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Leukocyte Profile from Medical Check-Up Results at Diagram Cinere Heart Hospital in January to June 2023

Danny Ernest Jonas Luhulima[1*], Ester Romauli[2], Nolly O. H. Rantung[3]
Universitas Kristen Indonesia
Corresponding Author: Danny Ernest Jonas Luhulima danny.luhulima@uki.ac.id

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ABSTRACT

This study described total and differential leukocyte profiles among asymptomatic patients undergoing medical check ups at Diagram Heart Hospital Cinere. A retrospective descriptive cross-sectional study reviewed records from January to June 2023. Purposive sampling included 77 patients aged 17–77 years who met the eligibility criteria. Data were analyzed using descriptive statistics in Microsoft Excel. Total leukocyte counts were within the reported reference interval in 74 patients (96.1%), while three patients (3.9%) had leukopenia. The mean total count was 6,495 cells/µL. Elevated eosinophil percentages occurred in 28 patients (36.4%), and elevated monocyte percentages occurred in 23 patients (29.9%). Mean differential percentages were 0.16% basophils, 3.60% eosinophils, 0.29% band neutrophils, 57.34% segmented neutrophils, 31.05% lymphocytes, and 7.70% monocytes. Most patients had normal total leukocyte counts, but differential abnormalities remained present despite the absence of symptoms. These descriptive findings support reviewing total and differential counts together with clinical history and other examination findings. They do not establish the causes or diagnostic significance of the observed abnormalities

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INTRODUCTION

Medical check ups provide an opportunity to describe health characteristics in people who do not report symptoms. Their findings require careful interpretation because the absence of complaints does not establish the absence of disease. Equally, an isolated laboratory result outside a reference interval does not establish a diagnosis. Research on asymptomatic infection highlights the distinction between observable symptoms and underlying biological processes (Jamrozik & Selgelid, 2020).

A full blood count includes the total leukocyte count, while a differential count describes the proportions of leukocyte subtypes. These measurements summarize different aspects of circulating immune cells. A total count within a reference interval can coexist with a differential percentage outside its expected range. Laboratory methods and preanalytical conditions also influence the interpretation of results (Darmayani et al., 2016; Nugraha & Ningsih, 2021).

Descriptive studies of medical check up populations offer a basis for understanding these findings in their clinical setting. Mert (2023) examined screening findings in healthy, asymptomatic individuals. Sangrajrang et al. (2012) evaluated health characteristics in people attending routine check ups. These studies support examining laboratory profiles alongside demographic and health characteristics rather than assuming that every asymptomatic attendee has an identical baseline risk.

The supplied study documented total and differential leukocyte findings among patients attending Diagram Heart Hospital Cinere during January–June 2023. This article aims to describe patient characteristics and the distribution of leukocyte profiles in the 77 eligible records. It retains the descriptive purpose of the original study and does not test associations, diagnostic accuracy, or causal hypotheses.

LITERATURE REVIEW

Total and Differential Leukocyte Counts

Leukocytes include granulocytes and agranulocytes. Differential reporting separates basophils, eosinophils, neutrophils, lymphocytes, and monocytes. The total count and relative percentages should be distinguished because a percentage describes a cell type as a proportion of all leukocytes. Classification by relative percentage alone cannot establish an abnormal absolute count. Laboratory technique also matters when interpreting manually measured and automated results (Darmayani et al., 2016; Nugraha & Ningsih, 2021).

Medical Check Ups in Asymptomatic Populations

Medical check up attendees represent a selected clinical population. Their age, sex, smoking status, body mass index, and reasons for attendance may differ from those of the general population. Sangrajrang et al. (2012) described routine screening participants, while Mert (2023) investigated check up findings in asymptomatic individuals. Differences between settings therefore require attention before comparing the distribution of laboratory abnormalities.

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Interpretive Framework

This study uses a descriptive framework: eligible asymptomatic medical check up records provide demographic characteristics, smoking status, body mass index, and laboratory findings; these variables are summarized as frequencies, percentages, and reported means. The framework describes the sample rather than proposing a causal relationship. No hypotheses or inferential tests were specified in the source study. The possibility of asymptomatic illness provides context for interpretation, without implying that the observed differential abnormalities indicate a particular infection or disorder (Jamrozik & Selgelid, 2020).

METHODOLOGY

Design and Setting

The study used a retrospective descriptive cross-sectional design at the medical check up unit of Diagram Heart Hospital Cinere. The researcher collected records in October 2023 for examinations performed from January through June 2023.

Participants and Sampling

The final analytic sample contained 77 patients selected through purposive sampling. Inclusion criteria were age 17–77 years, systolic blood pressure of 90–120 mmHg, diastolic blood pressure of 60–80 mmHg, respiratory rate of 12–20 breaths/minute, and pulse rate of 60–100 beats/minute. The study excluded patients who did not undergo both a medical check up and a full blood count at the hospital, those with complaints identified through history or physical examination, and those with incomplete records.

The methods chapter uses a population of 340 and a Slovin calculation with a 10% error tolerance to obtain approximately 77 records. The results chapter reports 258 medical check up patients who underwent a full blood count. Confirm the sampling frame and sample-size calculation before submission. The descriptive results below retain the documented final sample of 77.

Measurements and Data Analysis

The researcher extracted age, sex, smoking status, body mass index, total leukocyte count, and differential percentages from medical records. The laboratory methods section identifies a Sysmex XN-330 hematology analyzer and fluorescent flow cytometry. However, an operational-definition entry also mentions a Mindray instrument. The laboratory instrument and the method used to report band neutrophils require author confirmation. The article does not assume that the reported band values were independently verified by manual microscopy.

Data processing included checking completeness, coding, entry, cleaning, and tabulation in Microsoft Excel version 2310. Univariate analysis summarized categorical variables as counts and percentages and laboratory variables as the reported means. The total leukocyte reference interval in the source was 3,800–10,600 cells/µL. Differential categories follow the source tables; their laboratory-

specific thresholds require confirmation. Percentages were standardized to one decimal place using the reported denominator of 77. No association tests or hypothesis tests were performed.

Ethical Information

Provide the ethics committee name, approval number and date, and the consent or consent-waiver arrangements. The source includes research-permission appendices but does not provide enough information to establish ethics approval. Confirm the procedures used to protect patient confidentiality.

RESULTS

Patient Characteristics

The sample included 44 men and 33 women. The two younger age groups each contained 28 patients. Most patients did not smoke. Body mass index values placed the largest group in obesity class I. Table 1 summarizes the characteristics reported in the source.

Table 1. Patient Characteristics (N = 77)

Characteristic	Category	n	%
Age (years)	17–32	28	36.4
Age (years)	33–47	28	36.4
Age (years)	48–62	16	20.8
Age (years)	63–77	5	6.5
Sex	Male	44	57.1
Sex	Female	33	42.9
Smoking status	Non-smoker	53	68.8
Smoking status	Conventional cigarettes	14	18.2
Smoking status	Vaping	5	6.5
Smoking status	Former smoker	5	6.5
Body mass index (kg/m²)	Underweight (<18.5)	2	2.6
Body mass index (kg/m²)	Normal (18.5–22.9)	8	10.4
Body mass index (kg/m²)	Overweight (23–24.9)	19	24.7
Body mass index (kg/m²)	Obesity I (25–29.9)	27	35.1
Body mass index (kg/m²)	Obesity II (≥30)	21	27.3

Total Leukocyte Count

Most patients had total leukocyte counts within the reference interval. Three patients had leukopenia, and none had leukocytosis. The reported mean was 6,495 cells/µL.

Table 2. Distribution of Total Leukocyte Counts

Classification	n	%
Leukopenia	3	3.9
Normal	74	96.1
Leukocytosis	0	0.0
Total	77	100.0

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Differential Leukocyte Profile

The source reports that all basophil values were within its normal category. Basophil percentages were 0% in 65 records and 1% in 12 records. Band neutrophil percentages were 0% in 55 records and 1% in 22 records. These observations are retained as reported values and are not interpreted as evidence of absolute neutropenia.

Table 3. Differential Leukocyte Categories Reported in the Source

Cell type	Category	n	%
Eosinophils	Low	1	1.3
Eosinophils	Normal	48	62.3
Eosinophils	High	28	36.4
Segmented neutrophils	Low	14	18.2
Segmented neutrophils	Normal	60	77.9
Segmented neutrophils	High	3	3.9
Lymphocytes	Low	13	16.9
Lymphocytes	Normal	56	72.7
Lymphocytes	High	8	10.4
Monocytes	Low	0	0.0
Monocytes	Normal	54	70.1
Monocytes	High	23	29.9

Table 3 describes relative differential categories. It does not establish absolute eosinophilia, monocytosis, or neutropenia. Percentages may differ slightly from 100% because of rounding. The eosinophil percentages were recalculated from the source counts to resolve inconsistent rounding in the narrative.

Table 4. Reported Mean Leukocyte Measurements

Measurement	Mean	Unit
Total leukocytes	6,495	cells/µL
Basophils	0.16	%
Eosinophils	3.60	%
Band neutrophils	0.29	%
Segmented neutrophils	57.34	%
Lymphocytes	31.05	%
Monocytes	7.70	%

DISCUSSION

The findings describe a sample in which total leukocyte counts were usually within the reference interval, while some differential percentages fell outside the categories used by the source. These two observations address different measurements and can coexist. A normal total count therefore does not, by itself, show that every component of the differential profile is within its expected interval. The descriptive data do not establish whether the differential findings reflect transient variation, persistent abnormalities, laboratory effects, or an underlying condition.

The broad predominance of normal total leukocyte counts is consistent with the source discussion's comparison to Mert (2023), who studied healthy, asymptomatic check up attendees. Such consistency should remain qualitative. Differences in eligibility criteria, laboratory intervals, sampling, and population characteristics prevent treating results from separate settings as directly interchangeable. The present purposive sample also cannot estimate the prevalence of abnormalities in the wider community.

Elevated eosinophil and monocyte percentages deserve attention as descriptive findings, but their causes remain unresolved. The study did not provide absolute differential counts, confirmed etiological diagnoses, serial measurements, or an analysis of medication exposure. A higher relative percentage can arise through changes in the numerator, the overall leukocyte count, or other leukocyte components. Consequently, this article avoids converting the relative categories into diagnoses of absolute cell-count disorders.

The low reported band neutrophil percentages require particular caution. The source itself raises uncertainty about how the analyzer distinguished band from segmented neutrophils and whether manual reassessment occurred. Low band percentages alone cannot establish neutropenia, which requires assessment of the relevant absolute neutrophil count and clinical context. This distinction corrects an overinterpretation in the original discussion while preserving the reported measurements.

The patient profile also limits interpretation. Most patients were non-smokers, and many had body mass index values above the normal category. Similar descriptive considerations appear in screening research such as Sangrajrang et al. (2012). However, this study did not compare leukocyte values across body mass index or smoking groups. It therefore cannot attribute any finding to obesity, smoking, age, or sex. Such explanations would require a defined analytic model and adequate control of potential confounding.

Asymptomatic status describes the absence of reported or observed complaints under the study's selection process. It does not demonstrate that every participant lacked an underlying illness. Jamrozik and Selgelid (2020) discuss asymptomatic infection as a broader clinical and ethical issue, but their analysis does not establish infection in this sample. Likewise, although the source mentions other abnormalities in selected records, it does not provide enough linked diagnostic information to assess their relationship to leukocyte findings.
The practical implication is to interpret total and differential leukocyte findings together with medical history, examination results, laboratory reference

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intervals, and other available investigations. The study does not show that a particular check up schedule improves outcomes, and it cannot justify a universal six-month screening recommendation. Its contribution is a local descriptive profile that can inform more focused research and careful review of abnormal results.

CONCLUSIONS AND RECOMMENDATIONS

Among 77 asymptomatic medical check up patients at Diagram Heart Hospital Cinere, most total leukocyte counts were within the reported reference interval, with a mean of 6,495 cells/µL. Differential percentages showed variation, including elevated eosinophil and monocyte categories. These findings describe the selected records and do not determine underlying causes or diagnostic significance. The hospital should ensure complete laboratory documentation and clear reporting of reference intervals and measurement methods. Clinicians should assess abnormal findings in their clinical context rather than infer disease from a differential percentage alone.

FURTHER STUDY

The retrospective single-center design, purposive sampling, and reliance on existing records limit generalizability. The conflicting population figures and incomplete methodological details also require clarification. Further research should define a consistent sampling frame, document laboratory-specific thresholds, report absolute differential counts, and evaluate repeated findings alongside clinical diagnoses. Multicenter studies with a prespecified sampling approach and appropriate analysis could examine associations with demographic characteristics, smoking, and body mass index.

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