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Article / Artículo

Epidemiological characterization of Hodgkin lymphoma in patients treated at the SOLCA - Guayaquil Hospital

Caracterización epidemiológica del Linfoma de Hodgkin en pacientes atendidos en el hospital de SOLCA - Guayaquil

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ABSTRACT
Introduction: Hodgkin lymphoma is a disease in which malignant cells form in the lymphatic system; its presence in the population has been increasing in recent years. **Objective:** Epidemiological characterization of the Hodgkin lymphomas treated at the SOLCA - Guayaquil hospital during the period 2010–2021. **Material and methods:** A study was carried out with open data from a cross-sectional observational descriptive design of the new cases of Hodgkin Lymphoma diagnosed and treated at the SOLCA - Guayaquil hospital between 2010 and 2021. **Results:** Hodgkin lymphoma care at the SOLCA - Guayaquil Hospital went from 4% in 2010 to 12% in 2021. Hodgkin lymphoma with nodular sclerosis was mostly observed in men; however, by age group, it was more frequent in men between 0 and 19 years old (37.7%) and in women between 20 and 29 years old (45.3%) from the Guayas province. **Conclusions:** During this period, Hodgkin lymphoma has garnered more attention due to an increase in nodular sclerosis cases observed in men aged 0 to 19 and women aged 20 to 39, which aligns with the standard behavior of this disease.

Keywords: Hodgkin lymphoma, hematologic neoplasms, epidemiology.

RESUMEN
Introducción: El linfoma de Hodgkin es una enfermedad en la que se forman células malignas en el sistema linfático y que en los últimos años ha venido aumentando su presencia en la población. **Objetivo:** Caracterizar epidemiológicamente los linfomas de Hodgkin atendidos en el hospital de SOLCA - Guayaquil durante el periodo 2010-2021. **Materiales y métodos:** Se realizó un estudio de datos abiertos de diseño observacional, descriptivo, de corte transversal, de casos nuevos atendidos con linfoma de Hodgkin diagnosticados en el hospital de SOLCA Guayaquil, entre 2010 y 2021. Resultados: Las atenciones del linfoma de Hodgkin en el hospital de SOLCA Guayaquil fueron del 4 % en el 2010 y del 12 % en el 2021. Se tuvo sobre todo el linfoma de Hodgkin con esclerosis nodular, en hombres; los grupos etarios más frecuentes fueron hombres entre 0 y 19 años (37,7 %) y mujeres entre 20 y 29 años (45,3 %), procedentes de la provincia del Guayas. **Conclusiones:** Durante este periodo incrementaron las atenciones por linfoma de Hodgkin, en las que se observó más la esclerosis nodular en los pacientes, en hombres de 0 a 19 años y en mujeres de 20 a 39 años, similar al estándar de comportamiento de esta enfermedad.

Palabras Clave: Linfoma de Hodgkin, neoplasias hematológicas, epidemiología.

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1. Introduction

Hodgkin lymphoma (HL) is a lymphoid tissue neoplasm. The damaged tissue comprises mono- and multinucleated cells surrounded by non-neoplastic inflammatory cells. Two histopathological subtypes are recognized: Classic and Nodular Lymphocytic Predominance [1] occurring in individuals of all ages; however, there are two peaks of occurrence (adolescents and over 60 years of age) and a slight predominance in men. HL accounts for about 10% of all lymphomas and 0.5% of all cancers in the United States of America [2]. The incidence has remained unchanged in recent decades. In 2020, there were 83,087 new cases registered worldwide per year, out of which 7091 cases corresponded to South America [3].

The overall incidence, age of occurrence, and even survival vary in different geographic areas [4,5,6], and the incidence of subtypes is affected by geography and socioeconomic factors [5]. Although the specific causes of these discrepancies are unknown, describing HL's epidemiological characteristics helps to clarify this behavior. Reports from Latin America have shown a lower incidence at an earlier age of onset and lower survival compared to Caucasian populations [4,7,8]. In Ecuador, the clinicopathological characteristics of adult HL were described in 2007; and are contrasted the epidemiological data of this study are compared with data from the last 11 years [6,9,10].

This study provides the epidemiological characteristics of patients diagnosed with HL treated at a national referral cancer center from 2010 to 2021. In addition, we describe the local incidence, trends over time, age characteristics, place of origin, and distribution based on histopathological subtypes to help clarify geographical differences and determine a baseline for future research.

2. Material and methods

A cross-sectional descriptive observational design study was carried out at the SOLCA (Sociedad de Lucha Contra el Cancer), Guayaquil. This is a private non-profit oncology institution for public benefit. It has comprehensive and partial agreements for the provision of services with different institutions of the Ecuadorian Network of Comprehensive Health Care (RPIS) and has been established as a reference center at the national level.

The study included patients of all ages with a diagnosis of HL, who were treated between 2010 and 2021, constituting the total population. Data were obtained from the institution's hospital tumor registry, identified by the ICD 10 coding: C81 (HL). Patients who lacked the necessary epidemiological information were excluded.

The demographic variables were sex, age at diagnosis, histopathological subtype, and province of origin. For data analysis, Microsoft Office 2010 Excel spreadsheets, SPSS v.29 license were used. Descriptive statistics were used to summarize the study variables, reported in frequencies and percentages. Continuous variables such as age are reported with medians and ranges. A trend analysis was performed to assess the annual percentage, and the most common types of neoplasms in both sexes in 2021 were identified to determine the incidence of HL.

Regarding ethical aspects, the study was carried out with open data and was authorized by the research committee of SOLCA Guayaquil.

3. Results

Of the different types of neoplasms treated at the SOLCA Hospital in 2021, HL is in 16th place in frequency, corresponding to 1.67% of the total cases (Fig. 1).

We obtained 870 patients with ICD 10 C81 from the hospital registry; 646 patients with a diagnosis of HL, treated between 2010 and 2021, were included in the study. We excluded cases whose complete data were not available (Fig. 2).

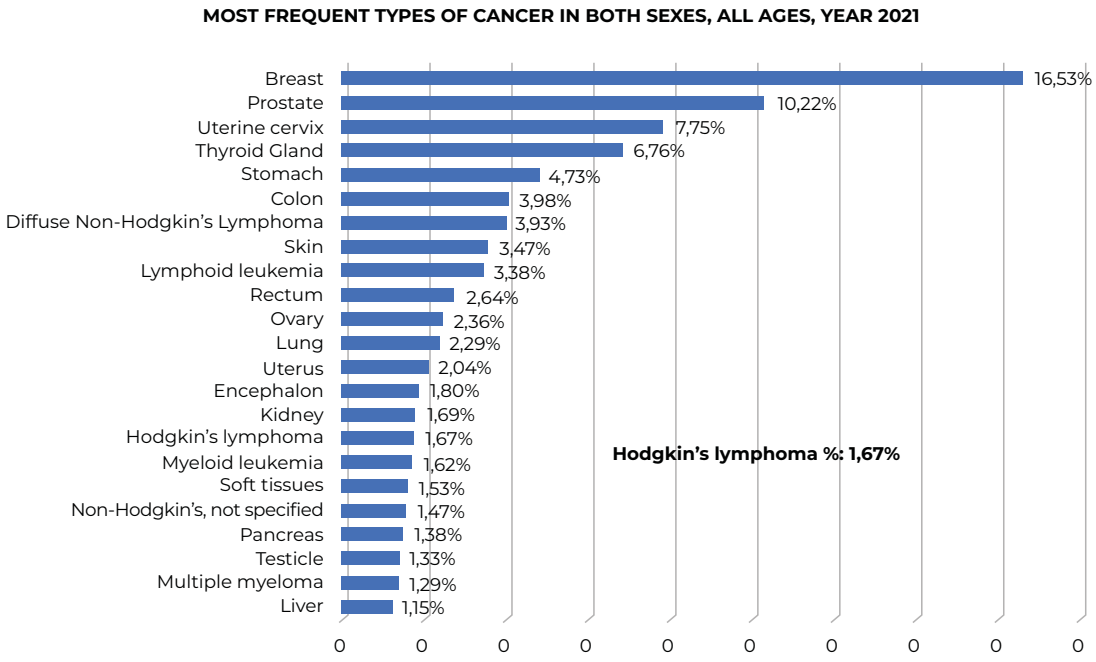


Figure 1. Most frequent types of cancer in the SOLCA - Guayaquil hospital, period 2021.

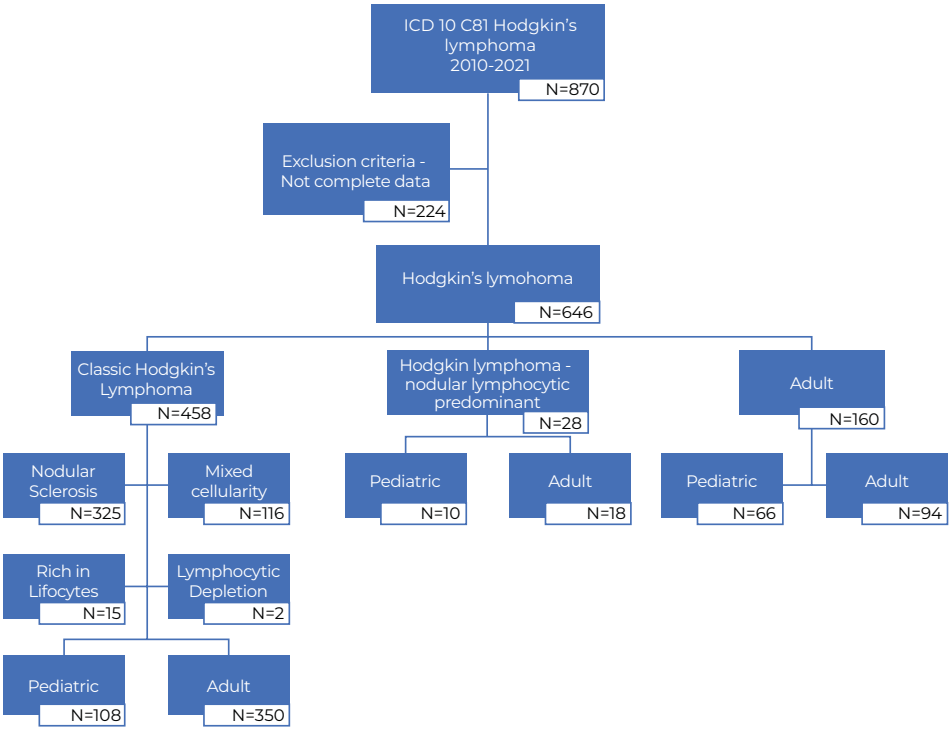


Figure 2. Flow diagram.
Source: SOLCA Hospital - Guayaquil

Table 1 shows the epidemiological characteristics of the patients treated for Hodgkin lymphoma according to histological subtype, sex, age of occurrence, and the three central provinces of origin (see complete map in Fig. 3).

Figure 4 illustrates the trend in the care of HL patients at the SOLCA - Guayaquil hospital during the study period, distinguishing between patients who received partial care through any service, and those who received specific oncological treatment at the institution.

Table 1. Clinical and demographic characteristics of patients with Hodgkin lymphoma treated at SOLCA - Guayaquil hospital.

Characteristics		**N**	**%**
	Total	**646**	**100**
Histological subtype	Hodgkin lymphoma (classic)		
	Nodular sclerosis	325	50,3
	Mixed Cellularity	116	18,0
	Rich in Lymphocytes	15	2,3
	Lymphocytic depletion	2	0,3
	Nodular lymphocyte-predominant Hodgkin lymphoma	28	4.3
	Hodgkin lymphoma, unspecified subtype	160	24.8
Gender	Male	371	57.4
	Female	275	42.6
Median age in years (range)	27 (2-95)		
Age of occurrence	Adults	462	71.52
	Pediatric*	184	28.48
Province	Guayas	375	58.05
	Manabí	77	11.92
	Los Ríos	57	8.82
	Other 15 provinces	137	21.20

* Pediatric: age up to 17 years old.

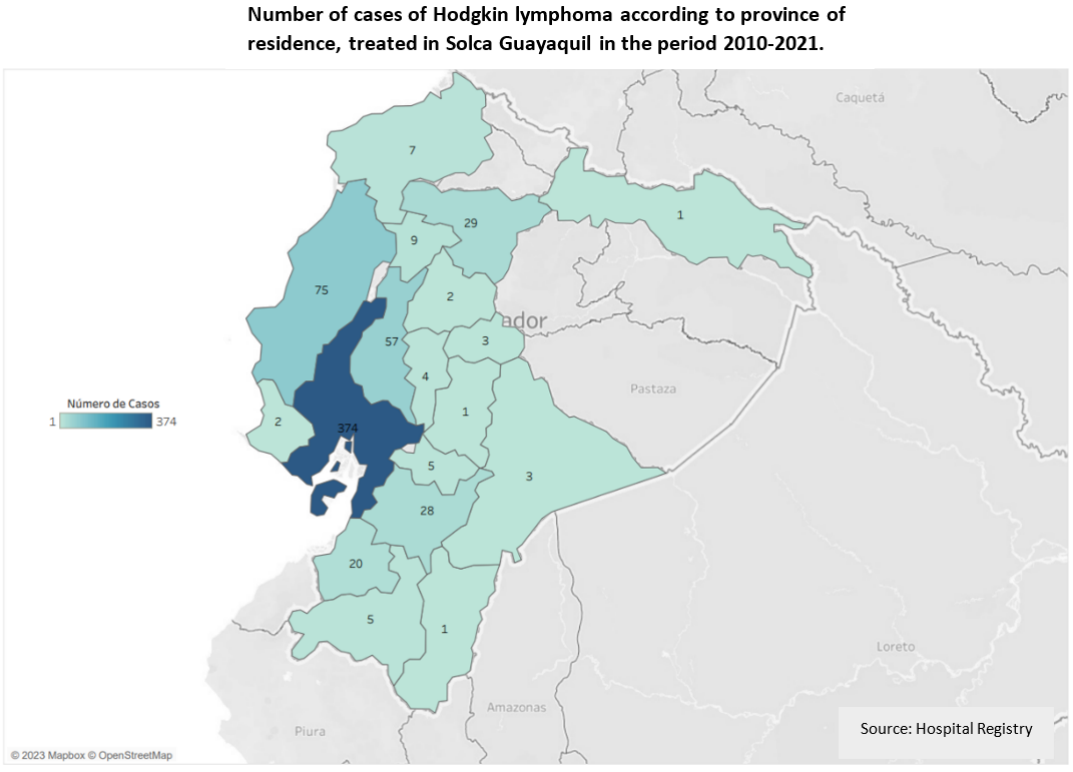
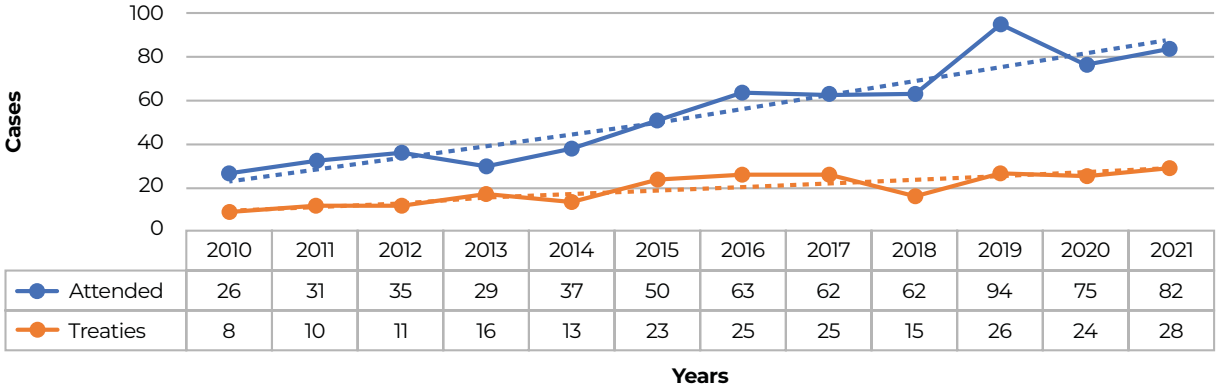


Figure 3. Origin of cases of HL lymphoma in the SOLCA - Guayaquil hospital.

The median age of disease occurrence was 26 years, with a greater number of patients diagnosed in adulthood. Within the epidemiological characteristics of age group and sex in patients with Hodgkin lymphoma, the highest proportion was observed in men in the group of 0–19 years, with 37.7%; while in women it was the group from 20–29 years, with 45.5% (Fig. 5).



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Attended	26	31	35	29	37	50	63	62	62	94	75	82
Treaties	8	10	11	16	13	23	25	25	15	26	24	28

Figure 4. Trend of patients treated for Hodgkin lymphoma at the SOLCA - Guayaquil hospital, 2010 – 2021.

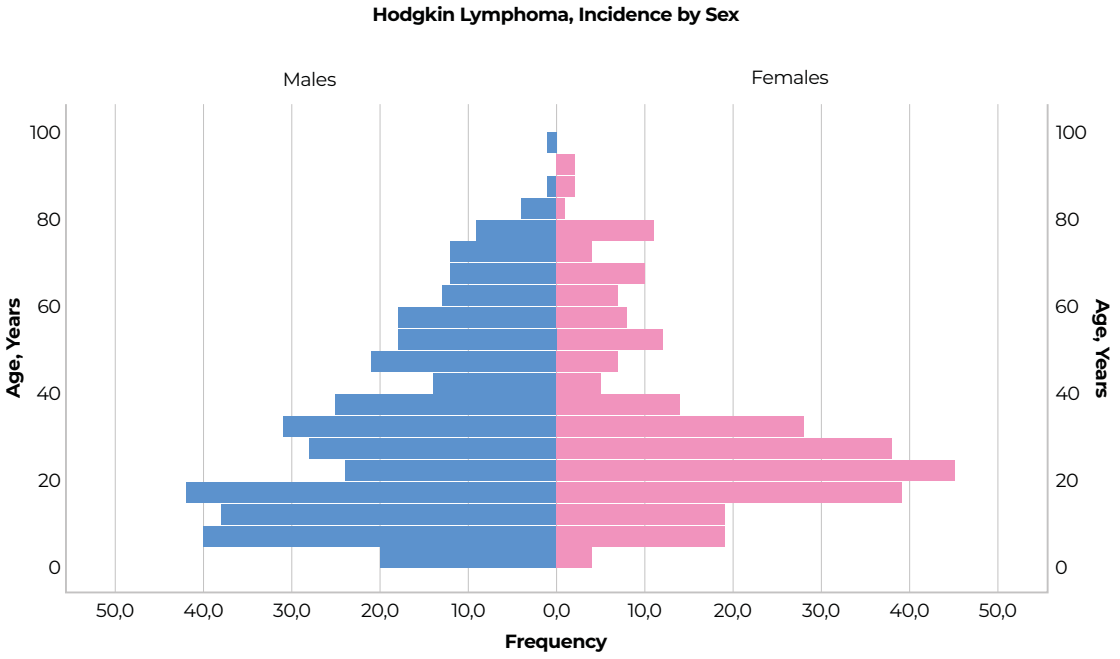


Figure 5. Incidence according to sex and age.
Source: SOLCA - Guayaquil.

4. Discussion

In this study, the proportion of Hodgkin lymphoma in 2021 and its behavior between 2010 and 2021 were obtained. It should be noted that the SOLCA - Guayaquil Hospital is a reference institution for cancer patients and provides services to the public and private health network. The most frequent province of origin was Guayas, with approximately three out of every five patients. A percentage increase in care has been observed annually since 2010 with 4.0%, 2016 with 9.8%, and 2021 with 12.7%. The highest proportion was recorded in 2019 with 14.6%. This may be due to greater health coverage and better public policies.

Furthermore, Hodgkin lymphoma with nodular sclerosis was the most frequent with 50.3%. This figure is maintained over time in the institution as shown by the 10-year study carried out from 1998 to 2007, which reports a frequency of 51.4% for this histological subtype [11]. Likewise, at the Comandante Pinares hospital in the period 2007-2017, nodular sclerosis subtype was the most frequent with 35.3% of cases mostly in men [12]. Also, this research aligns with the findings of the Institute of Hematology and Immunology of Cuba, which found that Hodgkin lymphoma with nodular sclerosis was the most common type of lymphoma in men, representing 64% of cases [9]. Similarly, the AD study in the State of Pará, Brazil, showed that nodular sclerosis was the most common type in men 64% [13]. In the same way, the HL study in western Paraná, Brazil, showed that the nodular sclerosis type was the most frequent in men (64.6%) [14].

In addition, the higher proportion observed in men in the 0-19 years age group is very similar to that of the HL study in western Paraná, Brazil, which indicated they were mostly men (52%) older than 10 years (75%) with a diagnosis of nodular sclerosis (48%) [15].

5. Conclusions

Hodgkin lymphoma with nodular sclerosis is the most common type Hodgkin lymphoma in patients treated at the SOLCA - Guayaquil hospital during this study period, particularly in men from 0 to 19 years of age and women from 20 to 39 years of age. This situation is similar to the world literature on the behavior pattern of this disease.

6. Limitations

While this study could not explain the incidence of Hodgkin lymphoma in Guayaquil, it provided valuable information on the distribution by age, sex, and other aspects of the disease. The results open the door to further research to better understand the incidence of Hodgkin lymphoma in the city and to develop more effective prevention and control strategies.

7. Abbreviations

HL: Hodgkin lymphoma

SOLCA: Sociedad de Lucha Contra el Cáncer

RPIS: Red Pública Integral de Salud

ICD 10: International Classification of Diseases

8. Administrative information

8.1. Additional Files

None stated by the authors

8.2. Authors contribution

Diego García Gamboa: Validation, methodology, project management, review. **Jhony Real Cotto:** Conceptualization, project administration, methodology, script: review and edition. **Juan Garcés Santos:** Conceptualization, validation and review. All authors read and approved the final version of the manuscript.

8.3. Financing

None.

8.4. Availability of data and materials

Data are available upon request to the corresponding author. No other materials are reported.

8.5. Statements

This manuscript has not been previously published, nor is it currently under editorial review for publication in another journal.

8.5.1. Ethics committee approval

Open or public data were used for this research.

8.5.2. Conflicts of interest

The authors declare no conflict of interest.

References

1. Swerdlow SH, Campo E, Pileri SA, Harris NL, Stein H, Siebert R, et al. The 2016 revision of the World Health Organization classification of lymphoid neoplasms. Blood. 2016;127(20): 2375-90. Available from: https://ashpublications.org/blood/article/127/20/2375/35286/The-2016-revision-of-the-World-Health-Organization
2. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2019. CA Cancer J Clin. 2019;69(1): 7-34. https//doi.org/10.3322/caac.21551
3. Globocan. Hodgkin lymphoma [Internet]. WHO. 2020 [cited Dec 25, 2022]. Available from: https://gco.iarc.fr/today/data/factsheets/cancers/33-Hodgkin-lymphoma-fact-sheet.pdf
4. Evens AM, Antillón M, Aschebrook-Kilfoy B, Chiu BCH. Racial disparities in Hodgkin's lymphoma: a comprehensive population-based analysis. Ann Oncol. 2012;23(8): 2128-37. Available from: https://www.annalsofoncology.org/article/S0923-7534(19)38096-2/fulltext
5. Rénard C, Claude L, Garnier N, Penel-Page M. Linfoma de Hodgkin en niños y adolescentes. EMC - Pediatría. 2022;57(2): 1-14. https://doi.org/10.1016/S1245-1789(22)46499-7
6. Pérez-Zúñiga JM, Aguilar-Andrade C, Álvarez-Vera JL, Augusto-Pacheco M, Báez-Islas PE, Bates-Martín RA, et al. Linfoma de Hodgkin. Rev Hematol. 2019;20(2): 124-30. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=87720
7. Grubb WR, Neboori HJ, Diaz AD, Li H, Kwon D, Panoff J. Racial and Ethnic Disparities in the Pediatric Hodgkin Lymphoma Population. Pediatr Blood Cancer 2016;63(3): 428-35. https://doi.org/10.1002/pbc.25802
8. Monteiro TAF, Arnaud MVC, Monteiro JLF, Costa MRM da, Vasconcelos PF da C, Monteiro TAF, et al. Linfoma de Hodgkin: aspectos epidemiológicos e subtipos diagnosticados em um hospital de referência no Estado do Pará, Brasil. Rev Pan-Amaz Saúde. 2016;7(1): 27-31. Available from: http://scielo.iec.gov.br/scielo.php?script=sci_abstract&pid=S2176-62232016000100003&lng=pt&nrm=iso&tlng=es
9. Matamoros KG, León KP, Vernaza GP, Sánchez F, Maridueña MS. Linfoma de Hodgkin del adulto: Revisión de 10 años en el Instituto Oncológico Nacional Dr. Juan Tanca Marengo. Oncol Ecuad. 2009;19(1-2):31-5. Available from: https://roe-solca.ec/index.php/johs/article/view/431
10. Valdivia Flores G. Características epidemiológicas y anatomopatológicas de linfoma Hodgkin en el Hospital Goyeneche, Arequipa 2013-2018. Univ Católica St María [Internet]. Mar 25, 2019 [cited Nov 14, 2022]; Available from: http://tesis.ucsm.edu.pe/repositorio/handle/UCSM/8767
11. Garcia K, Posligua K, Paulson G, Sánchez F, Santacruz M. Linfoma de Hodgkin del adulto: Revisión de 10 años en el Instituto Oncológico Nacional Dr. Juan Tanca Marengo Oncol Ecuad. 2009;19(1-2): 31-5. Available from: https://roe-solca.ec/index.php/johs/article/view/431

12. López AA, Placeres LL. Caracterización clínico-epidemiológica de los pacientes con linfoma en un período de diez años en San Cristóbal. Rev Cien Estud 2019;58(271):4-8. Available from: https://www.medigraphic.com/pdfs/abril/abr-2019/abr19271c.pdf

13. Quintero-Sierra Y, Teruel-Herrero A, Hernández-Padrón C, Concepción-Fernández Y, Romero-González A, Macia-Pérez I. Caracterización del linfoma de Hodgkin en los pacientes adultos. Rev Cuba Hematol Inmunol Hemoter. 2019;35(3): a_1027. Available from: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-02892019000300006

14. Monteiro TAF, Arnaud MVC, Monteiro JLF, Costa MRM da, Vasconcelos PF da C, Monteiro JLF et al. Linfoma de Hodgkin: aspectos epidemiológicos e subtipos diagnosticados em um hospital de referência no Estado do Pará, Brasil. Rev Pan-Amaz Saúde. 2016;7(1): 27-31. https://doi.org/10.5123/s2176-62232016000100003

15. Fiori CMCM, Rodrigues AJS, Voigt AD, Turmina L, Hata MM. Linfoma de Hodgkin em crianças e adolescentes: Estudo clínico e epidemiológico. Rev Thêma Sci. 2020;10(1E):36-46. Available from: https://ojsrevistas.fag.edu.br/index.php/RTES/article/view/1206