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Original Research Article

Complete blood count and pneumopathy at the University Hospital of Befelatanana Antananarivo

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Abstract

Objective: The blood count is a routine laboratory test prescribed to patients with pneumopathy. This study aims to describe the results of blood count from patients with pneumopathy and to identify factors associated.
Methodology: It is a retrospective and descriptive study for a period of six months from December 2017 to April 2018 in the laboratory of the University Hospital of Befelatanana Antananarivo. All the results of blood count of patients with pneumopathy have been exploited.
Results: In this study, 128 results of blood count of patients with pneumopathy were studied. The blood count results were pathological in 81.2% of cases. Neutrophilic polynucleosis (39.1%) is most common in pathological blood count. In order of frequency, this abnormality is followed by thrombocytosis (37.5%) and anemia (34.4%). Concerning the factors associated with pathological blood counts, men (85% versus 75%) (p=0.16; NS) and subjects between 40 and 59 years (94.7% versus 82.9%) (p=0.01) are the most affected by pathological blood count.
Conclusion: The blood count should be prescribed for all patients to identify the abnormalities of blood cells that will be treated simultaneously with the pneumopathy. Thus, patients will have a good follow-up and their life expectancy will be improved.
Keywords: Blood count, pneumopathy, neutrophil polynucleosis.

1. Introduction

Pneumopathies represent a global public health problem. They are mainly represented by pneumonia, chronic obstructive pulmonary disease (COPD), acute pneumonitis of the infant, asthma, pulmonary tuberculosis, pleurisy, bronchopulmonary tumors.....[1]. Bacterial pneumopathies of the elderly appear more serious with higher mortality and longer hospital stay [2]. COPD is common and pernicious. In developed countries, the diagnosis of COPD was made in approximately 4% of Canadians over 35 years, but its true prevalence is probably underestimated. COPD increases mortality and has a negative impact on quality of life. This disease arrives at the fifth rank of leading causes of death in Canada [3]. In Africa, COPD affects 3.4% of patients over the age of 60 according to a study conducted in Cameroon [4].

The main factors of the risk of pneumopathy are tobacco and pollution environmental as well industrial as domestic [3]. In the early 1980s, the burden of child mortality from pneumonia worldwide led the World Health Organization (WHO) to develop a strategy for the control of this disease adapted to countries with resources and limited health systems [5]. The cornerstone of this strategy is case management. Among the care of these pneumopathies, biological analyzes are very important to follow the evolution of the disease and the therapeutic effectiveness like the blood count. Thus, this study aims to describe the results of blood count from patients with pneumopathy and to identify factors associated.

2. Materials and Methods

It is a retrospective and descriptive study for a period of six months from December 2017 to April 2018 in the laboratory of the University Hospital of Befelatanana Antananarivo. All the results of blood count of patients with pneumopathy have been exploited. The blood count was performed on the ABX Pentra 60 hematology automaton and the result was registered in the register book. Those containing incomplete information were excluded from the study.

The parameters studied were age, gender and blood count results. The data entry and processing was performed on the software Epi-info 3.5.2. The comparison of percentages used the Chi square tests. For ethical reasons, the authorization of the director of establishment was obtained before the data were collected in the registers. The seizure was done anonymously to maintain confidentiality. The statistical significance threshold used was p = 0.05.

3. Results

In this study, 128 results of blood count of patients with penumopathies were studied. Figure 1 shows that 81.2% of blood counts were pathological.

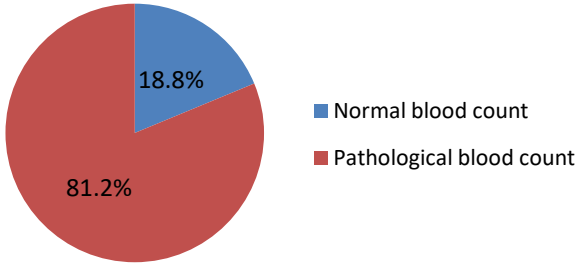

Figure 1: Proportion of pathological blood counts

Figure 2 shows that neutrophilic polynucleosis (39.1%) is most common in pathological blood count. In order of frequency, this abnormality is followed by thrombocytosis (37.5%) and anemia (34.4%).

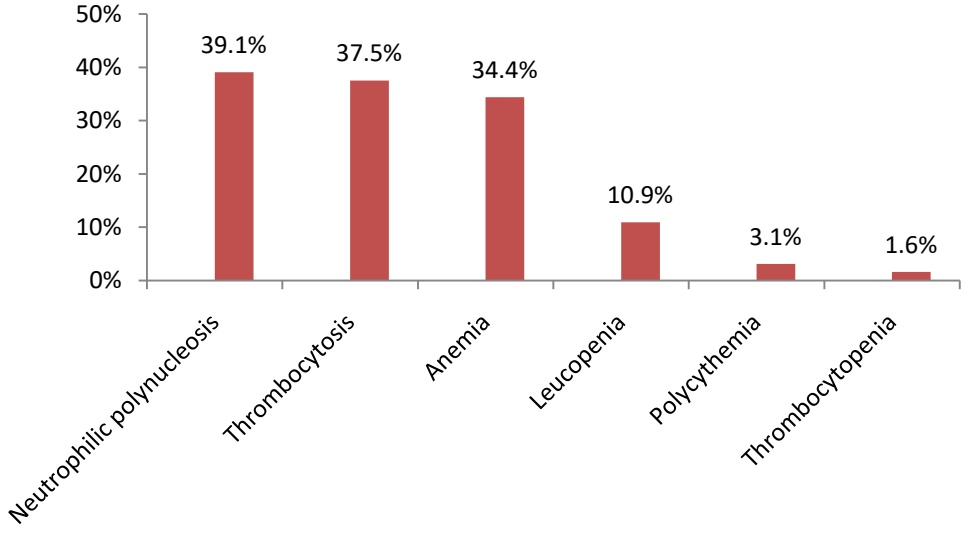

Figure 2: Proportion of abnormalities of the blood count

Concerning the factors associated with pathological blood counts, men (85% versus 75%) (p=0.16; NS) and subjects between 40 and 59 years (94.7% versus 82.9%) (p=0.01) are the most affected by pathological blood count.

4. Discussion

In this study, the majority of patients with pneumonia had pathological blood count. In fact, pneumonia causes disturbances in the human body. These disturbances cause quantitative and qualitative variations of the formed elements of the blood. Similarly, the presence of these abnormalities may be indicative of other diseases associated with pneumonia that can be diagnosed by other complementary investigations.

Regarding pathological blood count, neutrophilic polynucleosis are the most frequent. Another study also found that neutrophilic polynucleosis is common in 45.28% of pneumopathy [6]. These leucocytes increase in case of infection or inflammation [7]. Thus, these leukocytes are still elevated in pneumopathies that are often accompanied by inflammatory reaction and infection such as bacterial pneumonia, COPD and asthma attacks. Bacterial pneumopathies of the elderly are more serious with higher mortality and longer hospital stay [2]. A blood count with a leukocytosis> 15 000 / µL or a neutrophil> 8000 / µL is good for the diagnosis of bacterial pneumonitis [6]. The knowledge of the absolute values of the number of neutrophils allows knowing the stage of gravity of the pneumopathy. Thus, a very high absolute value (greater than 20 Giga / l) requires urgent management of the pneumopathy.

The second abnormality is represented by thrombocytosis. It is a frequent abnormality in hospitalized patients. The main causes are secondary thrombocytosis, familial thrombocytosis and clonal thrombocytosis [8]. In

pneumopathy, thrombocytosis is probably secondary to infection and inflammation related to pneumonia. Thrombocytosis can lead to serious complications. Indeed, they can lead to frequent thrombotic and haemorrhagic complications that aggravate pneumopathies [8]. The delay of therapeutic management can be fatal for the patient.

The third abnormality is represented by anemia. Indeed, anemia is a common condition in a hospital setting. It is related to the diet, the mode of life and the physiological state of the individual [9]. In this study, anemia is probably the consequence of frequent haemoptysis in patients with pneumopathies. On the one hand, the prevalence of this anemia in patients with pneumopathies must be taken care of because it may already require a transfusion even if the hemoglobin level is still 8 g / dl [10]. On the other hand, anemia may be indicative of other related diseases such as kidney failure or other serious illness [10].

Concerning the factors associated with pathological blood count, men are most affected by pathological blood count because of the high frequency of their toxic habits (tobacco, alcohol, drugs ...). Similarly, subjects between 40 and 59 years are the most affected by pathological blood count. In fact, the haematological abnormalities in this age group could be the consequences of the bad hygiene of life during the youth and which appear as the age increases.

5. Conclusion

Many abnormalities of blood cells have been detected in the majority of patients with pneumopathy. Thus, the blood count is an essential biological assessment to prescribe compulsorily in case of pneumopathy. The qualitative and quantitative variations of these blood cells reveal the severity and prognosis of pneumopathy and associated diseases. The knowledge of these anomalies can strengthen, adjust or modify the patient's drug treatments. Similarly, the treatment of the associated diseases will improve the prognosis of the pneumopathy thus allowing a good patient load.

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