Scientific Research Publishing

Pulmonary Embolism in Hospitalization in the Department of Cardiology of Gabriel Toure University Hospital

Ichaka Menta[1], Souleymane Coulibaly[2], Hamidou Oumar Ba[1], Djénébou Traore[3], Mougnon Walbane[1], Youssouf Camara[4], Ibrahima Sangare[1], Illo Bela Diall[2], Samba Sidibé[2], Noumou Sidibé[1], Mamadou Diakité[2], Coumba Thiam[4], Kassoum Sanogo[1]

[1]Cardiology Department, Gabriel Touré Hospital, Bamako, Mali
[2]CHU Point G Cardiology Department, Bamako, Mali
[3]Department of Internal Medicine and Endocrinology, Mali Hospital, Bamako, Mali
[4]Kati Hospital Center Cardiology Service, Bamako, Mali
Email: mentasomonosso@yahoo.fr, kazangasso@yahoo.fr, bhamiba@yahoo.fr, monopolytra@yahoo.fr, isanga_1967@yahoo.fr, cestoto29@yahoo.fr, sambakp@yahoo.fr, ilobella@yahoo.com, thiampoupe@yahoo.fr

Abstract

Objective: The aim of this study was to describe the epidemiological, clinical and Para clinical characteristics in patients hospitalized for pulmonary embolism in the cardiology department of Gabriel Toure University Hospital. **Methodology:** It was a retrospective and descriptive study from January 2011 to December 2014 and involved all patients hospitalized during the study period. **Results:** The study included 21 patients out of 1738 hospitalized patients, with a prevalence of 1.21%. The mean age was 38.57 years with extreme ages of 18 and 64 years. The sex ratio was 0.40. Risk factors found in the study were oral contraception (19.05%), overweight (19.05%), smoking (14.28%), HIV (4.76%) and heart failure (4, 76%). 61.90% (n = 13) had isolated pulmonary embolism, 38.09% (n = 8) had venous thrombosis and pulmonary embolism association. Through the chest angio-CT, 28.57% of obstructions were located at the left branch of the pulmonary artery, 9.52% at the right branch and 61.90% were bilateral obstructions. Four deaths were recorded, all in a context of massive pulmonary embolism, with a fatality rate of 19.05%. **Conclusion:** Pulmonary embolism is a serious and common disease, often difficult to diagnose. It is a cardiovascular emergency and requires immediate and adequate care.

Keywords

Pulmonary Embolism, Cardiology, Gabriel Toure Hospital

1. Introduction

Pulmonary embolism is a sudden obliteration, total or partial, of the trunk or branch of the pulmonary artery by an embolus. It can quickly lead to death by causing reversible right heart failure. It is difficult to diagnose and may be unnoticed because of its nonspecific clinical presentation. Its prevalence in Europe is 17% - 42.6% of hospitalized patients with 10,000 cases of annual death by PE [1]. In Africa, its incidence is estimated at 0.1% in Nigeria [2] and 3.8% in Burkina Faso [3]. In Mali, according to a Diall study [4], pulmonary embolism had a hospital frequency of 1.7% in 2006 at Point G Teaching Hospital. The absence of recent epidemiological data and the increasing lethality of pulmonary embolism justify the present study aimed at describing the epidemiological and paraclinical characteristics of patients hospitalized for pulmonary embolism in the cardiology department of Gabriel Toure University Teaching Hospital.

2. Methodology

This was a retrospective and descriptive study that took place over four years from January 1, 2011 to December 31, 2014.

This work took place in the CHU Gabriel TOURÉ in the cardiology department of the department of Medicine.

The study focused on hospitalized patients. The sample consisted of all patients hospitalized during the study period with pulmonary embolism confirmed by thoracic angio-CT.

The data collection consisted of an exploitation of the files of the patients.

The data carrier is an individual inquiry form.

The mask, data entry and analysis were done with the software Word 2010, Excel 2010 and SPSS 21.0 French version for Windows.

3. Results

Of a total of 1738 patients registered in hospitalization, 21 were included in this study, a prevalence of 1.21%. The average incidence of the disease was 5 cases per year.

The female sex was predominant with 71.43% against 28.57% for the male sex (Diagram 1).

The sex ratio was 0.40.

The 25 to 45 age group was the most affected with 28.57% (Figure 1).

The average age was 38.57 years, with the extreme ages of 18 and 64 years old.

In the series, housewives were the most represented with 42.86% (Figure 2).

Oral contraception and overweight were the predominant risk factors with the same percentage of 19.05%.

The triggering factor was not found in 10 patients, or 47.62% of cases.

Recent childbirth was the most important trigger factor with 23.81% of cases.

The majority of patients were hospitalized in the first week after onset of symptoms, or 71.43% of cases.
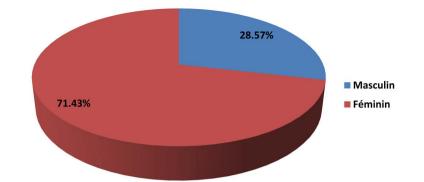
Diagram 1. Distribution of patients by sex. The female sex was predominant with 71.43% against 28.57% for the male sex. The sex ratio was 0.40.
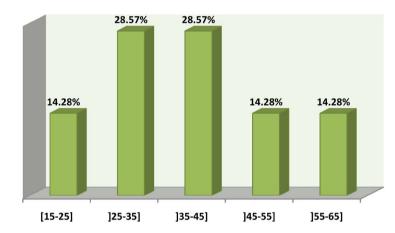

Figure 1. Distribution of patients by age group (in years). The 25 to 45 age group was the most affected with 28.57%. The average age was 38.57 years, with the extreme ages of 18 and 64 years old.
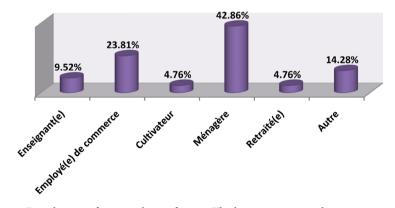

Figure 2. Distribution of patients by profession. The housewives were the most represented with 42.86%.

Pulmonary embolism without prior diagnosis of venous thrombosis was more often encountered, *i.e.* 61, 90% of cases. She was associated with deep vein thrombosis in 38.09%.

Dyspnea was the most common reason for consultation with 10 cases (47.62%).

Clinically, dyspnea was in first place with 90.48%, followed by chest pain with 80.95%.

Bilateral pulmonary embolism was predominant with 61.90%. It involved the left pulmonary artery in 28.57% of cases.

Pulmonary arterial hypertension and right cavitary dilation were the most common ultrasound abnormalities with 38.09% and 19.05%, respectively.

Among the patients who performed the chest X-ray (11.43%), the ascension of the diaphragmatic hemi-dome was the most frequent abnormality with 37.50%.

The right axial deviation was the majority electric anomaly with 33.33%.

The level of D Dimers was positive (>500 ng/ml) in 100% of the patients who performed this test (38.09%).

Most patients had a favorable outcome, 80.95% of the cases.

Four patients died from massive pulmonary embolism, an overall case fatality rate of 19.05%.

4. Discussions

The study was conducted from 1 January 2011 to 31 December 2014 and conducted in the cardiology department of CHU Gabriel TOURE, 21 cases of pulmonary embolism were retained among 1738 hospitalization records, a hospital prevalence of 1.21%.

This result is slightly below that of Diall [4] who had found 1.7%. This difference could be explained by the fact that their study lasted 6 years.

Among our 21 patients, 13 patients (61.90%) presented isolated PE, without prior diagnosis of venous thrombosis and 8 patients (38.09%) had pulmonary embolism associated with venous thrombosis.

This result is superior to that of Anderson [5] who, in a study conducted in the United States, found 23% of patients with EP and DVT combination.

In our series, the female sex was the majority, 71.43%. The sex ratio was 0.40. This female predominance was found by Samama [6] and Traoré [7] with 54% and 56% respectively. These two authors had a lower rate than ours probably in relation to the size of our sample.

The age group of 25 - 45 years was mostly represented, representing 28.57% of cases. The average age in the series was 38.57 years old, with extremes of 18 and 64 years old. This average was comparable to that observed in other studies [8] [9]. The household was the activity mostly found that is 42.86% of the activities in our study. This predominance is explained by the fact that housewives are the most represented social group in Mali. This result is comparable to that of Traore [7] who found 40% of housewives. In our study, oral contraception and overweight were the predominant risk factors with the same percentage of 19.05%. Sacko [10] estimated oral contraception and obesity as contributing factors in 3.70% and 5.10%, respectively. 47.62% of the patients had no trigger factors probably related to the retrospective nature of the study.

The recent delivery was mostly found, 23.81% of cases. This could be explained in part by the female predominance and also the young age of the pa-

tients.

In our series, dyspnea was at the forefront of symptomatology with 90.48%, followed by chest pain with 80.95%. From this we conclude that these signs should prompt us to pay more attention to the search for PE in bedridden or DVT patients. The prominence of these signs had been reported by other authors [4].

According to chest CT results among patients with pulmonary embolism, 61.90% had bilateral pulmonary embolism, 28.57% of obstructions were located at the left arm of the AP and 9.52% at the right branch.

This left predominance of pulmonary embolism was found by Raveloson [11] at Antananarivo University Hospital in Madagascar, which reported 4.64% localization in the left proximal branch, and 2.32% of cases at the right proximal branch.

In the cardiac echo-doppler, pulmonary arterial hypertension and right cavitary dilatation were the most frequent ultrasound abnormalities with respectively 38.09% and 19.05%, a rate lower than that of Diall [4], who had found right cavitary dilation in 40.80% of cases. The radiographic signs were dominated by the ascension of the diaphragmatic hemi-dome or Zweifel sign (37.50%) as Diall [4] had pointed out, which found this radiological anomaly in 63.3% of the cases.

In the study, 100% of D Dimer dosing patients were all above 500ng/ml. Stein [12] revealed that lower D-D levels should lead us to reverse a PE diagnosis and to stop the investigation in low-risk patients. In addition, Vincens [13] in 2007 had noticed that a concomitant prescription of the C-reactive protein assay (PCR) coupled with that of the D Dimer level is of interest in the diagnostic approach of PE. This prescription was not made in our study.

The hospital evolution was considered favorable in 80.95% of the patients. We recorded a lethality of 19.05%, higher than that of Diall [4] which reported a lethality at 11.1%.

5. Conclusions

The present work determines the epidemiological and paraclinical aspects of pulmonary embolism (PE) in the cardiology department of Gabriel Toure University Hospital.

According to this study, VTEs affect women and people between the ages of 25 and 45 a lot more. Its clinical manifestations are mainly dominated by dyspnoea and chest pain.

The combination of several risk factors remains a hypothesis that still requires a lot of studies to determine the frequency and relative risk of PE for each of these factorial associations.

PE is a cardiovascular emergency with increasing mortality in our countries.

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