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**The Description of Leukocyte Counts in Appendicitis Patients at RSAD Level III  
Brawijaya Surabaya**

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**ABSTRACT**

**Background:** Appendicitis is an inflammation of the appendix that often occurs in adolescents and adults. Leukocytes are blood cells that contain nuclei and are referred to as white blood cells. **Object:** The purpose of this study was to determine the description of the number of leukocytes in patients with Appendicitis at RSAD level III Brawijaya Surabaya. **Method** This type of research was descriptive quantitative. The sample in this study was the total population of all appendicitis patients who performed a leukocyte count examination at the laboratory of RSAD level III Brawijaya Surabaya. This research was conducted from February to June 2025. Data analysis techniques used quantitative descriptive methods. **Result:** The results of this study found that of the total population of all appendicitis patients based on leukocyte counts of 110 patients, there were 2 patients or 2% whose leukocyte counts were below normal values, 53 patients or 48% who had normal leukocyte values, and 55 patients or 50% who had increased leukocytes and based on age groups with a total of 110 patients there were 20 patients in adolescence or 19%, 67 patients in adulthood or 60%, and 23 patients in the elderly age group or 21%. **Conclusion:** This showed that appendicitis patients have an increased number of leukocytes above normal, which indicates inflammation in the body, and the majority of patients are from the adult age group (60%), followed by the elderly age group (21%), and adolescents (19%) from a total of 110 patients observed.

**Keywords:** Appendicitis, Leukocytes, Laboratory Examination

**BACKGROUND**

Appendicitis constitutes a major cause of acute abdominal pain that necessitates prompt medical intervention. It results from inflammation of the appendix, a small, tube-like organ located in the lower right quadrant of the abdomen (Huda, 2019). If not managed promptly, appendicitis can result in serious complications such as appendiceal perforation, peritonitis, and potentially life-threatening sepsis (Wijaya, Eranto, and Alfarisi, 2020). Gastrointestinal infections or gynecological disorders in women. Therefore, laboratory testing

serves as an important tool to support clinical diagnosis. One of the most commonly used laboratory parameters is the leukocyte count (Reza Bahlia, 2022).

Leukocytes, or white blood cells, serve as the body's primary line of defense against infection. An elevated leukocyte count (leukocytosis) is commonly observed in patients with appendicitis as a response to inflammation (Shelemo, 2023). However, not all patients exhibit this increase, as some may present with normal or even decreased leukocyte counts, depending on the stage of the

disease and individual patient factors (Falahi et al., 2024).

Leukocyte count testing in the laboratory is relatively quick, simple, and can be performed using either a hematology analyzer or manual methods. A leukocyte value exceeding the normal threshold—typically  $>11,000/\text{mm}^3$ —is often used as an initial indicator of acute infection. However, leukocyte count results should be interpreted alongside other diagnostic tools, such as ultrasonography (USG) or computed tomography (CT) scans, to confirm the diagnosis of appendicitis (Reza Bahlia, 2022). Thus, leukocyte examination not only provides insight into the body's inflammatory status but also serves as supporting data in medical decision-making (Falahi et al., 2024).

RSAD TK III Brawijaya Surabaya is one of the referral hospitals that manages various surgical cases, including appendicitis. Based on medical record data, the number of patients diagnosed with appendicitis at this hospital has been relatively high in recent years. This highlights the need for further analysis of patient characteristics, particularly from a laboratory perspective, in order to provide additional information to support the management of appendicitis cases.

Based on the aforementioned background, this study was conducted to investigate the leukocyte count profile in patients with appendicitis at RSAD TK III Brawijaya Surabaya. The findings are expected to contribute to a better understanding of the role of leukocyte examination as an early diagnostic indicator of appendicitis, as well as to provide additional data for healthcare professionals in improving the quality of care and clinical decision-making.

## METHOD

This study is a quantitative descriptive research utilizing secondary data from medical records of appendicitis patients who underwent leukocyte count

examination at RSAD TK III Brawijaya Surabaya from July to December 2024. The study sample consisted of the total population of 110 patients. The research variable was leukocyte count, categorized as low ( $<3,500$  cells/ $\text{mm}^3$ ), normal (3,500–11,000 cells/ $\text{mm}^3$ ), and high ( $>11,000$  cells/ $\text{mm}^3$ ). Data were analyzed descriptively using percentages.

## RESULT AND DISCUSSION

- Gender Distribution:** 63 male patients (57%) and 47 female patients (43%).
- Age Distribution:** Adolescents 20 patients (19%), adults 67 patients (60%), elderly 23 patients (21%).
- Leukocyte Count Distribution:** Low 2 patients (2%), normal 53 patients (48%), high 55 patients (50%).

The study results indicate that appendicitis patients were predominantly adults (60%). This age group is at higher risk for appendicitis due to low dietary fiber intake (Zebua, Butar-butur, & Sihombing, 2022). This finding aligns with Awaluddin (2020), who reported that the productive age group is more vulnerable due to dietary patterns and lifestyle. Gender distribution showed a higher proportion of male patients (57%) compared to females, which may be associated with lower fiber consumption among males (Appulembang et al., 2024).

Leukocytosis (50%) in appendicitis patients corresponds to the body's inflammatory response to obstruction and infection of the appendix. However, 48% of patients had normal leukocyte counts and 2% had low counts, indicating that leukocytosis is not the sole diagnostic indicator. This underscores the necessity of supporting examinations, such as ultrasonography (USG) or computed tomography (CT) scans, to establish a definitive diagnosis.

## CONCLUSION

The majority of appendicitis patients at RSAD TK III Brawijaya Surabaya exhibited leukocytosis (50%), with a predominance of adults (60%) and males (57%). Although elevated leukocyte counts are commonly observed, normal or even low counts can also occur in appendicitis cases, indicating that leukocyte examination should be supported by additional diagnostic tests.

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