

## ORIGINAL ARTICLE

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# Health Related Quality of Life in Patients With Hodgkin's Lymphoma Receiving Brentuximab Vedotin in University Hospital Establishment of Oran (Uheo) - Algeria.

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### ABSTRACT

For patients with Hodgkin's lymphoma (HL) treated with Brentuximab vedotin (BV), quality of life (QoL) depends primarily on the effectiveness of treatment, side effects management, the psychological impact of diagnosis and treatment, and how the constraints associated with drug delivery affect their daily lives. The main objective is to evaluate QoL using the European Organization For Research and Treatment of Cancer questionnaire in HL patients under BV at the UHEO to improve overall patient management and optimize therapeutic outcomes throughout their treatment path care. **Materials and methods.** The study included patients from different regions of Algeria who had been treated at the UHEO's hematology department with HL under BV since January 2024. Questionnaires assessing various aspects such as potentially quality of life, were completed by the patients themselves. **Results.** In total 28 patients were included, 57.15% were women. The average age of the population was 33+/-17 years with extremes of 15 and 72. A statistically significant difference was found between the items of the QLQ-HL27 as well as for the items of the QLQ-C30 according to age, gender, region and stage of disease ( $p<0.05$ ). No influence of age was found on diarrhea ( $p=0.10$ ), nor any statistical difference between pain ( $p=0.78$ ) and financial impact ( $p=0.63$ ) compared to gender. **Conclusion.** A statistical difference of the majority of items in QLQ-C30 and QLQ-HL27 compared to age, gender, region and stage of disease in LH patients treated with BV.

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## 1. INTRODUCTION

Hodgkin's lymphoma (HL) is a type of cancer that develops from lymphoid cells in lymph nodes or other lymphoid tissues. (1) Although it is less common than other types of lymphoma; there has been a slight increase in its incidence over the past two decades. In Algeria, this incidence has evolved from 0.7 to 1.8 cases per 100,000 inhabitants per year. (2) It also presents a distinction in terms of age incidence with two peaks; one in adolescents and young adults and the other in seniors. (1) It is slightly more common in men than women. (3) There are other

risk factors associated with the disease. (1) Brentuximab Vedotine (BV) is a targeted HL promoter treatment that provides significant benefits to patients with recurrent or refractory forms of the disease. It works by targeting cancer cells specifically with a combination of antibody and chemotherapy drug. (4) Quality of life (QoL) after HL can be affected by a variety of factors, ranging from adverse effects (AEs) of treatments to socio-economic challenges, including the use of new molecules recently introduced in the field in Algeria. (5) However, to optimize patients' QOL during and after treatment it is crucial to adopt a

comprehensive approach that includes proactive management of AEs as well as psychological and emotional support. Measurement instruments developed by the European Organization for Research and Treatment of Cancer (EORTC) facilitate the evaluation of patients' quality of life and provide a comprehensive assessment of how the disease and its treatments impact the physical, emotional and social dimensions of patients' lives. (6) The main objective of our study was to assess the quality of life of HL patients with BV using EORTC QLQ-C30 and QLQ-HL27 at UHEO to improve overall management and optimize therapeutic outcomes throughout their care pathways.

## 2. EQUIPMENT AND PATIENTS

A cohort of 28 patients from different regions of Algeria who have been treated by the hematology department of the UHEO for refractory HL under BV since January 2024. All patients who completed the EORTC QLQ-C30 and QLQ-HL27 in Arabic received simple instructions to help them complete the questionnaires. These instructions are intended to ensure that the responses are valuable and accurately reflect their experience of the disease and treatment.

The QLQ-30C version 3.0: a valuable tool that generally evaluates the quality of life of cancer patients. It is structured in several unique scales and measures. It is composed of multi-item scales: 5 functional scales (FP: physical functioning, FE: emotional functioning, FS: social functioning, FC: cognitive functioning and FG: general functioning), 3 symptomatic scales (fatigue, pain, nausea and vomiting), a scale of overall health status in addition to unique measures of individual symptoms and problems. All scales and unique measurements range from 0 to 100. High scores on functional and overall scales indicate better quality of life and functioning, while high scores on symptomatic scales indicate increased symptoms or problems. (7) (8)

The QLQ-HL27: a questionnaire specifically developed to assess the quality of life of patients with LH. It complements the QLQ-C30 by providing additional questions that focus on specific aspects of LH. It includes 27 questions composed of multiple scales and sub-scales (symptom burden-SB- due to disease and/or treatment, physical condition-PC-, fatigue, emotional impact-EI- and health and functioning concerns-WF-). As for the QLQ-C30 scores range from 0 to 100. Questionnaire items are rated using a 4-point response scale: "not at all", "a little", "enough" and "a lot". (9-11). Informed and signed consent for the use of information was obtained from patients. Consent form is available on request.

Statistical analysis was performed using IBM SPSS version 29.0 software. The socio-demographic data and questionnaire item scores are expressed as mean +/- standard deviation, median (min,max) or frequency. The chi test was performed to

determine the distribution of quantitative data by age, gender, region and stage of disease.

**Table 1.** Socio-demographic distribution of patients.

|                 | Mean ± SD | Median (min,max) | Frequency (n)   |
|-----------------|-----------|------------------|---|
| Age             | 33±17     | 31(15,72)        |   |
| Gender          |           |                  | Men=42.5% (12)<br>Women=57.5% (16)  |
| weight          | 62±14     | 64(39,95)        |   |
| Size            | 166±9     | 165(150,185)     |   |
| Body Mass Index | 22±5      | 21(14,33)        |   |
| Stage           |           |                  | II=9% (3)<br>III=18% (6)<br>IV= 73% (19)  |
| Region          |           |                  | Oran=25% (7)<br>Excluding Oran= 75% (21)  |
| Civil status    |           |                  | Single = 76% (20)<br>Married= 21% (7)<br>widower= 13% (1)   |
| Level of study  |           |                  | Primary= 6% (2)<br>Secondary = 66% (17)<br>Academic = 28% (9)   |
| Occupation      |           |                  | Without occupation= 38% (11)<br>student = 28% (9)<br>Academic student = 9% (3)<br>Retired= 3% (1)<br>workers= 22% (4) |

**Abbreviations:** SD: Standard deviation.

## 3. RESULTS

All patients completed the QLQ-C30 and QLQ-HL27 questionnaires without missing anything in about 15min. The population was predominantly female (57.15%), the average age was 33+/- 17ans with extremes of 15 and 72years. 73% of patients had stage IV HL, the majority of whom were single (76%), without occupation (38%) with secondary education (66%). Table 1. The analysis of EORTC items QLQ-C30 and QLQ-HL27 is summarized in Table 2.

A statistical difference was found between the items of the QLQ-HL27: SB, PC, EI, WF, as well as for the items of the QLQ-C30: FP, FE, FS, FC, FG according to age, gender, region and stage of the disease ( $p < 0.05$ ). Table 3. No influence of age was found on diarrhea ( $p = 0.10$ ), nor any statistical difference between pain ( $p = 0.78$ ) and financial impact ( $p = 0.63$ ) compared to sex (Table 3).

**Table 2.** General Distribution of Scores.

|                        | Mean $\pm$ SD  | Median(min,max) |
|------------------------|----------------|-----------------|
| QLQ-HL27               |                |                 |
| SB                     | 38.09 $\pm$ 13 | 33(16,61)       |
| PC                     | 60 $\pm$ 17    | 58(16,83)       |
| EI                     | 61 $\pm$ 21    | 61(16,88)       |
| WF                     | 55 $\pm$ 16    | 54(27,81)       |
| QLQ-C30                |                |                 |
| Global health status   | 47 $\pm$ 15    | 50(15,83)       |
| Functional scales      |                |                 |
| Physical functioning   | 71 $\pm$ 12    | 73(34,93)       |
| Role functioning       | 80 $\pm$ 17    | 83(33,100)      |
| Emotional functioning  | 56 $\pm$ 16    | 66(8,83)        |
| Cognitive functioning  | 82 $\pm$ 14    | 83(33,100)      |
| Social functioning     | 82 $\pm$ 14    | 83(50,100)      |
| Symptom scales/item    |                |                 |
| Fatigue                | 49 $\pm$ 14    | 49(22,77)       |
| Nausea/vomiting        | 41 $\pm$ 20    | 33(16,100)      |
| Pain                   | 38.09 $\pm$ 14 | 33(16,66)       |
| Dyspnea                | 35 $\pm$ 25    | 33(0,66)        |
| Insomnia               | 51 $\pm$ 21    | 66(0,100)       |
| Appetite loss          | 24 $\pm$ 25    | 33(0,66)        |
| Constipation           | 15 $\pm$ 21    | 0(0,66)         |
| Diarrhoea              | 17 $\pm$ 29    | 0(0,100)        |
| Financial difficulties | 30 $\pm$ 21    | 33(0,66)        |

**Abbreviations:** QLQ-C30: The EORTC core quality of life questionnaire, SD: Standard deviation, QoL: Quality of life, QLQ-H27: The EORTC core quality of life questionnaire for Hodgkin lymphoma, SB: Symptom burden, PC: Physical condition, EI: Emotional impacts, WF: Worries/fears

#### 4. DISCUSSION

Few data on quality of life are available for patients with HL in Algeria, our study being the first to evaluate this concept using questionnaires developed by EORTC QLQ-C30 and QLQ-HL27 which were well accepted by all patients recruited who have refractory HL under BV. On average, questionnaires completed in 10-15 minutes were considered easy to complete. The mean age of our study was 33 with extremes of 15 and 72 which is consistent with the study by Gemici Alihcan et al in Turkey (12) and Stefanie Kreissi et al in Germany (13), whereas Anita Immanuel et al in the UK studied the age range from 21 to 95 (14). Although HL is more common in young men (15), this has already been found in the studies of Nolte (6), Gemici Alihcan, Anita Immanuel et al, our cohort was predominantly female 57.5% this could be explained by the limited number of patients

recruited during the study period. In our study, there was an influence of age ( $p < 0.05$ ) on the scores of the scales SB, PC, EI and WF of the items of the QLQ-HL27 as shown in table 3 on the one hand, and for the scores of the «Global quality of life», «functional and symptoms scales» on the other hand. This does not match the results of Gemici et al or they did not find a statistical difference. (12) This difference between the studies can be explained by the fact that in our young adult population, functional or cognitive limitations may interfere with their professional goals, social and personal factors that are seen as disrupting their daily lives. However, our analysis did not indicate an influence of age on the diarrhea score ( $p = 0.10$ ). The QLQ-C30 covers various aspects of quality of life, including fatigue which is one of the most common and disabling symptoms in cancer patients (16). Our study also found an influence of age on fatigue with a mean of 49. The study by Stefanie Kreissi et al indicates that the majority of functional scores and symptoms may be different depending on the stage of the disease, which is consistent with our findings (Table 3).

**Table 3.** Distribution of scores by age, gender, region and stage of disease.

|                        | Age<br>P value | Gender<br>P value | Region<br>P value | stage of<br>disease<br>P value |
|------------------------|----------------|-------------------|-------------------|--------------------------------|
| QLQ-HL27               |                |                   |                   |                                |
| SB                     | 0.000          | 0.000             | 0.000             | 0.000                          |
| PC                     | 0.000          | 0.000             | 0.000             | 0.000                          |
| EI                     | 0.000          | 0.000             | 0.000             | 0.000                          |
| WF                     | 0.000          | 0.000             | 0.000             | 0.000                          |
| QLQ-C30                |                |                   |                   |                                |
| Global health status   | 0.000          | 0.000             | 0.000             | 0.000                          |
| Functional scales      |                |                   |                   |                                |
| Physical functioning   | 0.000          | 0.000             | 0.000             | 0.000                          |
| Role functioning       | 0.000          | 0.000             | 0.000             | 0.000                          |
| Emotional functioning  | 0.000          | 0.000             | 0.000             | 0.000                          |
| Cognitive functioning  | 0.000          | 0.000             | 0.000             | 0.000                          |
| Social functioning     | 0.000          | 0.000             | 0.000             | 0.000                          |
| Symptom scales/item    |                |                   |                   |                                |
| Fatigue                | 0.000          | 0.000             | 0.000             | 0.000                          |
| Nausea/vomiting        | 0.000          | 0.000             | 0.000             | 0.000                          |
| Pain                   | 0.000          | 0.78              | 0.000             | 0.000                          |
| Dyspnea                | 0.000          | 0.000             | 0.000             | 0.000                          |
| Insomnia               | 0.000          | 0.000             | 0.000             | 0.000                          |
| Appetite loss          | 0.000          | 0.000             | 0.06              | 0.000                          |
| Constipation           | 0.000          | 0.000             | 0.99              | 0.000                          |
| Diarrhea               | 0.10           | 0.000             | 0.000             | 0.000                          |
| Financial difficulties | 0.000          | 0.63              | 0.000             | 0.000                          |

**Abbreviations:** QLQ-C30: The EORTC core quality of life questionnaire, SD: Standard deviation, QoL: Quality of life, QLQ-H27: The EORTC core quality of life questionnaire for Hodgkin lymphoma, SB: Symptom burden, PC: Physical condition, EI: Emotional impacts, WF: Worries/fears

These findings could be useful for clinicians by providing resources to help them better manage symptoms according to stage of the disease and treatments by reducing adverse effects while improving quality of life as explained by Troy et al in his

study. (17) Emotional function scores are more affected than physical function scores (Nolte et al), and women would report lower results which is consistent with our results ( $p < 0.05$ ) and differs from the results of William Annalyn et al (18). The statistical analysis did not demonstrate an influence of gender on pain ( $p = 0.78$ ) and financial impact ( $p = 0.63$ ); similar data were published by Immanuel et al.(14). According to our cohort, there was a high frequency of patients outside Oran (Table 1) with an influence of the region on the overall quality of life status ( $p = 0.000?$ ). This statistical difference can be explained by the fact that BV is only available in the UHEO's hematology department.

Although the use of baseline scores helps to mitigate some bias, the study recognizes that the lack of data on quality of life prior to disease and specifically prior to BV treatment was a significant factor. In addition, response bias may occur due to patient mood, expectations or social desirability factors.

## 5. CONCLUSION

This study is the first to be carried out in Algeria, which exploits the quality of life of patients. The use of the disease-specific QLQ-HL27 questionnaire in conjunction with the cancer global QLQ-C30 questionnaire allowed for the evaluation of most of the relevant functional health symptoms and conditions of patients with HL.A statistical difference in the majority of items of QLQ-C30 and QLQ-HL27 with respect to age, sex, region as well as stage of disease in patients with HL treated with BV was found. Quality of life assessment is crucial because it allows us to measure not only the survival outcomes of a treatment, but also its impact on patients' daily lives and well-being to improve and optimize its quality.

**Competing interests:** The authors declare that they have no competing interest.

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