

## Research Article

# Hematology Profile of Elderly in Guguak Kabupaten 50 Kota, West Sumatera, Indonesia

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**Abstract:** Hematological examination can give an idea of the presence or absence of anemia, nutritional status and immunology of the elderly so that it can help in monitoring the progression of the disease. This research is a descriptive research and the population included elderly people aged 60 years and over in Guguak Kabupaten 50 Kota, West Sumatera Indonesia. The tests included hemoglobin, index hemoglobin, erythrocytes, leukocytes and platelets by using automatic analyzer. In this study, most of the elderly had hematological features in normal level.

**Keywords:** Haematology, debie anggraini, elderly, anemia, padang, west sumatera, indonesia.

### Introduction

Elderly according to the Ministry of Health, the Republic of Indonesia is someone who is aged 60 years and over. The number of elderly in Indonesia tends to increase compared to other age groups, estimated that in 2020 Indonesia has 11,34% and more than 50% of these elderly people experience health complaints. Physiologically, the elderly group will experience a decrease in the degree of health both naturally and because of the disease.

Hematological examination can give an idea of the presence or absence of anemia, nutritional status and immunology of the elderly so that it can help in monitoring the progression of the disease. These blood components originate from the haemopoietic stem cell, these occupy the entire capacity of the bones at birth but it is been replaced with fatty marrow with increase in age. Hematological parameters are examinations consisting of hemoglobin, index hemoglobin, erythrocytes, leukocytes and platelets.

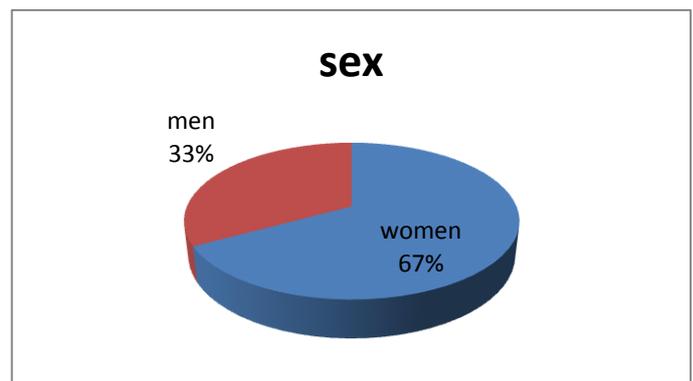
Decrease in hemoglobin levels is considered a cause of a decrease in quality of life, morbidity, decreased physical function, and a risk factor for death in elderly. The leukocyte count is marker of systemic inflammation, and have received attention as a useful clinical predictor for survival in the elderly. Platelets play an important role in hemostasis and in the development of pathological processes including atherosclerosis and arterial thrombosis in the elderly.

### Procedures and Method

This research is a descriptive research and the population included elderly people aged 60 years and over in Guguak Kabupaten 50 Kota, West Sumatera Indonesia. The sample collection technique is the proportion of random sampling with a sample of 30 people. The tests included hemoglobin, index hemoglobin, erythrocytes, leukocytes and platelets by using automatic analyzer.

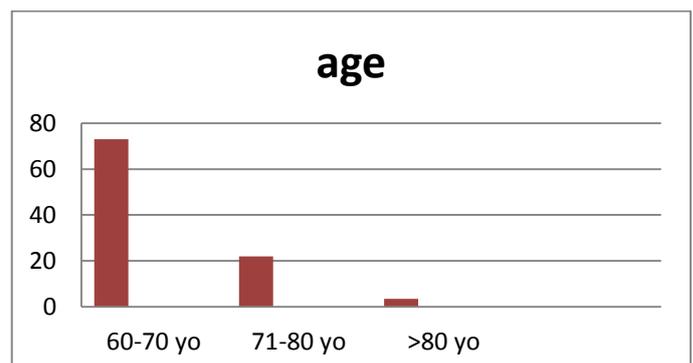
### Result

The sample of this study was the elderly someone who is aged 60 years and over, with a total of 30 people, consisting of 20 women (67%), 10 men (33%) (Diagram 1).



**Diagram 1. Proportion Of Elderly By Sex**

The proportion of elderly based on age, divided into 3 groups, namely elderly aged 60-70 years, elderly aged 71-80 years and elderly over the age of 80 years. The results showed that elderly people aged 60-70 years old 22 people (73%), elderly aged 71-80 years old 6 people (22%), and elderly >80 years old 2 people (7%) (Diagram 2)



**Diagram 2. Proportion of Elderly by Age**

**Table 1. Distribution of Haemoglobin Level in Elderly**

Haemoglobin Level	n	%
Anemia	6	20
Normal	24	80
Total	30	100

The proportion of haemoglobin level in the elderly in Guguak Kabupaten 50 Kota, West Sumatera consists of anemia of 20% and normal hemoglobin level 80% (table 1).

**Table 2. Distribution of Leucocyte Level in Elderly**

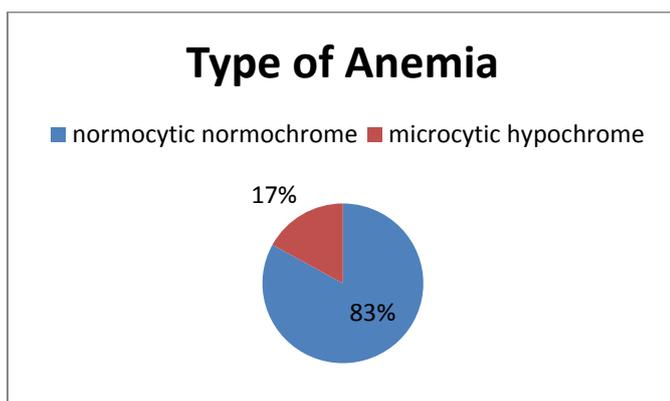
Leucocyte level	N	%
Leucopenia	6	20
Normal	21	70
Leucocytosis	3	10
Total	30	100

The proportion of leucocyte level in the elderly in Guguak Kabupaten 50 Kota, West Sumatera consists of leucopenia of 20%, leukocytosis 70% and normal leucocyte level 70% (table 2).

**Table 3. Distribution of Trombocyte Level in Elderly**

Trombocyte level	N	%
Trombocytopenia	3	10
Normal	27	90
Total	30	100

The proportion of trombocyte level in the elderly in Guguak Kabupaten 50 Kota, West Sumatera consists of trombocytopenia 10% and normal thrombocyte level 90% (table 3).



**Diagram 3. Type of Anemia in Elderly**

In this study 20% of the elderly suffered from anemia, with an overview of 83% normocytic normochrome anemia and 17% hypochromic microcytic anemia (Diagram 3).

**Discussion**

This study consisted of 30 people including 67% women and 33% men, this is the same as Prasetya et al's research in Yogyakarta where women were more than men, where women were 87%. (1). The results showed that elderly people aged

60-70 years old 22 people (73%), elderly aged 71-80 years old 6 people (22%), and elderly >80 years old 2 people (7%). Humaney et al's study, the population of patients ranged from 60 to 80 years with an average age of 71.51 years, the maximum number of patients at that age group was 60-69 years (61% men & 39% women)(2). The prevalence of anemia increases rapidly after the age of 50, approaching a level greater than 20% in people aged 85 years or more (3). Guralnik et al's study showed 33% of anemic persons aged 70 years, 23% in persons aged 75 years, and 36% in persons aged 81 years(4). Increasing age, thus affecting blood parameters, anemia is a significant problem in elderly patients, anemia can be caused due to malnutrition, chronic inflammatory anemia or other comorbidities (3).

The proportion of haemoglobin level in the elderly in this study consists of anemia of 20% and normal hemoglobin level 80% which 20% of the elderly suffered from anemia, with an overview of 83% normocytic normochrome anemia and 17% hypochromic microcytic anemia. Characterization of anemia in peripheral smear shows that normocytic anemia (61.21%) is the most common type followed by microcytic (18.1%), macrocytic (10.34%) because of folic acid and vit B12 deficiency & dimorphic 12 (10.34%) (2). Some cases of anemia with unidentifiable causes reflecting initial myelodysplasia, others are anemic due to chronic diseases, and others are anemic mild renal insufficiency (4)(5).

The proportion of leucocyte level in the elderly in this study consists of leucopenia of 20%, leukocytosis 70% and normal leucocyte level 70%. The proportion of trombocyte level in the elderly in this study consists of trombocytopenia 10% and normal thrombocyte level 90%. Although there are as yet no data to explain this, we hypothesize that non-nutritional anemia in the elderly is all related to inflammatory signaling, either as the anemia of inflammation mediated through IL-6 pathways or as iron independent anemia mediated through TNF and NFkB (5)(6)

**Conclusion**

Most of the elderly had hematological features in normal level.

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