TREATMENT PATTERNS AND COSTS ASSOCIATED WITH CHRONIC LYMPHOCYTIC LEUKEMIA CHEMOTHERAPY UNDER THE BRAZILIAN PRIVATE HEALTHCARE PERSPECTIVE: A RETROSPECTIVE ANALYSIS OF THE ORIZON DATABASE

PCN86

OBJECTIVES:

The aim of the study was to identify the chemotherapeutic treatment patterns and associated costs in patients with chronic lymphocytic leukemia (CLL) in the Private Healthcare System.

METH ODS:

A retrospective analysis of the Orizon database, containing inpatient and outpatient claims data of a pool of 102 HMOs (34% of the total Private Health System), from Jan/2009 to Dec/2012 was conducted. Eligibility criteria were patients starting CLL (ICD-10 code C911) chemotherapy treatment from Apr/2009 to Dec/2012. This cohort of patients was followed until Dec/2012, death or loss of follow-up. Chemotherapy regimens were identified based on the agents reported in the claims. Line of treatment was defined based on meaningful interruption (>6 months) and/or change in the chemotherapy regimen. Descriptive statistics (average, standard deviation and percentage) of treatment regimens, duration of treatment and costs were performed.

RE SULT S:

163 patients representing 859 cycles of chemotherapy met eligibility criteria. 41.7% of the patients underwent more than one line of treatment, with total chemotherapy costs of R$84,979.63 per patient. The three most widely used chemotherapy regimen were: fludarabine, cyclofosfamide and rituximab (FCR), used in 81 (49,7%) patients with average treatment duration of 3.54 cycles and total costs of R$69,241.91 per patient; rituximab monotherapy, used in 44 (27.0%) patients, with average treatment duration of 4.05 cycles and total costs of R$59,543.12 per patient; and fludarabine and cyclofosfamide (FC), used in 19 (11.7%) patients, with average duration of 2.22 cycles and total costs of R$7,075.95 per patient. Chemotherapy drugs accounted for 72.8% of the total costs, followed by other medicines (11%), disposable devices (5.5%) and hospital facility fees (5.0%).

CO NCLU SION:

FCR is the standard of care in CLL patients treated in the Brazilian Private Health System, and almost half of the patients undergo more than one treatment line, creating a significant financial burden to private payers.

INT RODUCTI ON

Chronic Lymphocitic Leukemia (CLL) is one of the most frequent types of leukemia (22-30%), with an incidence rate ranging from 1 to 5,5 per 100,000 people[1].

Several therapeutic options are available for the treatment of the disease, including alkylating agents (chlorambucil, cyclophosphamide), purine analogues (fludarabine, cladribine) and monoclonal antibodies (rituximab)[2]. Although international guidelines are available, there is lack of information on current treatment choices in Brazil.

The aim of the study was to identify treatment patterns or lines of chemotherapy treatments and the direct costs associated in patients with chronic lymphocytic leukemia (CLL) in the private healthcare system.

MET HODS

Retrospective cohort analysis from the healthcare system database of Orizon company. Orizon has 102 health insurance companies and approximately 34% of patients in the private healthcare system in Brazil.

The period of analysis was January 2009 to December 2012. Eligibility criteria were patients with CLL (ICD-10 code C911) starting chemotherapy treatment from April 2009 to December 2012, followed until loss of follow-up. Chemotherapy regimens were identified based on concomitant drugs used in each patient. Treatment lines were defined based on significant interruption (>6 months) and/or change in chemotherapy regimen.

Descriptive statistics (mean, standard deviation and percentage of each treatment regimen) was conducted for two outcomes: chemotherapy costs and chemotherapy regimens.

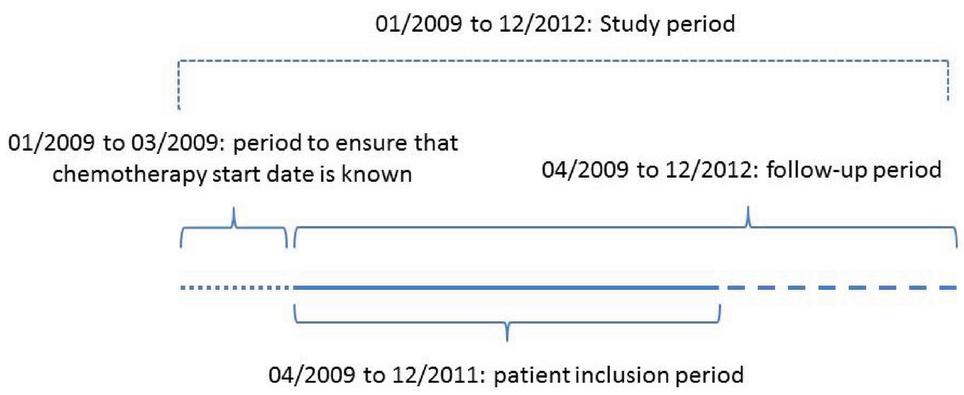

Figure 1. Eligibility criteria diagram

RESULT S

163 patients met eligibility criteria, representing 859 cycles of chemotherapy. 41.7% of patients underwent more than one treatment regimen (Table 1).

Table 1: Study population baseline characteristics

Parameter	Value
Mean age at baseline (n = 43)	64,0 ± 16,5
% Male (n = 43)	31 (72%)
Region (n = 163)	
Southeast	111 (68%)
South	15 (9%)
Northeast	26 (16%)
C enter-west	11 (7%)
Type of provider (n = 163)	
Health Insurance	95 (58%)
Self-management	37 (23%)
Medical cooperatives	23 (14%)
Group medicine HMOs	6 (4%)
Other	2 (1%)
Number of chemotherapy regimens (n = 163)	
1 regimen	95 (58,3%)
2 regimens	43 (26,4%)
≥ 3 regimens	25 (15,3%)

Total chemotherapy direct costs were R$ 84,979.63 per patient. The three commonest treatment regimens were fludarabine, cyclophosphamide and rituximab (FCR), used by 81 patients (47.9%) with an average duration of 3.54 cycles and total costs of R$ 69,241.91 per patient; rituximab monotherapy, used by 44 patients or 27.0% of patients, with an average duration of 4.05 cycles and total costs R$ 59,543.12 per patient; and fludarabine and cyclophosphamide (FC), used in 19 patients (11.7%), with an average duration of 2.22 cycles and total cost of R$ 15,724.34 per patient (Table 2).

Table 2. Average spent and cycles per user.

Treatment regimen	Average cost per cycle (R$)	Average cost per user (R$)	Average # of cycles per user
FCR	19,536.11	69,241.91	3.54
RITU XIMAB	14,710.65	59,543.12	4.05
R- CV P	14,215.86	52,124.81	3.67
FR	16,920.12	71,910.51	4.25
R- CH OP	12,913.03	47,678.90	3.69
FC	7,075.95	15,724.34	2.22
Overall average		84,979.63	

* Users may be counted in more than one cycle

Chemotherapy drugs accounted for 72.8% of total costs, followed by other drugs (11%), other hospital costs (6.5%), hospital fees (5.0%) procedures (3.0%) and exams(1.7%).

The commonest regimens were FCR (Fludarabine + Rituximab + Cyclophosphamide) with 32.9% of cycles in the period, Rituximab with 20.4%, R-CVP (rituximab + cyclophosphamide + vincristine + prednisone) with 7.7% and FR (Fludarabine + Rituximab) with 5.9% (Figure 2). The commonest drugs were: rituximab (78.6%), fludarabine (49.1%) and Cyclophosphamide (58.0%).

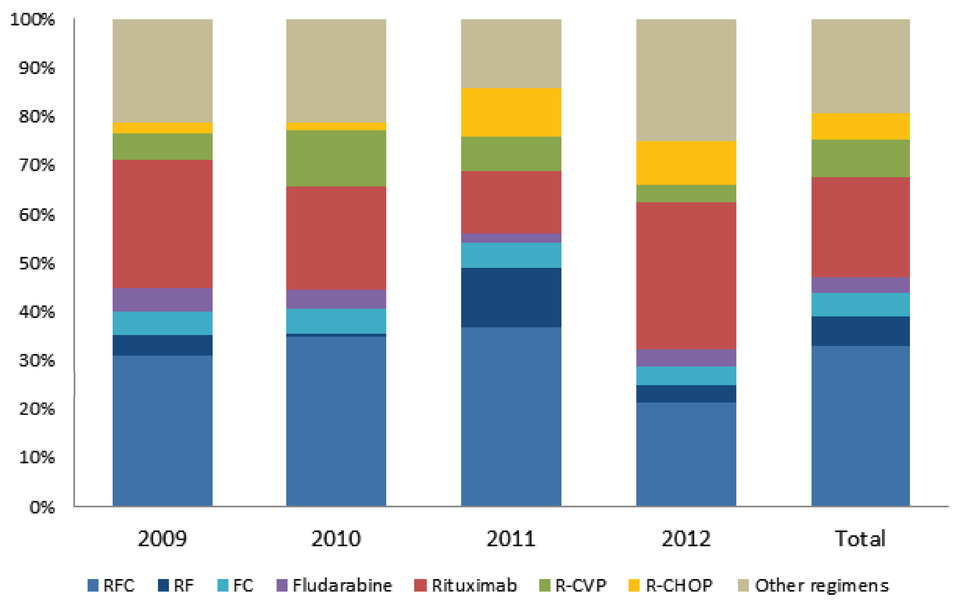

Figure 2. Use of cycles per treatment regime

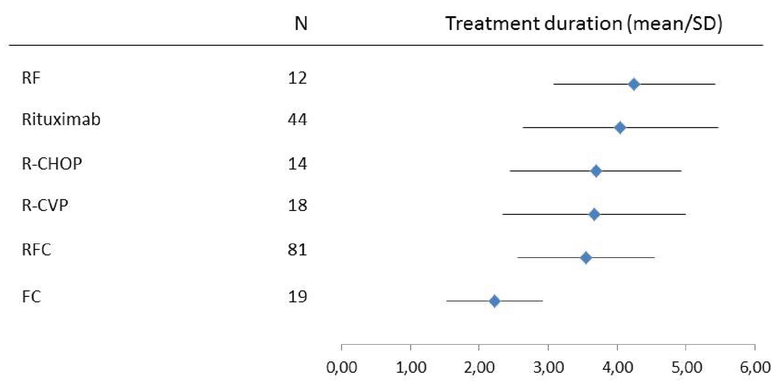

Figure 3. Cycles per patient

LIMITATI ONS

- As with any retrospective database study, we are limited by the level of accuracy of the information recorded in the database.
- The rate of patients undergoing more than one line of therapy may be overestimated, since it was assumed that any interruption on the treatment meant switch to another line of therapy;
- The abovementioned assumption would also lead to an underestimation of the average length of therapy and treatment-free interval.

CONCLU SION

FCR is the standard of care in CLL patients treated in the Brazilian Private Health System, and almost half of the patients undergo more than one treatment line, creating a significant financial burden to private payers (R$ 84,979.63 per patient). Approximately 41.7% of patients underwent more than one treatment regimen.

REFERENCE S

1. REDAELLI A., LASKIN B.L., STEPHENS J.M., BOTTEMAN M.F. & PASHOS C.L., The clinical and epidemiological burden of chronic lymphocytic leukaemia. European Journal of Cancer Care, v.13, p.279-287, 2004a;
2. GARNICA M, NUCCI M. Epidemiology, treatment and prophylaxis of infections in chronic lymphocytic leukemia Rev. bras. hematol. hemoter. 2005;27(4):290-300;
3. ASANO EF, RASERA I JR, SHIRAGA EC. Cross-sectional study of variables associated with length of stay and ICU need in open Roux-En-Y gastric bypass surgery for morbid obese patients: an exploratory analysis based on the Public Health System administrative database (Datasus) in Brazil. Obes Surg. 2012 Dec;22(12):1810-7.