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Non-Hodgkin's Lymphoma: Five-year Survival in a Historical Cohort of Patients who Underwent Stem Cell Transplantation in Brazil

Linfoma Não-Hodgkin: Sobrevida de Cinco Anos em uma Coorte Histórica de Pacientes Submetidos a Transplante de Células-Tronco no Brasil

Linfoma No-Hodgkin: Supervivencia de Cinco Años en una Cohorte Histórica de Pacientes Sometidos a Trasplante de Células Madre en Brasil

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Abstract

Introduction: Several studies have shown the benefits of stem cell transplantation in the treatment of Non-Hodgkin's lymphoma. **Objective:** To evaluate survival and associated factors in transplanted Non-Hodgkin's lymphoma patients in Brazil. **Method:** We conducted a retrospective analysis of 100 adult patients with Non-Hodgkin's lymphoma transplanted in a national reference center for hematopoietic stem cell transplantation between 1997 and 2009. Data was obtained from medical charts and included besides socio-demographic and lifestyle variables, others related to diagnosis and transplantation. The five-year survival probability was estimated using the Kaplan-Meier method and differences between curves were tested with the log-rank test, assuming statistical significance level of 5%. Cox regression was performed for multivariate analysis. **Results:** Median age at diagnosis was 43 years (17-65) and 45 years (18-66) at transplantation. Median time between diagnosis and transplantation was 17 months (4-173). The probability of survival at 5 years was 50.8% with a median survival time of 22.5 months. In multivariate analysis, evidence of disease 12 months after transplant (HR: 4.49; 95% CI 2.15-9.39), chemo-sensitivity to the last regimen before transplant (HR: 2.92; 95% CI 1.35-6.32) and advanced stage at diagnosis (HR: 1.96, 95% CI 1.02-3.80) were prognostic factors for survival. **Conclusion:** Median age at transplantation in this cohort was similar to that of other studies but median time between diagnosis and transplantation was higher. Although overall survival (5 years) approached that reported in other studies, different treatment protocols and specific characteristics of each population limit comparisons.

Key words: Lynphoma, Non-Hodgkin; Stem Cell Transplantation; Survival Analysis; Survival Rate; Cancer Care Facilities; Brazil

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INTRODUCTION

Half of the patients with Non-Hodgkin's lymphoma (NHL) are cured with first line chemotherapy alone[1]. Thus, stem cell transplantation has been regarded as a preferential treatment, especially in patients with sensitive relapse[2] and this cancer is currently among one of its main indications[3].

Several studies have shown the benefits of stem cell transplantation in the treatment of NHL and improved overall survival and disease-free survival was observed even in patients with poor prognosis[4-7].

The objective of this study was to evaluate 5-year survival and associated factors in transplanted Non-Hodgkin's lymphoma patients in Brazil.

METHOD

We conducted a retrospective analysis of a cohort of adult patients with NHL who were transplanted between 1997 and 2009 in a national reference centre for oncology and haematopoietic stem cell transplantation in Brazil.

Between April 1997 and April 2009, one hundred adults (18+yr) with NHL underwent transplantation. Data was obtained from medical charts and included socio-demographic and lifestyle information and variables related to the diagnosis and the transplantation.

Overall survival (5 yr) was defined as time (in months) from transplantation until death from any cause and the surviving patients were censored at the last date of follow-up. Patients undergoing a second transplantation within the follow-up period were censored on the date of that procedure.

The probability of survival was estimated using the Kaplan-Meier method and differences between survival curves were checked with the log-rank test, considering statistical significance level of 5%.

Multivariate analysis was performed through Cox regression. Variables showing statistical significance in bivariate analysis ($p \leq 0.20$) or considered as having clinical significance were tested in the models. Variables were excluded from the model if $p \leq 0.05$.

Statistical analysis was performed on the Statistical Package for Social Sciences version 17.0 (SPSS Chicago, IL, USA).

The Ethics Comities of Brazilian National Cancer Institute (nº114/09 in 10/22/2009) and National School of Public Health (nº33/10 in 04/16/2010) approved this study.

RESULTS

The majority of the study population were male (61.0%) and had 30-49 years of age (47.5%). Median age at diagnosis was 43 years [17-65] and at transplantation was 45 years [18-66]. Most patients were non-smokers (61.7%) and non-alcohol drinkers (62.7%). Most had advanced stages of disease (III and IV).

At transplantation the predominant subtype was Diffuse Large B-Cell Lymphoma (DLBCL) and most individuals showed chemosensitivity to the pre-transplant chemotherapy regimen. Patient characteristics at diagnosis and transplantation are shown in Tables 1 and 2.

Table 1. Characteristics of patients at diagnosis of NHL (N=100)

Variables	N	%
Gender		
Male	61	61.0
Female	39	39.0
Age (years)		
< 30	24	24.2
30 – 49	47	47.5
≥ 50	28	28.3
Tobacco use		
Yes	7	8.6
No	50	61.7
Ex-user	24	29.6
Alcohol use		
Yes	22	32.8
No	42	62.7
Ex-user	3	4.5
NHL subtype		
Diffuse large cell	72	72.0
Follicular	16	16.0
Lymphoblastic	2	2.0
Lymphocytic	1	1.0
Burkitt	2	2.0
Mantle cell	3	3.0
MALT	2	2.0
T cell	1	1.0
Not classified	1	1.0
Stage		
I	8	9.5
II	20	23.8
III	20	23.8
IV	36	42.9
Mediastinal mass		
Yes	22	23.9
No	70	76.1
Bone marrow involvement		
Yes	16	18.8
No	69	81.2
Bulky Disease		
Yes	34	43.6
No	44	56.4
B symptoms		
Yes	42	49.4
No	43	50.6
Serum lactatate dehydrogenase concentration		
≤460	23	39.7
>460	35	60.3

Table 2. Characteristics of patients at transplantation (N=100)

Variables	N	%
Age (years)		
< 30	16	16.0
30-49	49	49.0
≥ 50	35	35.0
NHL subtype		
Diffuse large cell	82	82.0
Follicular	7	7.0
Lymphoblastic	2	2.0
Lymphocytic	2	2.0
Burkitt	2	2.0
Mantle cell	3	3.0
T cell	1	1.0
Not classified	1	1.0
Conditioning regimen		
CBV*	76	79.2
fludarabine + cyclophosphamide	13	13.5
TBI** + cyclophosphamide	3	3.1
Other	4	4.2
Disease status		
1st complete response	6	6.1
2nd or more complete responses	19	19.2
1st relapse	39	39.4
2nd or more relapses	14	14.1
Primary induction fail	17	17.2
Other	4	4.0
Chemosensitivity to last pre-transplant regimen		
Sensitive	83	83.0
Resistant	10	10.0

*CBV - cyclophosphamide, bis-chloroethylnitrosourea, and etoposide
**TBI - Total body irradiation

Median time between diagnosis and transplantation was 17 months [4-173]. Autologous stem cell transplantation was performed in 84 patients and allogeneic transplantation in 16 patients. The most frequent side effect was mucositis [n = 63].

Twenty-nine patients died during the first twelve months after transplantation and 44 thereafter. The probability of survival at 5 years was 50.8% with a median survival time of 22.5 months. In the first year of follow-up 28 patients presented evidence of disease and at 5 years, 36. Survival free of evidence of disease at 5 years was 54.2% with a median time of 16 months.

Individuals with bulky disease had shorter survival than those without it (36.7% vs. 60.6%, p=0.045). In the first 12 months after transplantation survival was lower in patients showing evidence of disease (5.7% vs. 67.5%, p <0.001). The same happened in the five-year follow-up (8.0% vs.72.2%, p <0.001) (Table 3).

Patients with advanced stage disease at diagnosis had a higher probability of survival than those at the initial stages (61.9% vs. 31.8%, p = 0.016) (Table 3). However, when analyzing survival according to strata of chemosensitivity at transplantation it was observed that among patients sensitive to last pre-transplant regimen, survival was better than among those at advanced stages (p=0,016).

Meanwhile, in the strata of patients resistant to last pre-transplant regimen there was no difference in survival by stage (Figure 1). Concerning disease status at transplantation, it was observed that among those patients showing a complete response, those at advanced stages showed better survival (p=0,018) (Figure 2).

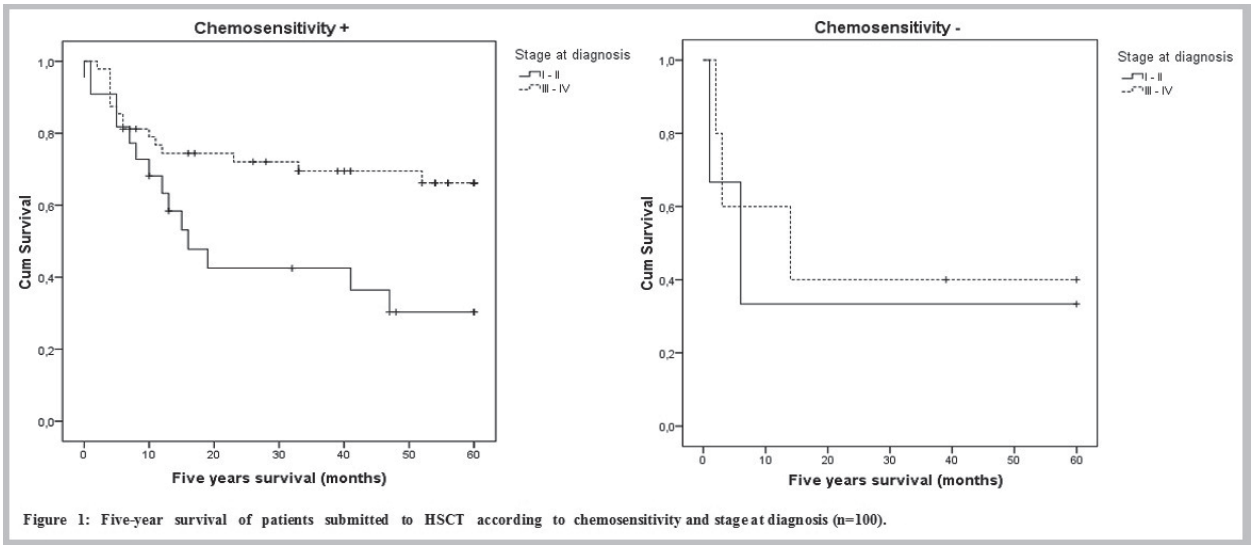

Figure 1. Five-year survival of patients submitted to HSCT according to chemosensitivity and stage at diagnosis (n=100)

Table 3. Overall survival (OS) and disease-free survival (DFS) (5 years) for patients submitted to HSCT according to socio-demographic and clinical characteristics (N=100)

Variables	OS	*p-value	DFS	*p-value
Gender				
Male	50.3	0.648	59.0	0.480
Female	5.0		48.0	
Age at diagnosis (years)				
< 50	53.3	0.694	56.0	0.313
≥ 50	43.0		48.8	
Mediastinal mass				
Yes	35.7	0.356	38.9	0.674
No	51.9		55.1	
Bone marrow involvement				
Yes	75.0	0.062	68.4	0.071
No	42.4		50.6	
Serum lactate dehydrogenase concentration				
≤460	62.3	0.155	53.6	0.631
>460	47.7		53.7	
NHL subtype at HSCT				
Diffuse large cell	50.1	0.546	51.5	0.238
Follicular	64.3		53.6	
Other	34.3		88.9	
Stage				
I e II	31.8	0.016	45.2	0.127
III e IV	61.9		61.4	
Bulky Disease				
Yes	36.7	0.045	42.1	0.037
No	60.6		60.5	
B symptoms				
Yes	43.8	0.191	52.7	0.434
No	56.5		54.5	
Age at HSCT (years)				
< 50	51.7	0.981	53.2	0.760
≥ 50	49.3		55.4	
Disease status at HSCT				
Complete response	62.8	0.420	67.5	0.324
Relapse	46.2		48.8	
Primary induction fail	55.8		66.6	
Chemosensitivity to last regimen				
Sensitive	53.8	0.095	52.8	0.590
Resistant	40.0		70.0	
Type of HSCT				
Alogenic	61.9	0.765	84.4	0.080
Autologous	49.0		49.6	
Evidence of disease post-HSCT (1year)				
Yes	5.7	0.000	-	
No	67.5		-	
Evidence of disease post-HSCT (5 years)				
Yes	8.0	0.000	-	
No	72.2		-	

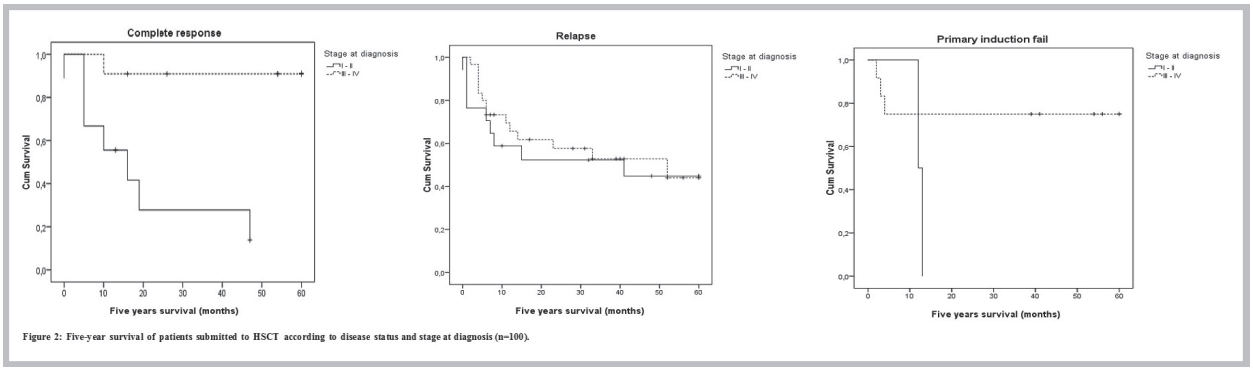

Figure 2. Five-year survival of patients submitted to HSCT according to disease status and stage at diagnosis (n=100)

In multivariate analysis, the variables that remained in the model for 5-year survival were: evidence of disease 12 months after transplant (HR: 4.49, 95% CI 2.15-9.39), chemosensitivity to the last regimen before transplant (HR: 2.92; 95% CI 1.35-6.32) and advanced stage at diagnosis (HR: 1.96, 95% CI 1.02-3.80).

A separate analysis was performed in the subgroup of 75 patients with diagnosis of DLBCL that underwent autologous transplantation. The observed results were similar to those for the entire population, except for multivariate analysis in which only the variable "evidence of disease 12 months after transplant" remained in the model.

DISCUSSION

We conducted a retrospective analysis of a cohort of all patients (100) that underwent this procedure at the referral center during the study period.

The median age at diagnosis was lower than that observed in a study with data from Central and South America (59 years)[8]. However this study population was differentiated as it included only transplanted patients. Similarly to other studies, we found a majority of men among the patients[9,10].

The role of alcohol intake in the risk of NHL is still largely unclear[11,12]. However, a recent meta-analysis found an association between alcohol drinking and NHL[12]. In relation to tobacco, some studies found evidence of an association with NHL[13,14]. However, our data is only descriptive and does not allow this kind of analysis.

The median age at transplantation in this cohort was similar to that observed in other studies[15,16]. However, the upper age limit for transplantation in our study suggests that this procedure has been performed particularly in younger subjects, unlike what is seen in other countries[7,15].

The median time between diagnosis and transplantation in our cohort was higher than that found in other studies[4,17,18,19]. This may be indicating that the decision to include this procedure in the treatment of NHL was a more recent option in our midst.

Some characteristics of our cohort, such as the high frequency of the DLBCL subtype[5,19,20,21], advanced stage (III-IV)[1,2,22,23] and presence of bulky disease[1] and B symptoms[1,4] were similar to those observed in other studies. When compared to the only other study conducted in Brazil[24], the median age at transplantation and the prevalence of subtype DLBCL were similar.

Mucositis was the most common side effect of treatment in our cohort. This complication has been reported in other studies of patients undergoing haematopoietic stem cell transplantation[2, 6,15].

Although the overall survival (5 years) in our cohort approached that of other studies[5,7,16,24], the different treatment protocols, as well as the specific characteristics of each study population, limit this comparison.

In the survival analysis performed with the Kaplan-Meier method, statistically significant differences in survival curves were observed for presence of bulky disease, evidence of disease 12 months after transplantation and advanced stage. The presence of bulky disease resulted in lower overall survival (5 yr). This finding was also observed in another study conducted in Italy with 134 patients[4]. Similarly, the evidence of disease 12 months after transplantation resulted in poor survival. In the first two years after transplantation relapse or progression of the disease was the most common treatment failure in other study[19].

Advanced disease stage resulted in improved survival, but that could be a chance finding due to the size of the studied population. When evaluating survival in the strata of chemosensitivity (sensitive and resistant) this condition was more relevant to survival than disease stage. The observation of better survival in patients with advanced disease at diagnosis could be related to the fact that these patients presented a better response to chemotherapy. Disease status at transplantation (complete response and relapse) was also more relevant to survival than the disease stage.

Evidence of the disease in the first 12 months post transplant and chemosensitivity to the last regimen

before transplant were prognostic factors associated with poor survival (5 yr) in multivariate analysis. Evidence of the disease in the post-transplant stages[18,21] and chemo-sensitivity[3,4,6,25] were also prognostic factors for overall survival in other studies. Advanced disease stage was also significantly associated with poorer survival in our study, but the lower limit of the confidence interval was very close to the unity.

The small number of individuals comprising the study population made it difficult to observe statistically significant associations in the analysis. However, all the NHL patients of the referral center who were transplanted during the 12-year study period were included in the analysis.

The heterogeneity observed in our cohort limits the interpretation of the results and may indicate changes in treatment protocols during the study period, a fact that was also observed in the literature.

On the other hand, this is one of the few Brazilian studies that analyzed survival and its associated factors in patients with NHL who underwent transplantation. Therefore, its findings could contribute to the understanding of important prognostic factors that may, in part, be reflecting unique aspects of the treatment of lymphoma Non-Hodgkin in our country.

CONCLUSION

Median age at transplantation in this cohort was similar to that of other studies but median time between diagnosis and transplantation was higher. Although overall survival (5 years) approached that related in other studies, different treatment protocols and specific characteristics of each population limit comparisons.

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CONTRIBUTIONS

Laércio Lima Luz and Inês Echenique Mattos contributed to: study concepts, study design, data acquisition, quality control of data and algorithms, data analysis and interpretation, statistical analysis, manuscript preparation, manuscript editing and manuscript review.

Alexandre Mello de Azevedo contributed to: data acquisition, quality control of data and algorithms and data analysis and interpretation.

Conflict of Interests: the Authors Declare no Conflict of Interests.

REFERENCES

1. Arranz R, Conde E, Grande C, Mateos MV, Gandarillas M, Albo C, et al. Dose-escalated CHOP and tailored intensification with IFE according to early response and followed by BEAM/autologous stem-cell transplantation in poor-risk aggressive B-cell lymphoma: a prospective study from the GEL–TAMO Study Group. Eur J Haematol. 2008; 80(3):227-35. Epub 2007 Dec 18.
2. Schütt P, Passon J, Ebeling P, Welt A, Müller S, Metz K, et al. Ifosfamide, etoposide, cytarabine, and dexamethasone as salvage treatment followed by high-dose cyclophosphamide, melphalan, and etoposide with autologous peripheral blood stem cell transplantation for relapsed or refractory lymphomas. Eur J Haematol. 2007; 78(2):93-101.
3. Kuittinen T, Wiklund T, Remes K, Elonen E, Lehtinen T, Kuittinen O, et al. Outcome of progressive disease after autologous stem cell transplantation in patients with non-Hodgkin's lymphoma: a nation-wide survey. Eur J Haematol. 2005; 75(3):199-205.
4. Zinzani PL, Tani M, Gabriele A, Gherlinzoni F, De Vivo A, Ricci P, et al. High-dose therapy with autologous transplantation for aggressive non-Hodgkin's lymphoma: the Bologna experience. Leuk Lymphoma. 2004; 45(2):321-6.
5. Doocey RT, Toze CL, Connors JM, Nevill TJ, Gascoyne RD, Barnett MJ, et al. Allogeneic haematopoietic stem-cell transplantation for relapsed and refractory aggressive histology non-Hodgkin lymphoma. Br J Haematol. 2005; 131(2):223-30.
6. Oyan B, Koc Y, Ozdemir E, Kars A, Turker A, Tekuzman G, et al. High dose sequential chemotherapy and autologous stem cell transplantation in patients with relapsed/refractory lymphoma. Leuk Lymphoma. 2006; 47(8):1545-52.
7. Fu P, van Heeckeren WJ, Wadhwa PD, Bajor DJ, Creger RJ, Xu Z, et al. Time-dependent effect of non-Hodgkin's lymphoma grade on disease-free survival of relapsed/refractory patients treated with high-dose chemotherapy plus autotransplantation. Contemp Clin Trials. 2008; 29(2):157-64. Epub 2007 Jul 19.
8. Laurini JA, Perry AM, Boilesen E, Diebold J, Maclennan KA, Müller-Hermelink HK, et al. Classification of non-Hodgkin lymphoma in Central and South America a review of 1028 cases. Blood. 2012; 120(24):4795-801. Epub 2012 Oct 18.
9. Broccia G, Cocco P, Casula P; Research Group on the Epidemiology of Lymphomas in Sardinia (GELS). Incidence of non-Hodgkin's lymphoma and Hodgkin's disease in Sardinia, Italy: 1974-1993. Haematologia. 2001; 86(1):58-63. Hodgkin's
10. Bliss A, Buraik S. Descriptive epidemiology of non-Hodgkin's lymphoma in Oklahoma: 1997-2003. J Okla State Med Assoc. 2008; 101(11):262-6.

11. Gapstur SM, Diver WR, McCullough ML, Teras LR, Thun MJ, Patel AV. Alcohol intake and the incidence of non-hodgkin lymphoid neoplasms in the cancer prevention study II nutrition cohort. Am J Epidemiol. 2012; 176(1):60-9. Epub 2012 May 4.

12. Tramacere I, Pelucchi C, Bonifazi M, Bagnardi V, Rota M, Bellocco R, et al. Alcohol drinking and non-Hodgkin lymphoma risk: a systematic review and a meta-analysis. Ann Oncol. 2012; 23(11):2791-8. Epub 2012 Feb 22.

13. Lu Y, Wang SS, Reynolds P, Chang ET, Ma H, Sullivan-Halley J, et al. Cigarette smoking, passive smoking, and non-Hodgkin lymphoma risk: evidence from the California Teachers Study. Am J Epidemiol. 2011; 174(5):563-73. Epub 2011 Jul 18.

14. Monnereau A, Orsi L, Troussard X, Berthou C, Fenaux P, Soubeyran P, et al. Cigarette smoking, alcohol drinking, and risk of lymphoid neoplasms: results of a French case-control study. Cancer Causes Control. 2008; 9(10):1147-60. Epub 2008 Sep 10.

15. Copelan EA, Penza SL, Pohlman B, Avalos BR, Goormastic M, Andresen SW, et al. Autotransplantation following busulfan, etoposide and cyclophosphamide in patients with non-Hodgkin's lymphoma. Bone Marrow Transplant. 2000; 25(12):1243-8.

16. Toze CL, Barnett MJ, Connors JM, Gascoyne RD, Voss NJ, Nantel SH, et al. Long-term disease-free survival of patients with advanced follicular lymphoma after allogeneic bone marrow transplantation. Br J Haematol. 2004; 127(3):311-21.

17. Stein RS, Greer JP, Goodman S, Brandt SJ, Morgan DS, Macon WR, et al. Intensified preparative regimens and autologous transplantation in refractory or relapsed intermediate grade non-Hodgkin's lymphoma. Bone Marrow Transplant. 2000; 25(3):257-62.

18. Kornacker M, Stumm J, Pott C, Dietrich S, Süssmilch S, Hensel M, et al. Characteristics of relapse after autologous stem-cell transplantation for follicular lymphoma: a long-term follow-up. Ann Oncol. 2009; 20(4):722-8. Epub 2009 Jan 29.

19. Majhail NS, Bajorunaite R, Lazarus HM, Wang Z, Klein JP, Zhang MJ, et al. Long-term survival and late relapse in 2-year survivors of autologous haematopoietic cell transplantation for Hodgkin and non-Hodgkin lymphoma. Br J Haematol. 2009; 147(1):129-39. Epub 2009 Jul 1.

20. Arpaci F, Ataergin S, Gürman G, Çağrgan S, Arat M, Özet A, et al. The autologous haematopoietic stem cell transplantation in adult patients with lymphoma: Turkish Bone Marrow Transplantation Registry results. Turk J Cancer. 2007; 37(2):45-53.

21. Vaishampayan U, Karanes C, Du W, Varterasian M, al-Katib A. Outcome of relapsed non-Hodgkin's lymphoma patients after allogeneic and autologous transplantation. Cancer Invest. 2002; 20(3):303-10.

22. Laatiri MA, Elloumi M, Ali ZB, Ben Othmen T, Msadek F, Toumi N, et al. [Tunisian experience in the treatment of aggressive non Hodgkin's lymphoma in adults: about 337 patients]. Bull Cancer. 2010; 97(4):409-16. Francês.

23. Riihijärvi S, Taskinen M, Jerkeman M, Leppä S. Male gender is an adverse prognostic factor in B-cell lymphoma patients treated with immunochemotherapy. Eur J Haematol. 2011; 86(2):124-8. Epub 2010 Dec 22.

24. Souza CA, Pagnano KBB, Lorand-Metze I, Miranda ECM, Baldissera R, Aranha FJP, et al. Brazilian experience using high-dose sequential therapy (HDS) followed by autologous haematopoietic stem cell transplantation (ASCT) for malignant lymphomas. Rev Bras Hematol Hemoter. 2009; 31(Supl.2):9-14.

25. Bishop MR, Dean RM, Steinberg SM, Odom J, Pollack SM, Pavletic SZ, et al. Correlation of pre-transplant and early post-transplant response assessment with outcomes after reduced-intensity allogeneic haematopoietic stem cell transplantation for non-Hodgkin's lymphoma. Cancer. 2010; 116(4):852-62.

Resumo

Introdução: Diversos estudos mostram os benefícios do transplante de células-tronco no tratamento do linfoma não-Hodgkin. **Objetivo:** Avaliar a sobrevida e fatores associados em pacientes com linfoma não-Hodgkin transplantados no Brasil. **Método:** Realizou-se a análise retrospectiva de 100 pacientes adultos com linfoma não-Hodgkin transplantados em centro de referência nacional entre 1997 e 2009. Os dados obtidos dos prontuários médicos incluíam variáveis sociodemográficas e de estilo de vida relacionadas ao diagnóstico e transplante. Estimou-se a probabilidade de sobrevida de cinco anos pelo método de Kaplan-Meier e testaram-se as diferenças entre as curvas com o teste do log-rank, assumindo nível de significância de 5%. A regressão de Cox foi utilizada na análise multivariada. **Resultados:** A idade mediana ao diagnóstico foi 43 anos (17-65) e 45 anos (18-66) ao transplante. O tempo mediano entre diagnóstico e transplante foi 17 meses (4-173). A probabilidade de sobrevida (5 anos) foi 50,8% e o tempo mediano de sobrevida de 22,5 meses. Na análise multivariada, evidência de doença 12 meses após o transplante (HR:4,49; IC 95% 2,15-9,39), quimiossensibilidade ao último regime antes do transplante (HR: 2,92; IC 95% 1,35-6,32) e estágio avançado ao diagnóstico (HR: 1,96; IC 95% 1,02-3,80) foram fatores prognósticos. **Conclusão:** A mediana de idade ao transplante nesta coorte foi similar à de outros estudos, mas o tempo mediano entre o diagnóstico e o transplante foi mais alto. A sobrevida global se aproximou da de outros estudos, mas diferenças nos protocolos de tratamento e características especificas de cada população limitam a comparação.

Palavras-chave: Linfoma não Hodgkin; Transplante de Células-Tronco; Analise de Sobrevida; Taxa de Sobrevida; Instituto de Câncer; Brasil

Resumen

Introducción: Diversos estudios demuestran los beneficios del trasplante de células madre en el tratamiento del linfoma no-Hodgkin. **Objetivo:** Evaluar la supervivencia y los factores asociados en pacientes con linfoma no-Hodgkin trasplantados en Brasil. **Método:** Se realizó el análisis retrospectivo en 100 pacientes adultos con linfoma no-Hodgkin, trasplantados en un centro de referencia nacional entre 1997 y 2009. Los datos obtenidos de registros médicos incluían variables socio-demográficas y de estilo de vida vinculadas al diagnóstico y al trasplante. Se estimó la probabilidad de supervivencia de 5 años por el método de Kaplan-Meier y las diferencias entre las curvas fueron probadas con el test de log-rank, asumiendo nivel de significación del 5%. Regresión de Cox se utilizó para el análisis multivariado. **Resultados:** El promedio de edad del diagnóstico fue de 43 años (17-65) y de 45 años (18-66) al trasplante. El promedio de tiempo entre diagnóstico y trasplante fue de 17 meses (4-173). La probabilidad de supervivencia fue del 50,8% y la supervivencia promedio de 22,5 meses. En el análisis multivariado, evidencia de enfermedad 12 meses después del trasplante (HR: 4,49, IC 95% 2,15-9,39), quimio-sensibilidad al último régimen antes del trasplante (HR: 2,92, IC 95% 1,35 a 6,32) y estado avanzado al diagnóstico (HR: 1,96, IC 95% 1,02-3,80) fueron factores pronosticados. **Conclusión:** El promedio de edad al trasplante fue similar al de otros estudios, pero el promedio de tiempo entre diagnóstico y trasplante fue mayor. La supervivencia global se acercó a los otros estudios, pero diferencias en los protocolos de tratamiento y características específicas de cada población limitan las comparaciones.

Palabras clave: Linfoma no Hodgkin; Transplante de Células Madre; Analísis de Supervivencia; Tasa de Supervivencia; Instituciones Oncológicas; Brasil