

## Pulmonary Embolism: Epidemiological and Clinical Aspects in the Cardiology Department of the University Hospital Ignace Deen of Conakry about 32 Cases

Barry Ibrahima Sory<sup>1</sup>, Samoura Aly<sup>1\*</sup>, Camara Abdoulaye<sup>1</sup>, Toure Demba<sup>2</sup>, Koivogui Diarra<sup>1</sup>, Soumaoro Morlaye<sup>1</sup>, Djibril Sylla<sup>3</sup>, Doumbouya Mohamed<sup>3</sup>, Balde Elhadj Yaya<sup>1</sup>, Beavogui Mariama<sup>1</sup>, Balde Mamadou Dadhi<sup>1</sup>, Conde Mamady<sup>1</sup>

<sup>1</sup>Cardiac Service Ignace Deen CHU Conakry Guinea

<sup>2</sup>Pneumology Department Ignace Deen CHU Conakry Guinea

<sup>3</sup>Medico-surgical emergency service of Donka CHU Conakry Guinea

\*Corresponding author: Samoura Aly, Cardiac Service Ignace Deen CHU Conakry Guinea; E-mail: samouraaly01@gmail.com; Tel 224 622 104 550/666 753 858

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### Introduction

Pulmonary embolism is defined as the sudden obliteration (total or partial) of the trunk of the pulmonary artery or one of its branches by a circulating foreign body, most often fibrinous-cremorogenic, exceptionally, the thrombus can be septic, gaseous, greasy, metastatic, parasitic or amniotic. It is secondary to deep vein thrombosis (DVT) in 90% of cases [1].

### Patients and methods

This was a descriptive prospective study over a period of 15 months (1st February 2018 to 1st April 2019) performed in the cardiac department of CHU Ignace Deen Conakry. Included in the study were all patients of both sexes and at any age hospitalized for pulmonary embolism who had undergone chest CT angiography. The data was collected using a pre-established survey form. The diagnosis of PE was focused on a group of arguments:

clinical: association of cough, chest pain, hemoptysis, dyspnea of cardiovascular collapse on a risky ground with the assessment of the Wells score, paraclinical: D Dimer, electrocardiogram, cardiac echo doppler, venous ultrasonography of the lower limbs, thoracic angioscanner. We also studied treatment and intra-hospital evolution.

### Discussion

During our study 356 patients were hospitalized in the cardiology department for various pathologies among which we collected 36 cases of pulmonary embolism is 10,11%, the female sex was the most represent 22 cases is 67% with a sex ratio of female to male = 1.57. The most represented age group was 25- 55 years old, 62% and an average of 50 years. More than half of our patients were admitted by transfer with a mean duration of symptom progression of 3-10 days.

### Conclusion

Pulmonary embolism remains formidable because of its mortality, its progressive complications and the high cost of its management. The reduction of its morbidity and mortality is due to prophylactic prevention and anticoagulation in the face of certain etiological factors.

**Keywords:** Pulmonary embolism, epidemiology, clinical, cardiology, Ignace Deen

## Introduction

Pulmonary embolism (PE) is defined as the sudden obliteration (total or partial) of the trunk of the pulmonary artery or one of its branches by a circulating foreign body, most often fibrinous-cremorogenic, exceptionally, the thrombus can be septic, gaseous, greasy, metastatic, parasitic or amniotic. It is secondary to deep vein thrombosis (DVT) in 90% of cases [1]. It is a diagnostic and therapeutic emergency. In Europe, the prevalence of PE is 17 to 42.6% of hospitalized patients and 8 to 52% of necropsy checks [1]. In the French population, the incidence of VTE as the main diagnosis reaches 85.5 per 100 000 inhabitants, 61.7% of which for PE [2].

In Africa, the data are still difficult to obtain and the prevalence is underestimated [3] In Togo, the prevalence of VTE in hospitals is 3.1% [4] but no study has focused solely on EP. Thus, the objectives of this work are to describe the epidemiological, clinical and evolutionary aspects of PE at the cardiology department Ignace Deen de Conakry CHU.

## Patients and Method

The study took place in the cardiac department of CHU Ignace Deen. The cardiology department is located to the right of the CHU going to the Conakry Nation Palace. It consists of 33 hospital beds divided between two hospitalization areas and a cardio-intensive care room. It has six cardiologists including three teachers, one assistant teacher, two assistants and the (DES) doctors in specialization training. The admission of the patients was done either by external consultation or by reference to other health structures of the country. This was a descriptive prospective study over a period of 15 months (1st February 2018 to 1st April 2019) carried out in the cardiology department of CHU Ignace Deen in Conakry. Included in the study were all patients of both sexes and at any age hospitalized for pulmonary embolism who had undergone chest CT angiography. The data was collected using a pre-established survey form. The diagnosis of PE was focused on a group of arguments:

**Clinical:** association of cough, chest pain, hemoptysis, dyspnea of cardiovascular collapse on a risky ground with the assessment of the Wells score.

**Paraclinical:** Dimer, electrocardiogram, cardiac echo doppler, venous ultrasonography of the lower limbs, thoracic angioscanner. We also studied treatment and intra-hospital evolution. The data was entered on the Word and Excel 2007 software and analyzed on the SPSS software version 22.

**Ethical aspects:** The approval of the hospital's ethics committee was obtained in accordance with national and local regulations.

## Results

**Tables 1:** Distribution according to etiological factors of pulmonary embolism

Etiological factors	Name of case	Percentage
postpartum	12	36
Obesity	6	18,75
surgeries	3	9,3
Extended bed rest	2	6,2
Long trip	2	6,2
Chronic pulmonary heart	5	16
Heart failure	2	6,2

**Table 2:** Electrocardiographic signs found in our work

Electro cardiographic signs	Name of case	Percentage
tachycardias	24	75
Repolarization disorder V1 -V3	12	38
Right ventricular hypertrophy	20	63
Aspects S1Q3T3	24	75
Right branch block	10	31,2
Right axial deviation	17	53
Atrial fibrillation	8	25

**Table 3:** Distribution of patients according to abnormalities found in transthoracic cardiac ultrasonography

Ultrasound abnormalities	Name of case	Percentage
Dilation of the right cavities	20	63
Inversion of the septal curvature	14	43,75
PAH	24	75
Dilation of the pulmonary trunk	24	75
Tricuspid insufficiency	21	66
Intravenous thrombus	10	31,2

Table 4: Distribution of Patients by Location of Amboles to Chest Angioscan

The location of amboles	Name of case	Percentage
Trunk	4	33
Main division branch	2	17
Lobar branches	1	8
Segmental branches	3	25
Sub segmental branches	2	17

## Discussion

During our study 356 patients were hospitalized in the cardiology department for different pathologies among which we collected 36 cases EP (of pulmonary embolism) is 10,11%, Our result is superior to that of Souleman Pessinaba and all in Togo in 2015 to the cardiology department, which reported a hospital prevalence of 3.1% [4]. This could be explained by a higher attendance rate on the one hand and the modernization of our eating habits which could at the occurrence of cardiovascular diseases. In Sub-Saharan Africa, the prevalence varies between 1.4% and 7% depending on the studies. In European countries, the prevalence of PE varies between 17- 42.6% of hospitalized patients and 8-52% of autopsy verifications. [5,6] and in the general population, the incidence is 100-200 per 100,000 inhabitants [7]. The prevalence of this condition in our developing countries is probably underestimated because of the difficulties of accessibility to the means of diagnosis.

The female sex was the most representing 22 cases, okay 67% with a sex ratio between men and women = 1.57. The most represented age group was 25-55 years, okay 62% and an average of 50 years. This result could be explained by the rejuvenation of the general population in guinea. Our results are similar to Dial's in his work. in Mali, which brought back a 30-50-year-old with an average age of 51 years [8]. More than half of our patients were admitted by transfer with a mean duration of symptom progression of 3-10 days. This delay in admission affects the management and prognosis of these patients. The etiological factors and the signs observed are classic but it is necessary to underline the difficulty of the diagnosis when the symptomatic is little significant thus the necessity of a diagnostic strategy and adequate management. The assessment of the Wells score was a great tool of this diagnostic approach in carrying out the various complementary examinations. Then the etiological factor most represented was the delivery with a frequency of 36%, Our result is contrary to that of Souleman Pessinaba in Togo who found the heart failure is a frequency of 11.8% [4] Thus this frequency The

high postpartum level could be explained by the fact that precautions were not taken in the delivery rooms on the one hand and, on the other hand, homebirths arriving in hospitals only after complications. The symptomatic was dominated by dyspnoea and palpitations respectively 97% and 87%. The chest x-ray performed in one-third of the patients was performed as part of the differential diagnosis research especially since the signs are not very specific. The dosage of D Dimers was an essential element of our diagnostic approach because of its strong negative predictive value. Performed on patients with a low or moderate Wells score, it allowed the continuation of the investigations by the realization of the transthoracic echocardiography then the thoracic spiral angioscanner. This is an attitude recommended by learned societies [9,10]. The absence of the BNP assay, NT-pro BNP, did not allow us to correctly stratify the early death risk associated with PE [9]. But clinically, 20.6% with low blood pressure or cardiovascular collapse were classified as high risk. Our data are similar to those of Souleman Pessinaba who reported a frequency of 17.6% [4]. All of our patients had performed transthoracic cardiac ultrasound and three quarters had signs suggestive of a pulmonary heart. In our series, our data are superior to those of Souleman Pessinaba in Togo, which reported a realization rate of 71%, this could be explained by the accessibility of transthoracic cardiac ultrasound in our service. elements for the diagnostic orientation of this pathology. Regarding spiral CT angiography, of the 36 cases observed, 75% did the examination and 25% did not do so because of lack of financial means. Our study does not allow us to pronounce on the specificity of this examination nonetheless in the literature. The sensitivity and specificity of thoracic spiral angioscan vary respectively from 90 to 96% according to the studies and the type of angioscanner [11] In terms of management, the therapeutic arsenal remained conventional with low molecular weight heparins at a curative dose and relay with Anti-Vitamin K (AVK). Fibrinolytic treatment with 20mg actilysis was performed in one (1) patient. In our study the low use of thrombolytic could be explained by the non availability of the drug in our pharmacies on the one hand and on the other hand the low economic level of the patients who do not allow them to obtain, while in the study of Souleman pessinaba the 8 patients out of 51 benefited the thrombolysis [4]. None of our patients benefited from embolectomy due to lack of technical platform. The evolution was marked by an immediate hospital death rate of 31% with an average hospital stay of 15 days, whereas the hospital evolution was considered favorable in 69.4% of patients with remission of functional and physical signs and absence. complications. In terms of mortality, our results were higher than those of Souleman Pessinaba in Togo with a rate of 13.5% [4]. The high mortality rate in our study could be

explained by the delay in the admission of patients, and also the absence of fibrinolytic in the therapeutic arsenal.

## Conclusion

Pulmonary embolism remains formidable because of its mortality, its progressive complications and the high cost of its management. The reduction of its morbidity and mortality is due to prophylactic prevention and anticoagulation in the face of certain etiological factors.

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