospitalization	55.9%	47.6%	37.8%	35.5%
Sick leave	29.3%	22.8%	18.9%	18.7%
Inpatient hospitalization	24.9%	43.6%	42.1%	41.2%
Drugs	11.1%	13.9%	25.5%	29.8%
Consultations	5.0%	4.8%	4.5%	4.2%
Transport	4.5%	5.3%	4.5%	5.1%
Medical imaging	2.4%	2.1%	1.9%	1.5%
Biology exams	1.9%	1.7%	1.5%	1.4%
Medical devices	1.4%	1.8%	2.6%	2.5%
Other	0.4%	0.5%	0.5%	0.3%

Average total weighted costs (Bang and Tsiatis) per patient from the NHI's perspective were detailed by treatment line. The most important resource use in first and second line was outpatient hospitalization. In third line and further, the most important resource use was inpatient hospitalization.

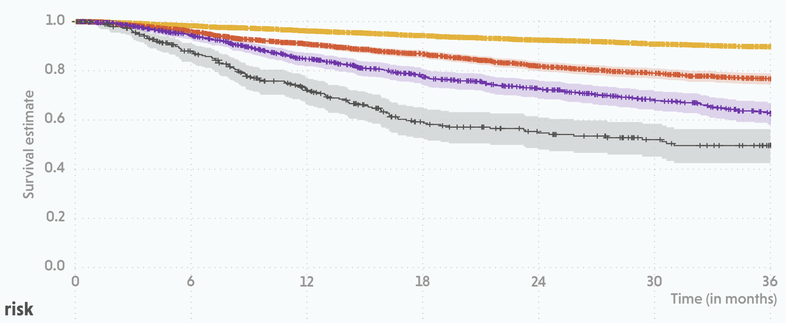
TIME TO NEXT TREATMENT AND OVERALL SURVIVAL

Median TTNT by treatment line

Line 1	Line 2	Line 3	Line 4+
not reached	not reached	22 months	15 months

After 33 months of follow-up, median TTNT was not reached in 1L / 2L and was 22 / 15 months in 3L / 4L, respectively.

Overall survival by treatment line



At risk							
Line 1	5,487	4,717	4,091	3,489	2,952	2,401	1,920
Line 2	2,132	1,798	1,482	1,207	949	758	596
Line 3	802	658	517	405	320	244	182
Line 4	307	237	167	112	89	66	48

Median survival was 31.0 (21.5;NE) months for line 4 and was not reached for other treatment lines. Three-year OS after 4L initiation was 50%.