SURVIVAL OUTCOMES AND SOME RELATED FACTORS IN THE TREATMENT OF RELAPSED/REFRACTORY B-CELL NON-HODGKIN LYMPHOMA WITH R-GEMOX REGIMEN AT VIETNAM NATIONAL CANCER HOSPITAL

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ABSTRACT

Objective: To evaluate the survival outcomes and some related factors of R-GEMOX chemotherapy regimen in the treatment of relapsed/refractory B-cell non-Hodgkin lymphoma at Vietnam National Cancer Hospital from 2019 to 2024.

Subjects and methods: A cross-sectional descriptive study was conducted on 83 patients with relapsed/refractory B-cell non-Hodgkin lymphoma treated with RGEMOX regimen at the Hematologic oncology department, Vietnam National Cancer Hospital from May 2019 to June 2024. Results: The average age was 59.9; the male/female ratio was 1; The overall response rate was 51.8%, of which the complete response rate was 20.5%; partial response was 31.3%; The rate of stable disease was 4.8%; the rate of progression disease was 43.4%; The median progression-free survival of the study was 13 months. The median overall survival of the study was 21 months. Refractory was an independent prognostic factor for PFS ($p<0.05$) and response after treatment was an independent prognostic factor for progression-free survival and overall survival with $p<0.001$.

Conclusion: R-GEMOX regimen prolongs progression-free survival as well as overall survival and is safe for patients with relapsed/refractory B-cell non-Hodgkin lymphoma without high-dose chemotherapy indications.

Key words: R/R NHL (Relapsed/Refractory B-cell non-Hodgkin lymphoma).

1. INTRODUCTION

Non-Hodgkin's lymphoma (NHL) is a group of malignant neoplasms of lymphoid tissue. This is one of the most common cancers in the world as well as in Vietnam. According to the report of the Global Cancer Organization (GLOBOCAN) in 2020, the age-standardized incidence of NHL in both sexes in the world is 5.8/100,000 people. The disease ranks 11th among cancers in the world. In Vietnam, the age-standardized incidence rate for both sexes is 10.07/100,000 people and is one of the 13 most common cancers today. NHL is one of the cancers that can be cured. With the advancement of diagnostic methods of pathology, immunohistochemistry, cell biology, and molecular biology, it has helped to classify histopathological types in detail and accurately. With the development of treatment methods such as chemotherapy, radiotherapy, monoclonal antibodies, some forms of NHL can be cured with a 5-year survival rate of 30-

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55%. However, a significant proportion of patients are still resistant to treatment or relapse after initial treatment.

Multi-chemotherapy is a major step forward in the treatment of relapsed/refractory non-Hodgkin lymphoma. To date, high-dose chemotherapy (HDT) with hematopoietic stem cell transplantation is the treatment of choice for patients with relapsed/refractory rapidly progressive non-Hodgkin lymphoma that is sensitive to chemotherapy[1]. For relapsed/refractory indolent non-Hodgkin lymphoma, this approach also appears superior to conventional salvage chemotherapy[2]. The R-GEMOX regimen was created as a lifesaver for patients with relapsed/refractory B-cell non-Hodgkin lymphoma who are not eligible for high-dose chemotherapy. The unique synergistic effects and toxicity profiles of rituximab, gemcitabine, and oxaliplatin (R-GemOx) suggest that combination regimens containing these three agents may have advantages in the treatment of relapsed/refractory B-cell non-Hodgkin lymphoma compared with conventional regimens in terms of efficacy, safety, and tolerability[3,4].

2. SUBJECT AND STUDY METHOD

2.1. Subject

a. Selection criteria

All patients diagnosed with relapsed/refractory B-cell non-Hodgkin lymphoma at Vietnam National Cancer Hospital met the following selection criteria:

- From 18 years old with a diagnosis of relapsed/refractory non-Hodgkin lymphoma (Relapsed disease is when the disease progresses again after achieving a complete response for at least 6 months/ refractory disease is when the disease does not respond to the most recent treatment regimen).

- Immunohistochemistry results confirm the diagnosis of non-Hodgkin lymphoma, CD 20 (+).

- Not meeting the criteria or refusing high-dose chemotherapy + stem cell transplantation.

- Liver and kidney function and blood count tests are at the threshold allowing treatment.

- Patients agree to receive chemotherapy with the R-GEMOX regimen.

b. Exclusion criteria

- Signs of active HBV, HCV, HIV.

- Toxicity ≥ grade 3 due to previous chemotherapy.

- Pregnant or lactating women.

2.2. Study method

A cross-sectional prospective study was conducted on 83 patients with relapsed/refractory B-cell non-Hodgkin lymphoma from May 2019 to June 2024 at the Hematologic Oncology Department - Vietnam National Cancer Hospital.

Treatment regimen: R-GEMOX[5].

Drug	Dose	Route	Day
Rituximab	375 mg/m^2	IV	1 +15
Gemcitabine	1000 mg/m^2	IV	1 + 15
Oxaliplatin	100 mg/m^2	IV	1 + 15
Frequency: 28 days **Cycles:** 6			

2.3. Data analysis and research ethics

The information was encoded and processed using SPSS 23.0 software.

The study was approved by the Ethics Council of Thai Nguyen University of Medicine and Pharmacy and approved by the Ethics Council of Vietnam National Cancer Hospital.

3. RESULT

Table 1. General characteristics of research subjects

Characteristics		n	%
Age	≤ 40	8	9.6
	41 - 60	29	34.9
	61 - 75	42	50.6
	>75	4	4.8
Sex	Men	41	49.4
	Female	42	50.6
ECOG	0	43	51.8
	1	38	45.8
	2	2	2.4
B symptom	Yes	16	19.3
Extranodal lesion		38	45.8
Size of lesion	Median (min - max) cm	4.2 (1-16)	
Bulky > 7,5 cm		17	20.5

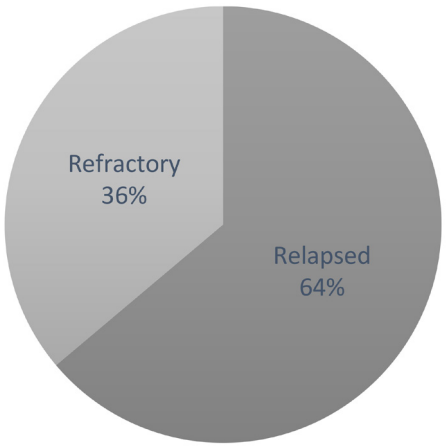


Figure 1. Relapsed and refractory rates

Comment: Of the 83 patients studied, 64% relapsed and 36% were refractory to previous regimens.

Table 2. Interim and End-of-treatment response rate

Response Category (n=83)	Interim n (%)	End-of-treatment n (%)
Complete response (CR)	13 (15.7)	17 (20.5)
Partial response (PR)	54 (65.1)	26 (31.3)
Stable disease (SD)	3 (3.6)	4 (4.8)
Progression disease (PD)	13 (15.7)	36 (43.4)
Overall response rate (CR+PR)	67 (80.8)	43 (51.8)

Comments: At the interim assessment, 13 patients had complete response (15.7%), partial response (65.1%). 13 patients progressed, and 3 patients did not respond (19.3%). At the end-of-treatment assessment, the complete response rate was 20.5%; partial response rate was 31.3%, and 43.4% of patients progressed.

Progression-free survival and overall survival

In our study, the average follow-up time was 18.3 months (shortest 1 month, longest 48 months), 56 patients had recurrence and 45 patients died.

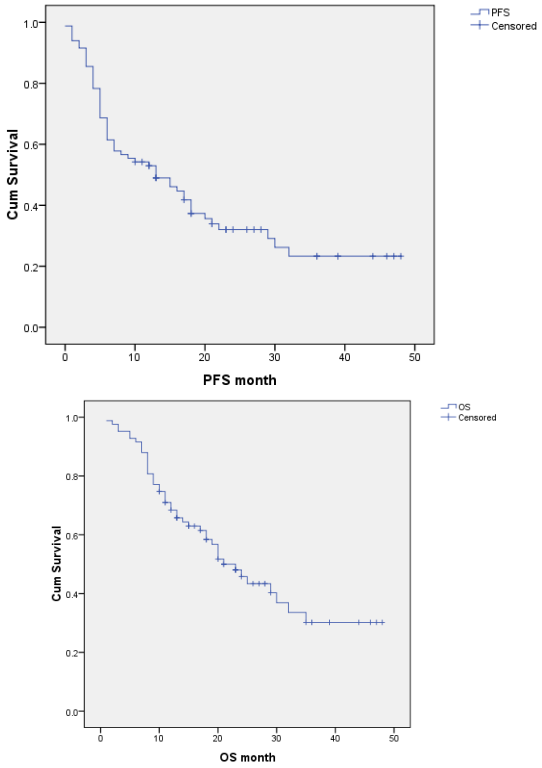
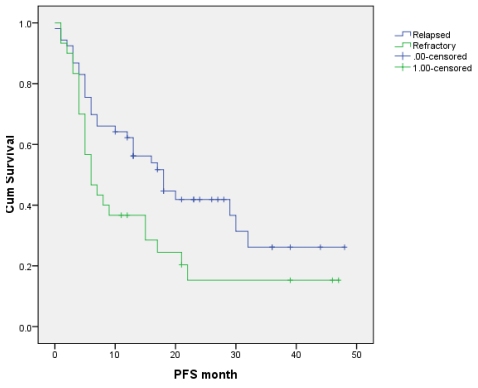


Figure 2. Progression-free survival and overall survival

Comment: The median progression-free survival of the study was 13 months. The median overall survival of the study was 21 months.



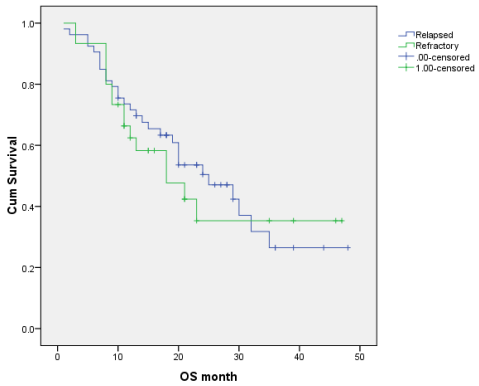


Figure 3. Association between relapsed or refractory and progression-free survival and overall survival

Comment: Refractory is an independent prognostic factor for PFS ($p<0.05$) but has no prognostic significance for OS ($p>0.05$).

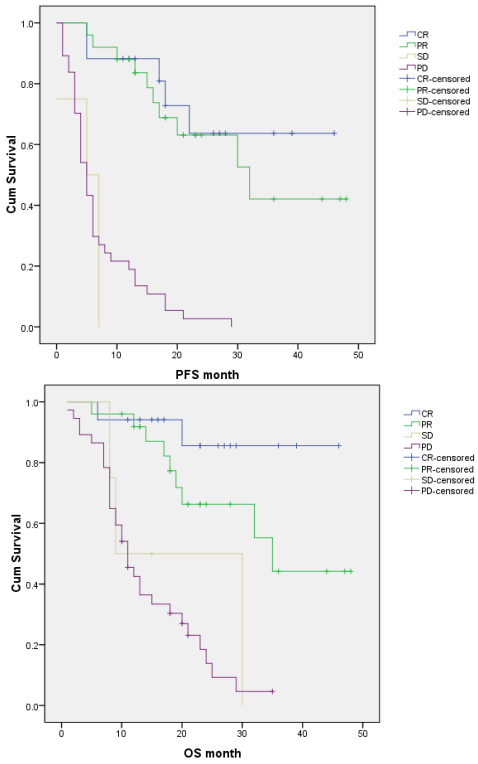


Figure 4. Association between treatment response and progression-free survival and overall survival

Comment: Treatment response is an independent prognostic factor for progression-free survival and overall survival with p<0.001.

4. DISCUSSIONS

4.1. General characteristics of patients

According to statistics in the world, patients with diffuse large B-cell lymphoma have an average age of 64 and the male ratio accounts for 55%. Our study is mostly patients with diffuse large B-cell lymphoma (87.5%) with the average age of the study being 59.9; the male/female ratio = 1.

T. El Gnaoui's study (2007) on 46 patients with relapsed/refractory B-cell lymphoma showed an average age of 64, the male/female ratio = 2[3]. Clarisse Cazelles' study (2021) conducted on 196 patients with relapsed/refractory diffuse large B-cell lymphoma showed a mean age of 72, male/female ratio = 1.2[6].

4.2. Clinical characteristics

General condition and syndrome B

At the time of admission, the majority of patients had PS=1, accounting for 45.8%. The rate of syndrome B was 19.3%. Research by T. El Gnaoui (2007) showed that the rate of PS 0-1 accounted for 67%; PS > 2 accounted for 33%[3]. Clarisse Cazelles's study (2021) showed that the proportion of patients with PS 0-1 accounted for 66% and patients with PS ≥ 2 accounted for 34%[6].

4.3. Response rate

Our study found that after 3 cycles, 13 patients had a complete response (15.7%), and 65.1% had a partial response. There were 13 patients who progressed, and 3 patients had stable disease (19.3%). After 6 cycles, the complete response rate was 20.5%; partial response was 31.3%; 4.8% had stable disease, and 43.4% of the patients progressed. Clarisse Cazelles's study (2021) showed that the interim response rate was 54% and the complete response rate was 23%. The end-of-treatment response rate was 38% and the complete response rate was 33%[6]. T. El Gnaoui's study (2007) showed that the complete response rate was 50%; the partial response rate was 33%; and the disease progression rate was 17%[3]. Thus, the response rate in our study was higher than that of Clarisse Cazelles, possibly because most patients received the RGEMOX regimen in line 2, while in this author's study, patients underwent more regimens before RGEMOX.

4.4. Overall survival and progression-free survival and associated factors

In our study, the median follow-up time was 18.3 months (shortest 1 month, longest 48 months), 56 patients had relapses and 45 patients died. The median progression-free survival time of the study was 13 months. The median overall survival time of the study was 21 months. The study by Clarisse Cazelles (2021) showed a median progression-free survival time of 5 months and an overall survival time of 10 months[6]. T. El Gnaoui's study (2007) showed that the overall survival rate at 2 years was 66%; the disease-free survival rate was 43%[3]. Refractory was an independent prognostic factor for PFS (p<0.05) and treatment response was an independent prognostic factor for PFS and OS with p<0.001.

5. CONCLUSION

Through our study, we found that the RGEMOX regimen applied in the treatment of relapsed/refractory B-cell non-Hodgkin lymphoma without high-dose chemotherapy achieved a final overall response rate of 51.8%, with acceptable safety profile, the median progression-free survival was 13 months, and the overall survival was 21 months.

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