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**KARAKTERISTIK LIMFOMA MALIGNA NON-HODGKIN EKSTRANODAL
TRAKTUS DIGESTIVUS INFERIOR DAN MESENTERIUM DI RSUD PROF. DR.
MARGONO SOEKARJO TAHUN 2022–2024 : STUDI DESKRIPTIF
RETROSPEKTIF**

***CHARACTERISTIC OF NON-HODGKIN LYMPHOMA MALIGNA LOWER
DIGESTIVE TRACT AND MESENTERY AT MARGONO SOEKARJO
PURWOKERTO GENERAL HOSPITAL 2022–2024 : A RETROSPECTIVE
DESCRIPTIVE STUDY***

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ABSTRAK

Latar belakang : Limfoma non-Hodgkin (LNH) merupakan salah satu neoplasma limfoid yang sering ditemukan dengan manifestasi ektranodal, termasuk pada traktus digestivus inferior dan mesenterium. Diagnosis LNH memerlukan integrasi data klinis, histopatologi, serta imunohistokimia (IHK). Data mengenai karakteristik klinis dan profil IHK LNH pada traktus digestivus inferior dan mesenterium di Indonesia masih terbatas. Peneliti bertujuan untuk mengetahui karakteristik klinis dan profil IHK (CD20 dan CD3) LNH pada traktus digestivus inferior dan mesenterium di RSUD Prof. Dr. Margono Soekarjo periode 2022–2024.

Metode: Penelitian deskriptif retrospektif data sekunder dari rekam medis. Populasi penelitian adalah pasien LNH traktus digestivus inferior dan mesenterium yang memenuhi kriteria. Data yang dikumpulkan meliputi usia, jenis kelamin, tempat tinggal, lokasi tumor, serta hasil pemeriksaan IHK (CD20 dan CD3). Analisis dilakukan secara deskriptif univariat.

Hasil: Ditemukan 40 pasien yang memenuhi kriteria. Mayoritas pasien (57,5%) berusia 40–60 tahun, jenis kelamin terbanyak laki-laki (60%). Lokasi tumor paling banyak ditemukan pada caecum (32,5%) dan mesenterium (27,5%). Pasien paling banyak bertempat tinggal di Banyumas (10%). Pemeriksaan IHK CD20 dan CD3 LNH ditemukan 37 pasien (92,5%) mengekspresikan CD20 positif pada sel tumor yang menunjukkan asal LNH yaitu sel B. Terdapat 3 pasien (7,5%) yang mengekspresikan CD3 positif pada sel tumor yang diinterpretasikan sebagai LNH sel T.

Kesimpulan: LNH traktus digestivus inferior dan mesenterium di RSUD Prof. Dr. Margono Soekarjo periode 2022–2024 terbanyak pada usia 40–60 tahun dengan jenis kelamin laki-laki, organ tersering ditemukan yaitu caecum. Pasien paling banyak bertempat tinggal di Banyumas. Mayoritas pasien terdiagnosis sebagai LNH sel B.

Kata kunci: CD3, CD20, imunohistokimia, Limfoma non-Hodgkin, traktus digestivus.

ABSTRACT

Background: Non-Hodgkin lymphoma (NHL) represents one of the most common lymphoid neoplasms, frequently presenting with extranodal involvement, including the lower gastrointestinal tract and mesentery. Accurate diagnosis requires integration of clinical data, histopathological features, and immunohistochemical (IHC) markers. In Indonesia, evidence regarding clinical characteristics and IHC profiles of NHL in these locations remains limited. The aim of this study is to describe the clinical characteristics and IHC profile (CD20 and CD3) of NHL involving the lower gastrointestinal tract and mesentery at Margono Soekarjo Purwokerto General Hospital during 2022–2024.

Methods: A retrospective descriptive design using secondary data from medical records. The study population included patients diagnosed with NHL of the lower gastrointestinal tract and mesentery, fulfilling inclusion and exclusion criteria. Extracted variables comprised age, sex, residence, tumor site, and IHC results (CD20 and CD3). Data were analyzed using univariate descriptive statistics.

Results: A total of 40 patients met eligibility criteria. The majority were aged 40–60 years (57.5%) and predominantly male (60%). Tumors were most frequently located in the caecum (32.5%) and mesentery (27.5%). Most patients resided in Banyumas (10%). IHC analysis revealed that 37 patients (92.5%) demonstrated CD20 positivity, consistent with B-cell NHL, while three patients (7.5%) expressed CD3 positivity, indicating T-cell NHL.

Conclusion: NHL of the lower gastrointestinal tract and mesentery at Margono Soekarjo Purwokerto General Hospital during 2022-2024 occurred most frequently in middle-aged males, with the caecum as the predominant tumor site. The majority of cases were classified as B-cell NHL.

Keywords: CD3, CD20, digestive tract, immunohistochemistry, Non-Hodgkin lymphoma.

INTRODUCTION

Non-Hodgkin lymphoma (NHL) is a hematologic malignancy with a rising global incidence. According to GLOBOCAN 2020, NHL ranks as the 11th most common cancer worldwide and contributes significantly to cancer-related mortality.¹¹ NHL represents a heterogeneous group of lymphoproliferative disorders that may involve both nodal and extranodal sites. The gastrointestinal tract is one of the most frequent extranodal locations, accounting for approximately 30–45% of all extranodal NHL cases.¹⁴ Diagnostic and therapeutic challenges arise due to the morphological variability and diversity of histopathological subtypes, which cannot be reliably distinguished using routine histology alone.¹⁵ Immunohistochemistry (IHC) is therefore essential for identifying the cellular origin of lymphoma, particularly distinguishing between B-cell and T-cell lineages.¹

Several international studies have investigated the IHC characteristics of gastrointestinal lymphomas. Evidence from Asia and Europe demonstrates that B-cell lymphomas have a higher prevalence than T-cell lymphomas. Diffuse large B-cell lymphoma (DLBCL) are the most prevalent subtype, typically exhibiting strong and consistent CD20 expression.¹⁴ Furthermore, anatomical site has been reported to influence IHC expression patterns as well as the distribution of histological subtypes.¹³ These findings highlight the importance of site-specific research in understanding the biological behavior of NHL.

In Indonesia, large-scale studies indicate that NHL occurs predominantly in males, with the highest incidence among individuals aged 50–59 years. More than half of the cases are extranodal, with approximately 90.6% identified as B-cell lymphomas (CD20+) and 68.8% classified as DLBCL. Among these, about 9% of DLBCL cases involve the colon.⁷ However, most Indonesian studies have focused on nodal or gastric lymphomas, leaving data on NHL of the lower gastrointestinal tract relatively scarce and fragmented.¹³

To date, comprehensive clinical and immunohistochemical data on NHL involving the lower gastrointestinal tract and mesentery are unavailable, particularly in the region served by RSUD Prof. Dr. Margono Soekarjo. This absence of localized data poses challenges in establishing context-specific diagnostic references and in developing biomarker-guided clinical management protocols that support precision medicine approaches. Therefore, research is needed to describe the distribution of demographic characteristics, tumor sites, and IHC profiles of NHL in the lower gastrointestinal tract and mesentery at Margono Soekarjo Purwokerto General Hospital.

METHODS

This study was designed as a descriptive exploratory study. Sample size was calculated using the single-prevalence formula by Naing et al. (2006) with a 95% confidence level ($Z = 1.96$), an estimated prevalence of 20% based on a preliminary survey, and a margin of error of 5%. The initial theoretical requirement was 246 cases, which was reduced to 35 after applying finite population correction. Allowing for 10–20% incomplete data, the minimum required sample size was estimated to be 39–42 cases. As only 40 eligible cases were available during the study period, total sampling was applied.

Given the limited number of cases, the study was intended to provide a descriptive overview of clinical characteristics and xx profiles rather than to support inferential statistical conclusions.

Inclusion criteria were patients with histopathologically confirmed non-Hodgkin lymphoma of the lower gastrointestinal tract or mesentery, available immunohistochemistry (CD20 and CD3), and complete demographic data. Exclusion criteria were non-lymphoma IHC results or secondary involvement. Data were analyzed descriptively using univariate methods to assess distributions of age, sex, residence, tumor location, and immunohistochemical profile. This study was approved by the RSUD Prof. Dr. Margono Soekarjo Ethics Committee (Approval No. 420/0874).

RESULTS

Tabel 1. Characteristic

<i>No.</i>	<i>Variabel</i>	<i>Frekuensi (n)</i>	<i>Presentase (%)</i>
1.	Sex		
	Women	16	40,00
	Men	24	60,00
2.	Tumor site		
	Ileum	3	7,50
	Ileocaecal	2	5,00
	Caecum	13	32,50
	Colon	8	20,00
	Rectum	3	7,50
	Appendix	0	0,00
	Mesenterium	11	27,50
3.	Age		
	< 40	7	17,50
	40 - 60	23	57,50
	61 - 75	10	25,00
	> 75	0	0,00
4.	Residence		
	Banyumas	10	25,00%
	Cilacap	8	20,00%
	Banjarnegara	5	12,50%
	Wonosobo	4	10,00%
	Brebes	4	10,00%
	Pemalang	2	5,00%
	Purbalingga	1	2,50%
	Pekalongan	1	2,50%
	Tegal	1	2,50%
	Lainnya	4	10,00%
5.	IHC Profile		
	CD20 positive	37	92,5
	CD3 positive	3	7,5

Table 1 presents the distribution of patients by demographic and clinical characteristics. The majority of cases occurred in individuals aged 40–60 years (23 cases, 57.5%), followed by those aged 61–75 years (10 cases, 25%). Younger patients (<40 years) accounted for 7 cases (17.5%), while no cases were identified in patients >75 years

(0%). By sex, men represented the highest proportion with 24 cases (60%), whereas women comprised 16 cases (40%).

In terms of residence, the largest contribution came from Banyumas (10 cases, 25%), followed by Cilacap (8 cases, 20%), Banjarnegara (5 cases, 12.5%), Wonosobo (4 cases, 10%), and Brebes (4 cases, 10%). Smaller case numbers were reported from Pemalang (2 cases, 5%), as well as Purbalingga, Pekalongan, and Tegal (1 case each, 2.5%). An additional 4 cases (10%) originated from districts outside these ten main regions and were categorized as "Other."

With respect to tumor location, the caecum was the most frequent site (13 cases, 32.5%), followed by the mesentery (11 cases, 27.5%), colon (8 cases, 20%), ileum (3 cases, 7.5%), and rectum (3 cases, 7.5%). No cases were reported in the appendix (0%). Immunohistochemical analysis demonstrated that 37 patients (92.5%) expressed CD20 positivity, indicating B-cell lineage, while 3 patients (7.5%) were CD3-positive, consistent with T-cell origin.

DISCUSSION

The discussion integrates patient demographics, tumor characteristics, and immunohistochemical findings to provide a comprehensive interpretation of the results. This study found that most patients with NHL involving the lower gastrointestinal tract and mesentery were male. This result aligns with global epidemiological data showing that men are more frequently affected by extranodal NHL than women.⁹ Similarly, a 15-year study in Indonesia reported that 51.8% of NHL cases occurred in men.⁷

This study identified the caecum as the most frequent tumor site in NHL of the lower gastrointestinal tract. This finding is consistent with previous reports showing high involvement of the ileocaecal region, which is rich in gut-associated lymphoid tissue (GALT) and therefore a site prone to abnormal lymphoproliferation.⁸ The caecum contains Peyer's patches and caecal patches with active germinal centers that facilitate antigen sampling and immune activation, predisposing the region to chronic immune stimulation and subsequent lymphoid transformation.¹

In this study, most patients with NHL involving the lower gastrointestinal tract and mesentery were aged 40–60 years. Similar findings have been reported in Indonesia, where the majority of NHL cases occurred in patients ≥ 40 years, with the lowest incidence in children under 16 years.¹³

Most patients in this study originated from the ex-Karesidenan Banyumas region, particularly Banyumas and Cilacap, with fewer cases from surrounding districts. This geographic distribution may reflect a combination of environmental and structural factors. Agriculture remains a major occupation in Banyumas and Cilacap, raising the possibility of pesticide and organic pollutant exposure, which has been associated with non-Hodgkin lymphoma in previous epidemiological studies, particularly exposure to organochlorines and benzene-related compounds.^{2,3,6,9} However, the concentration of cases from Banyumas is also likely influenced by referral patterns, as RSUD Prof. Dr. Margono Soekarjo serves as the main tertiary referral center for southwestern Central Java, resulting in a higher proportion of patients from its immediate catchment area.¹² Limited access to specialized care, rural healthcare disparities, and socioeconomic barriers in more distant districts may further contribute to the observed distribution, a pattern consistent with reports from other low- and middle-income countries in Southeast Asia.^{5,10}

In this study, immunohistochemical evaluation was performed using CD20 and CD3, which serve as pan-B and pan-T markers, respectively.⁴ Consistent with national and

international data, the majority of NHL cases in this cohort were of B-cell origin. Previous studies in Indonesia reported similar findings, with 90.6% of cases at RSCM Jakarta and most cases at RSUP Dr. Hasan Sadikin Bandung identified as B-cell lymphomas.^{7,13}

CONCLUSION

NHL of the lower gastrointestinal tract and mesentery at Margono Soekarjo Purwokerto General Hospital during 2022-2024 occurred most frequently in middle-aged males, with the caecum as the predominant tumor site. The majority of cases were classified as B-cell NHL.

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LIMITATIONS:

This study has several limitations: The relatively small sample size may limit the statistical power and generalizability of the findings. However, given the rarity of NHL involving the lower gastrointestinal tract and mesentery, the available cases represent a substantial proportion of the target population at the study center. As a descriptive exploratory study, the findings are intended to provide an initial characterization of clinical features and IHC profiles rather than to establish causal relationships or definitive prevalence estimates. Future studies with larger, multicenter cohorts are warranted to validate and expand upon these findings.

CONFLICT OF INTEREST

The authors declare no competing interests.

FUNDING

No external funding was received for this study.

AUTHOR CONTRIBUTION

P.N. conceived the study, collected and processed the data and drafted the manuscript; H.S. conceived the study, designed the study, and provided input on data analysis and discussion; L.T. contributed to providing clinical relevance input, and assisted in drafting the manuscript; M. contributed to the study design and assisted in drafting the manuscript. G.N. conceived the study, designed the study, and provided input on data analysis and discussion.

DATA AVAILABILITY

The data are not publicly available due to ethical and privacy considerations but can be shared in anonymized form upon reasonable request to the corresponding author.

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