



ORIGINAL ARTICLE

Non-Hodgkin lymphoma: Excellent results at the expense of the high toxicity of the treatment^{☆,☆☆}



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KEYWORDS

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Abstract

Introduction: Lymphomas are the third malignancy in children, and within them non-Hodgkin lymphoma (NHL) accounts for just 7% of cancers in children under 15 years. Chemotherapy is currently the treatment of choice. The objective of this study is to analyse the toxicity caused by the treatment in paediatric patients diagnosed with NHL.

Material and methods: A retrospective study was conducted on patients diagnosed with mature B-cell NHL, treated according to the LMB protocol 2001, from January 2007 to February 2014. Data concerning the diagnosis, treatment and toxicities that developed in the patients during the same period were collected.

Results: A total of 20 mature B-cell NHL cases were diagnosed: 16 Burkitt lymphomas, 2 diffuse large cell lymphomas and 2 mature leukaemias. Almost two-thirds (65%) of patients were classified in a high grade stage (III–IV) at diagnosis. Serious infectious processes, severe myelosuppression, liver abnormalities, and mucositis were the most frequent toxicities. Overall survival was 95% (19/20). One patient died of causes unrelated to the illness.

Conclusion: Despite the excellent survival rate, most patients diagnosed with NHL mature B cells experience grade III and IV toxicities during treatment.

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PALABRAS CLAVE

Neoplasia;
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Linfoma no Hodgkin: excelentes resultados a expensas de elevada toxicidad del tratamiento**Resumen**

Introducción: Los linfomas son la tercera neoplasia maligna en los niños y, dentro de ellos, los linfomas no Hodgkin (LNH) representan tan solo el 7% del cáncer en menores de 15 años. La quimioterapia constituye actualmente el tratamiento de elección. El objetivo de este estudio es analizar la toxicidad secundaria al tratamiento en pacientes pediátricos diagnosticados de LNH.

Material y métodos: Estudio retrospectivo de pacientes diagnosticados de LNH de células B maduras tratados según el protocolo LMB 2001, desde enero del 2007 hasta febrero del 2014. Se recogieron los datos referentes al diagnóstico, el tratamiento y las toxicidades que desarrollaron durante el mismo.

Resultados: Se diagnosticaron 20 LNH de células B maduras: 16 linfomas Burkitt, 2 linfomas difusos de células grandes y 2 leucemias maduras. Un 65% de los pacientes se clasificó al diagnóstico en un estadio de alto grado (III-IV). Los procesos infecciosos graves, la mielosupresión severa, las alteraciones hepáticas y la mucositis fueron las toxicidades más frecuentes. La supervivencia global fue del 95% (19/20). Un paciente falleció por causas no relacionadas con su enfermedad.

Conclusión: La mayoría de los pacientes diagnosticados de LNH de células B maduras experimentan toxicidades grado III y IV durante el tratamiento, a pesar de lo cual la supervivencia es excelente.

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Introduction

Lymphomas are the third most common type of malignant neoplasm in children, following acute leukaemia and tumours of the central nervous system.¹ Non-Hodgkin lymphomas (NHL) comprise a heterogeneous group of diseases that account for 7% of malignant disease in children less than 15 years of age in developed countries.² At present, the most widely accepted classification of NHL is that of the World Health Organization.³ The most common subtypes in children arise from mature B-cells.⁴ Among them are Burkitt lymphoma, diffuse large cell lymphoma and mature cell leukaemia.⁵ Burkitt lymphoma is the third most common lymphoid tumour following acute lymphoblastic leukaemia and Hodgkin lymphoma in children younger than 15 years.⁶ They are usually characterised by a high degree of malignancy and aggressive behaviour.⁷ Chemotherapy, the cornerstone of treatment, is associated with considerable toxicity, especially bone marrow suppression, which calls for transfusion support and infection prophylaxis. Nausea and vomiting, as well as mucositis, are also common.^{8,9} In spite of these adverse effects, the prognosis is highly favourable with the currently available treatments. Survival rates have improved spectacularly in recent years thanks to new chemotherapy regimens, with 5-year survival exceeding 85%.² The French Lymphoma Malignancy B (LMB 96) protocol has demonstrated an increase in overall and event-free survival in patients diagnosed with Burkitt lymphoma and mature leukaemia compared to other protocols.¹⁰

The aim of this study was to analyse the toxicity secondary to chemotherapy in patients with Burkitt lymphoma,

diffuse large cell lymphoma and mature leukaemia treated with the LMB-2001 protocol (NHL 04).

Materials and methods

We reviewed the medical records of patients diagnosed with NHL that were treated with the NHL 04 protocol between January 2007 and February 2014. We collected data pertaining to the diagnosis and the toxicities experienced in the different cycles of treatment. Data on toxicity were gathered conforming to the datasheet included in the protocol, and events were classified according to the common toxicity criteria of the National Cancer Institute, version 2.0. We have expressed quantitative data as median and range, and qualitative data as frequency over the total number of patients (n/N). We performed the statistical analysis using the SPSS statistics® software version 19.

Results

A total of 20 patients were diagnosed in our unit between January 2007 and February 2014. [Table 1](#) summarises the characteristics of the population. Their age ranged from 3 to 16 years. Males predominated (70%). We did not identify any past medical history of interest (immunodeficiency, solid organ transplant, previous neoplasm, HIV) associated with the risk of developing a NHL. At the time of diagnosis, six patients had lymph node involvement, nine had secondary extranodal involvement, mostly at the kidney or liver, six had pleural effusion, and eight required admission to the

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