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Thrombolysis in Pulmonary Embolia at the Cardiology Department of Aristide le Dantec Cardiology Department

Joseph Salvador Mingou[1], Marguerite Téning Diouf[2], Fatou Aw[1], Simon Antoine Sarr[1], Khadim Rassoul Diop[1], Malick Bodian[1], Mouhamadou Bamba Ndiaye[1], Maboury Diao[1], Abdoul Kane[2]

[1]Cardiology Department, Aristide le Dantec Hospital, Dakar, Senegal
[2]Cardiology Department, Dalal Jam Hospital, Dakar, Senegal
Email: mingoujoseph@gmail.com

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Abstract

Introduction: Venous thromboembolic disease is the 3rd most common cardiovascular pathology. Acute pulmonary embolism constitutes its most serious presentation and a major cause of mortality, morbidity and hospitalization in Africa and Senegal. The objectives of this work were to study the epidemiological profile of pulmonary embolisms and to evaluate the practice of thrombolysis in patients in a cardiological setting. **Methodology:** A retrospective, descriptive study was carried out in the Cardiology department of the Aristide le Dantec Hospital (HALD) over the period from August 2011 to December 2019 in patients hospitalized in the cardiology department for pulmonary embolism confirmed by CT angiography and/or with thrombi on cardiac ultrasound and who had also benefited from thrombolysis. **Results:** Thirty-one patients with pulmonary embolism were thrombolyzed. There was a predominance of the female gender with an average age of 45.97 years. Risk factors were dominated by age (61.29%) followed by obesity (32.26%) and prolonged immobilization (22.5%). The functional signs were dominated by dyspnea (77.42%) followed by chest pain (51.62%) and cough (35.48%). The physical signs were dominated by right heart failure in 22.5% of cases, pulmonary condensation syndrome in 19.35%, and inflammatory large leg in 12.9% of cases. Echocardiography and chest CT angiography were the means of diagnosis. Nine of our patients presented with an intracardiac mass. Thrombotic treatment was administered in all patients. The average length of hospitalization was 12.32 days and in-hospital mortality was 32.26%. **Conclusion:** Pulmonary embolism does exist in our regions and is responsible for heavy mortality. Rapid and efficient support is essential. Prevention remains the corner-

stone in the fight against this pathology.

Keywords

Pulmonary Embolism, Thrombolysis, Senegal

1. Introduction

Pulmonary embolism is a serious, frequent and difficult diagnosis [1]. Its prevalence in Europe is 17% - 42.6% of hospitalized patients and 8% - 52% of necrotic cases [2]-[4]. In the literature, African data demonstrate that the pathology is rare in black subjects, particularly in Senegal where there is little data relating to hospital prevalence [5]. The objectives of this work were to study the epidemiological profile of pulmonary embolisms and to evaluate the practice of thrombolysis in patients who presented with pulmonary embolism in a cardiological setting.

2. Materials and Methods

We carried out a retrospective and descriptive study in the cardiology department of Aristide le Dantec hospital over a period of 8 years and 5 months from August 2011 to December 2019. This study included all patients 18 years of age or older admitted for pulmonary embolism at medium and high risk of early death confirmed by CT angiography/or who presented with one or more thrombi on echocardiography, and who received fibrinolytic treatment. Not included were patients admitted for suspected Pulmonary Embolism (PE) not confirmed by CT angiography and/or who did not present intracardiac thrombi as well as the files of patients hospitalized outside the collection period as well as the files lost and/or incomplete. We collected data through hospitalization records; which made it possible to study the sociodemographic characteristics with patient age, gender as well as risk factors for venous thromboembolism defined by the presence of one or more of the following factors: (phlebitis, cancer, taking treatment hormonal in women, thrombophilia, pregnancy, postpartum or postabortion, hemiplegia, recent surgery, prolonged immobilization due to a medical reason or a long trip, orthopedic treatment). We also analyzed the treatment and the evolution.

The parameters studied had been collected on a survey sheet that we made ourselves (see **Appendix**) and then entered using the sphinx plus2 software, version 5.1.0.2. After entry, the database was transferred to the statistical software EPI INFO 3.5.4/IBM SPSS 24.0 (Statistical Package for the Social Sciences) for data exploitation and analysis. Statistical analysis with SPSS software was used for the calculation of means and standard deviations.

3. Results

During the study period, 159 confirmed cases of pulmonary embolism were hospitalized in the cardiology department, of which 31 had been thrombolyzed,

representing a prevalence of 19.5%. Of the thrombolyzed patients, 12 were classified as high risk on admission, representing 38.71% of thrombolyzed Pulmonary Emboli and 7.55% of all PEs. The average age of our patients was 45.97 years with extremes of 22 and 73 years (Table 1). Two frequency peaks were noted. The population studied was mainly made up of women, with a M/F sex ratio of 0.63. The average length of hospitalization in our series was 12.32 days with extremes of 1 and 32 days (Table 1). The main risk factors for venous thromboembolism found are age in 61.29% of cases, prolonged immobilization in 22.58% of cases, and obesity in 32.26% of cases. The main reasons for hospitalization at entry were represented by dyspnea in 77.42% of cases, chest pain in 51.62% of cases, cough in 35.48% of cases. Four patients presented with syncope (12.9%), five cases with hemoptysis (16.13%) and two patients consulted for lipothymia (6.45%) (Figure 1). Among the general signs, twelve patients presented with cardiovascular collapse on admission (38.71%). Tachycardia was present in 93.55% of cases. Polypnea was noted in 96% of patients. Oxygen desaturation less than 95% was found in eleven of our patients (Figure 2). On physical examination, right heart failure syndrome was found in 22.58% of patients, pulmonary condensation syndrome in 19.35% and a large inflammatory leg was found in 12.9% of patients. In biology, the average hemoglobin level was 12.23 g/dl with extremes 8.30 to 17.20 g/dl. The INR (International Normalized Ratio) was measured in twenty-seven patients before initiating anticoagulant treatment. The spontaneous INR varied between 0.96 and 6.5 with a mean of 1.79. Troponinemia was not measured in any of our patients. Thrombophilia was also not looked for. On the electrocardiogram, tachycardia was found in 88.46% of patients. Right ventricular hypertrophy (RVH) in 42.86% of cases; Left Atrial Hypertrophy (LAH) in 42.86% of patients. Left Ventricular Hypertrophy (LVH) and Right Atrial Hypertrophy (RAH) were found in 28.57% and 28.57% of patients, respectively. Six of our patients (19.35%) presented with a right bundle branch block (BBD), whether complete or incomplete (Figure 3). The S1Q3 appearance was observed in three of our patients (9.68%). The S1Q3T3 aspect was found in eleven patients, *i.e.* 35.48%. We note in our study, fourteen cases of ischemia, *i.e.* (45.16%). Furthermore, a case of atrial fibrillation was found, *i.e.* 3.23% of cases (Figure 3). Doppler echocardiography was performed in 96.77% of patients (Figure 4). Pulmonary arterial hypertension

Table 1. General characteristics of the population studied.

Features	Workforce	Percentage
Middle age	45.97 years [22 - 73 years]	-
Sex Ratio M/F	0.63	-
Hospitalization duration	12.32 [1 - 32 days]	
Average hemoglobin level	12.23 [8.30 - 17.20 g/dl]	-
Spontaneous INR	1.79 [0.96 - 6.5]	-
Intrahospital mortality	10 (n = 31)	32.26

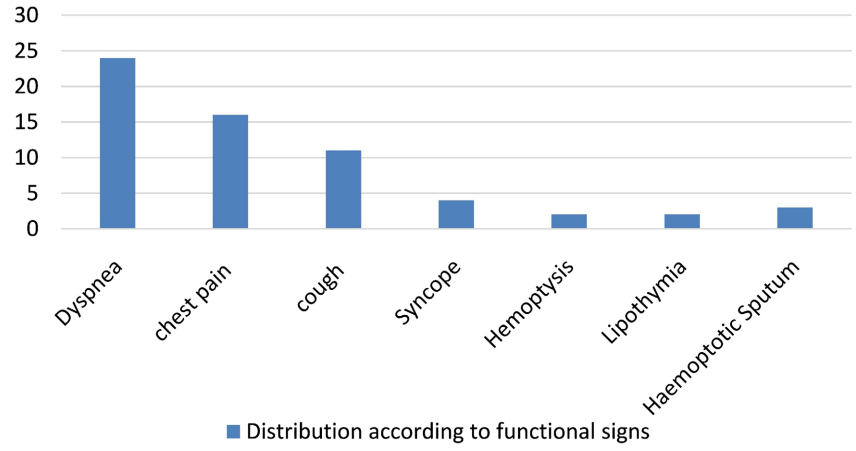

Figure 1. Distribution according to the main functional signs.

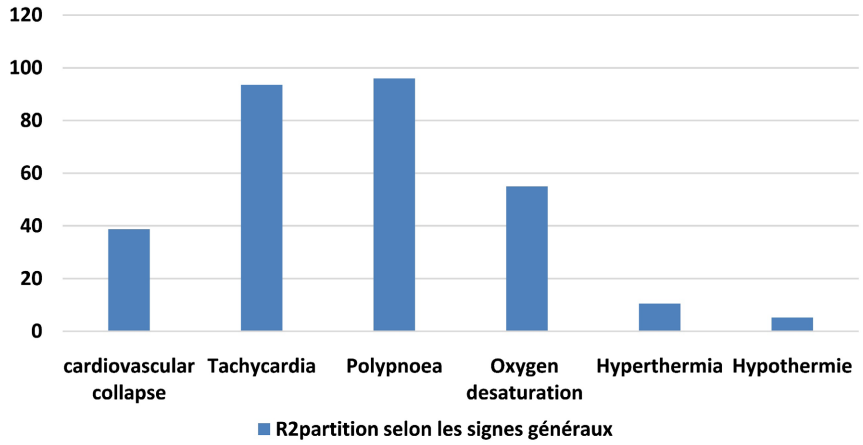

Figure 2. Distribution according to general signs.

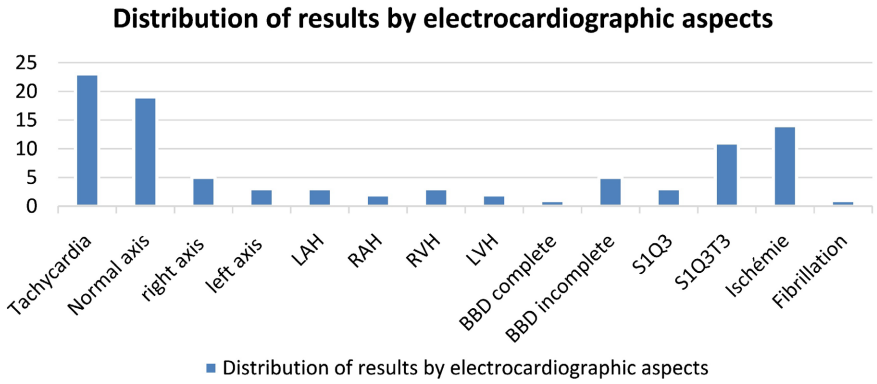

Figure 3. distribution of results according to electrocardiographic signs.

(PAH) was found in 73.3% of patients. The average PAPS was 56.2% and extremes of 36 and 90 mmHg. Elsewhere, a dilation of the right heart chambers was noted in 70% of patients and a dilation of the trunk of the pulmonary artery in 3.33% of patients. A paradoxical septum was noted in 13.33% of cases. Nine patients presented with intracardiac thrombosis with in 55.56% the presence of a single

thrombus and in 44.44% the presence of multiple thrombi (Figure 4). The majority of thrombi were located in the ventricle in 66.67% of cases and in the right atrium in 55.56%. The presence of thrombi in the pulmonary artery was found in 22.22% of cases. Venous duplex ultrasound of the lower limbs was not systematic in all our patients. It was contributory in eight patients and made it possible to find venous thrombosis in 5 patients or 62.5%. CT angiography performed in 70.96% of our patients showed the presence of individualized, bilateral thrombi in 9.68% of patients. Pulmonary embolism was massive in four cases. Vascular amputation was found in 12.9% of cases. Furthermore, CT angiography revealed signs of parenchymal damage in 19.35% of cases, pleural damage in 6.45% of cases, pericardial effusion in 6.45% of cases, and one case of hydropneumothorax. Therapeutically, oxygen therapy was effective in 74.19% of patients at an average dose of 5.2 liters per minute with extremes of 3 L/min and 10 L/min. Dobutamine was administered to 9 patients (29.03%) at a mean dose of 12.2 µg/kg/min with extremes of 10 and 20 µg/kg/min. Dopamine was used in 3 cases (9.68%) at an average dosage of 10 Gamma/kg/min. the simultaneous introduction of heparin therapy and VKA was effective in 87.1% of patients. Heparin therapy was done with low molecular weight heparin. AVK was prescribed in 90.32% of patients. Acenocoumarol and Fluindione were the vitamin K antagonists prescribed in our patients. Diuretics were used in 45.16% of our patients. All patients (100%) had benefited from streptokinase thrombolysis which was administered at a dosage of 1,500,000 IU over 2 hours. The average delay in introducing thrombolysis was 3.3 days with a minimum delay of one day and a maximum delay of twelve days. Following thrombolysis, 9 cases of accidents and/or incidents were reported: cardiocirculatory arrest in 11.1%, progressive drop in heart rate and bilateral unreactive mydriasis in 11.1%, bradypnea, bradycardia in 11.1%, Cardiogenic collapse in 11.1%, hemoptoic sputum 30 minutes after the end of thrombolysis in 11.1%, supraventricular rhythm disturbances in 22.21% and vomiting in 22.2% of cases. The intra-hospital mortality rate was 32.26%, including 50% of high-risk patients and 30% of patients with intracardiac thrombi (Figure 5). In 70% of cases, death was reported when thrombolysis was carried out beyond two days.

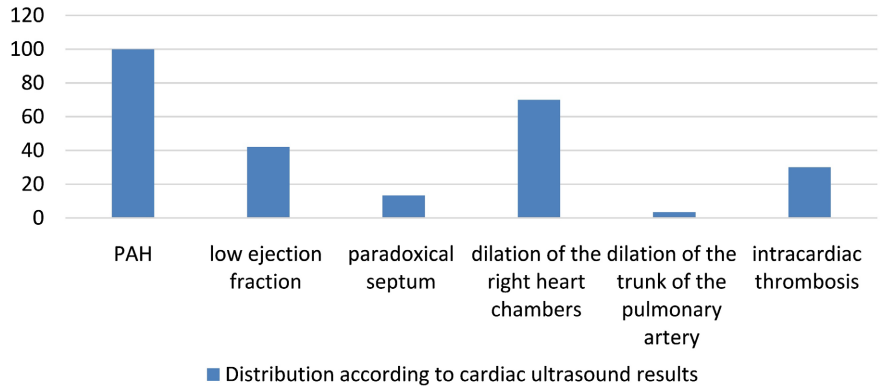

Figure 4. Distribution according to cardiac ultrasound results.

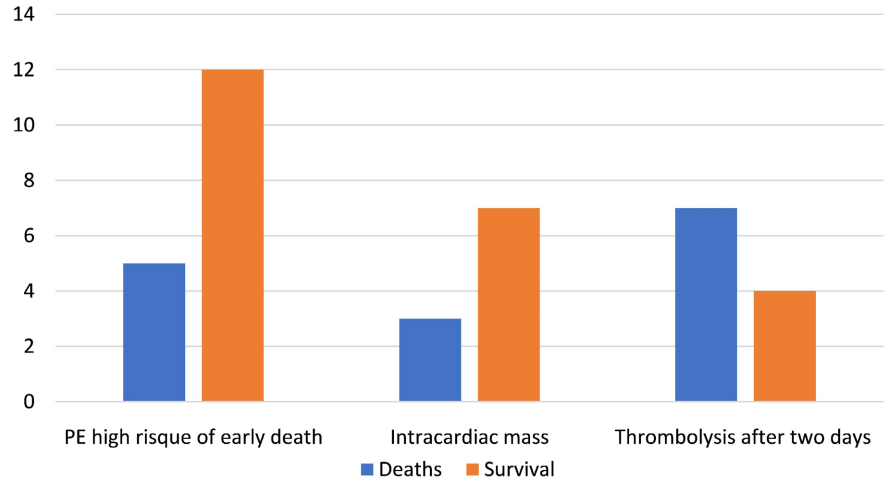

Figure 5. Distribution of deaths according to the risk of early death, the presence of an intracardiac mass or whether thrombolysis was carried out beyond 2 days.

4. Discussion

The limits of our study were constituted by the retrospective nature of our study, notably through the availability of files. In fact, several files were unusable and others lost. The retrospective nature of this work did not allow harmonization of the files in terms of additional examinations (incomplete files). In other cases the absence of paraclinical data in certain cases was related to either their unavailability or their non-achievement in current practice. Furthermore, the number of patients who had benefited from thrombolysis for pulmonary embolism was small due to the very specific indications for thrombolysis.

We collected thirty-one cases of thrombolysis out of one hundred and fifty-nine cases of pulmonary embolism (PE) reported during the study period of eight years and five months (101 months), *i.e.* a hospital prevalence of 19.49% of thrombolysis. In Africa and Asia, VTE appears rare as reported in Nigeria, Elegbleye with hospital prevalence of 0.1% [6]. In Japan more recently Kumasaka for its part reported an incidence of 28 pulmonary embolisms per million inhabitants [7]. In our study, 38.7% of our patients presented hemodynamic instability on admission. On the other hand, in the ICOPER registry [8] only 4.5% presented hemodynamic instability. The average age of our population was 45.97 years ± 15.42 years, close to that of Doghmi [9]. Analysis of the distribution of pulmonary embolism according to sex shows a predominance of the disease in women. Lee in Taiwan region also reports a female predominance [10]. Ndiaye MB [5] in his series also attests to this female predominance. However Doghmi [9] in his study, shows no difference between the two sexes, as does Elegbleye [6]. On the other hand, the predominance of the male sex was proven in the study of Awotedu in Nigeria [11].

Immobilization was found in 22.6% of patients in our series. Pessinaba *et al.* found 17.6% of cases [12]. Grenard and Maher found 5.7% of cases [13]. In the study by Kane *et al.*, prolonged bed rest of more than a week was found in 41.7% of patients [14]. On the other hand, BERGOVIST found bed rest in 90% of cases

[15]. Obesity in our series represented 32.3% of cases. Unlike Kingue *et al.* [16]. In our study, dyspnea represented the main reason for hospitalization with 77.42% of cases, similar to the figures found in the literature [12] [17]. Chest pain was found in 51.62% of cases. The PIOPED study found a percentage of 66% was found [17]. Syncope was found in 12.9% of cases. Pessinaba *et al.* found 29.4% [12] and Ouldzein *et al.* found a percentage of 4.7% [18]. Right heart failure constituted one of the most represented syndromes, notably with a percentage of 22.58%, similar to those of Pessinaba *et al.* [12]. A large inflammatory leg was found in 12.9% of our patients. Pessinaba *et al.* carried out in Togo found a percentage of 9.8% [12]. In our study, 38.71% of patients presented hemodynamic instability on admission. Doghmi found only one cardiovascular collapse out of 20 cases of serious pulmonary embolism [9].

Sinus tachycardia was found in 23 of our patients or 88.46%. Right bundle branch block was found in 19.35% of cases. Ndiaye Mb on the other hand in their studies found Branch Block in 12.5% of cases [5] a percentage somewhat close to that of Doghmi's study [9].

The Mac Ginn White sign (S1Q3T3 appearance) was found in eleven cases or 35.48%, similar to those found by Ndiaye Mb [5]. Doghmi for his part reports a proportion of 20% [9]. The S1Q3 aspect for its part was found in 3 of our patients (9.68%) unlike the 40% found in Doghmi's study [9]. Arrhythmia due to atrial fibrillation was found in one case in our study, *i.e.* 3.23%. Pulmonary arterial hypertension was found in 73.3% of cases on Doppler echocardiography. Pessinaba *et al.* noted a percentage of 52.6% of patients [12]. In our series we noted twenty-one cases of dilation of the right heart chambers, *i.e.* 70%, which is close to the results found in the literature [12]. Ndiaye Mb found 62.5% of cases [5]. A case of dilatation of the trunk of the pulmonary artery was found in one of our patients, very far from the results of Pessinaba *et al.* [12]. Four patients had a septum paradoxical or 13.33% of cases, a result similar to that found in the literature [5]. Nine patients (30%) of the patients presented intracardiac thrombosis. Among the locations of thrombi on ultrasound, the most frequent were the right ventricle and the right atrium. Then in a lesser frequency come the locations at the level of the pulmonary artery. In his study, Ndiaye MB reported a case of multiple thrombi in the right ventricle (12.5%) [5]. Pessinaba *et al.* found a thrombus in 5.6% of patients in their study [12]. Doghmi also noted 2 cases of intracavitary thrombosis [9].

In our study, venous ultrasound of the lower limbs was performed in eight patients and only five (62.5%) presented with deep vein thrombosis in the lower limbs. Doghmi in his study revealed 10 out of 15 cases of venous thrombosis (66.67%) [9]. Pessinaba *et al.* found DVT in 4 of the 7 patients 57.14% [12].

Therapeutically, hypoxemia is almost constant in acute pulmonary embolism. It justifies nasal oxygen therapy which is generally effective [19]. In our study, 23 patients (74.19%) benefited from oxygen therapy at an average of 5.2 L/min. Data in the literature are contradictory regarding the use of volume expansion. Never-

theless, clinical studies have shown a beneficial effect of infusion of 500 ml of artificial colloid [19]. In our series, 3 patients had undergone filling.

The main inotropic drugs used in massive pulmonary embolism are dobutamine and norepinephrine. In our study, Dobutamine was used in 9 of our patients (29.03%) at an average dose of 12.2 gamma/kg/min. An equivalent effect of Dopamine on cardiac output was noted but associated with an increase in heart rate, systemic arterial pressure and pulmonary arterial pressure [19]. In our series, three patients (9.68%) had received dopamine at an average dose of 10 gammas/kg/min. In Doghmi's series, 5 out of 20 patients had received vasoactive treatment without specifying the products used [9].

Thrombolysis is a crucial means of treating pulmonary embolism with a high risk of death. In our study, all our patients had benefited from thrombolysis. Two protocols exist [20]. In our series, the average delay in introducing thrombolysis was 3.3 days with a minimum delay of 1 day and a maximum delay of 12 days. Bleeding is the main fear of thrombolysis. Two of our patients had a hemorrhagic incident (6.45%) such as hemoptoic sputum occurring 30 minutes after the start of thrombolysis. Ndiaye MB in his study found a case of gastric hemorrhage at autopsy [5]. In the literature this complication has also been described at around 5% [21]. The evolution was marked by a hospital death rate of 32.3% with an average length of hospitalization of 12.3 days. On the other hand, in Togo, in their Pessinaba *et al.* reported a rate of around 13.7% for an average length of hospitalization of around 14.5 days [12]. In France [22] the hospital lethality of PE was 5.4% with a duration of hospitalization of 10.1 days. This difference can be explained by the delay in admitting patients. Among these 10 deaths, seven occurred when thrombolysis was performed at 5 days and beyond for an average time to death of 11.1 days.

5. Conclusions

Pulmonary embolism is a serious vascular pathology that can be fatal. It is the third leading cause of death in Western countries where it is a public health problem [6] [7].

The rarity of the disease in black Africans, once described in the literature, is increasingly nuanced thanks to our African studies, particularly Senegalese studies [5] [11] [13].

Declaration

Human samples (subjects) were not involved in the conduct of this study.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

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INVESTIGATION FORM (PULMONARY EMBOLISM)

A. Civil status

1. File number

The answer is mandatory.

2. Name and surname

3. Sex
○ 1. M 2. F

4. Age

5. Ethnicity:

6. Profession:
○ 1. Unemployed ○ 2. Peasant
○ 3. Civil Servant ○ 4. Liberal profession
○ 5. Retirees

7. Religion:

8. Address
○ 1. Urban ○ 2. Semi urban ○ 3. Rural

9. Telephone:

10. Marital status:
○ 1. single ○ 2. married ○ 3. widower
○ 4. Divorced

11. Date of entry:

12. Release Date:

13. Level of Education:
○ 1. Not in school ○ 2. Schooled

Go to '15-Socio-economic Level:' if Education Level: = "Not in school"

14. If 'Schooled', specify:
○ 1. Primary ○ 2. College ○ 3. High school ○ 4. Superior

15. Socio-economic level:
○ 1. Low ○ 2. Medium ○ 3. High

16. Financial Support:
○ 1. Personal ○ 2. Insurance/Mutuals
○ 3. Third parties ○ 4. Free

1. Surgical

17. Operations
○ 1. Yes ○ 2. No

18. If 'Yes', please specify:

The question is only relevant if Operations = "Yes"

19. Immobilization:
○ 1. Yes ○ 2. No

20. If 'Yes', please specify:

The question is only relevant if Immobilization: = "Yes"

21. Trauma: (Casts)
○ 1. Yes ○ 2. No

22. If 'Yes', please specify:

The question is only relevant if Trauma: (Casts) = "Yes"

2.Medical

23. Medical
☐ 1. HTA
☐ 2. Diabetes
☐ 3. Dyslipidemias
☐ 4. Heart disease
☐ 5. Thromboplebitis
☐ 6. Pulmonary embolism
☐ 7. Cancer
☐ 8. Hormonal treatment in women
☐ 9. Recent childbirth
☐ 10. Others

You can check multiple boxes (maximum 8).

24. If 'Other', specify:

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3. Lifestyle:

25. Tobacco:
○ 1. No 2. Active ○ 3. Weaned
Go to '28-If no, specify if passive:' if Tobacco: = "No"
Go to '27-If weaned, since when: (in months)' if Tobacco: = "Weaned"

26. if Active, specify the number of packs/Year: The question is only relevant if Tobacco: = "Active"

27. If weaned, since when: (in months)

28. If no, specify if passive:

29. Alcohol:
○ 1. Yes ○ 2. No

30. Sedentary lifestyle:
○ 1. Yes ○ 2. No

31. Bed rest
○ 1. Yes ○ 2. No

32. If bed rest why?
The question is only relevant if Bed rest = "Yes"

A. Interrogation

33. A. Questioning 1.
☐ Dyspnea 3. ☐ 2. Cough
☐ Lower thoracic pain 5. ☐ 4. Hemoptysis
☐ Lipothymia 7. ☐ 6. Syncope
☐ Others
You can check multiple boxes (maximum 5).

34. If 'Other', specify:

Constants:

35. NOT
36. PAD
37. FC:
38. EN:
39. T:
40. Diuresis:
41. Weight:
42. Size:
43. Waist size:
44. BMI:
45. Saturation

a) Cardiac examination:

46. Peak shock: 1. Yes
○ 2. No ○
47. If 'Yes', please specify:
The question is only relevant if Peak Shock: = "Yes"

48. BDC:
○ 1. Yes ○ 2. No
49. If 'Yes', please specify:
The question is only relevant if BDC: = "Yes"

50. BSA
○ 1. Yes ○ 2. No

51. Others (Cardiac examination):

b) Vascular examination:

52. Peripheral pulses: 2.
○ Normal ○ Decreased 1. ○ 3. Abolished
Go to '55-TVJ:' if Peripheral Pulses: = "Normal"
Go to '54-If Abolished, seat:' if Peripheral pulses: = "Abolished"

53. If diminished, seat

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54. If Abolished, seat:

55. TVJ:
○ 1. Yes ○ 2. No

56. RHJ:
○ 1. Yes ○ 2. No

57. Varicose veins:
○ 1. Yes ○ 2. No

58. IMO:
○ 1. Yes ○ 2. No

2. Pleuropulmonary examination

59. Good chest expansion:
○ 1. No 2. Yes

Go to '61-Decrease in vocal vibrations:' if Good chest expansion: = "No"

60. If yes, specify: 1.
○ Unilateral ○ 2. Bilateral

61. Decreased vocal vibrations:
○ 1. No 2. Yes

Go to '63-Lung Sound:' if Decreased vocal vibrations: = "No"

62. If yes, specify (Decrease in vocal vibrations): 1. Unilateral 2.
○ Bilateral ○

63. Lung sound: 1. No 2. Yes
○ ○

Go to '65-Decreased Vesicular Murmur:' if Pulmonary Sound : = "No"

64. If yes, please specify (Decrease in vocal vibrations):
○ 1. Unilateral ○ 2. Bilateral

65. Decreased breath sounds:
○ 1. No 2. Yes

66. If yes, specify (Decreased vesicular murmur): 1. Unilateral 2.
○ Bilateral ○

The question is only relevant if Decreased breath sounds: = "Yes"

a) Locomotor examination:

67. Big inflammatory leg:
○ 1. No 2. Yes

Go to '69-Hepatomegaly:' if Large inflammatory leg: = "No"

68. If Yes:
○ 1. Left ○ 2. Right ○ 3. Bilateral

b) Liver:

69. Hepatomegaly: 1.
○ No 2. Yes ○

Go to '73-Motor deficit:' if Hepatomegaly: = "No"

70. If yes, specify the size:

71. If yes, specify the anterior surface:

72. If yes, please specify the outlines:

c) Neurological examination:

73. Motor deficit:
○ 1. No 2. Yes

Go to '75-Rate: Splenomegaly' if Motor deficit: = "No"

74. If yes, specify (Motor deficit): 3. Bilateral
○ 1. Left ○ 2. Law ○

d) Splenodystrophic system:

75. Rate: Splenomegaly 1. No
○ 2. Yes ○

76. Free lymph node areas: 1. Yes 2.
○ No ○

77. If 'No', please specify:

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Clinical Probability Score (To be included):

78. Geneva score 1.
○ Low 2. Average ○ 3. High

79. Wells Score: 1.
○ Weak ○ 2. Average ○ 3. High

NFS:

80. Hb:		87. ALAT	
81. GB:		88. Na	
82. Platelets:		89. Kplus	
83. D-Dimers:		90. CLminus	
84. Troponin:		91. Urea	
85. CRP		92. Creat	
86. ASAT		93. 24h PU	

Hemostasis (Before)

94. TP(Front)		96. TCA(Front)	
95. INR(Before)			

Hemostasis (After)

97. TP(After)		99. TCA(After)	
98. INR(After)			

Thrombophilias

100. Protein C		102. Anti-thrombin III	
101. Protein S			

Antiphospholipids

103. Circulating lupus-type anticoagulants		104. Anticardiolipin Ac	

Leiden Factor V

105. Leiden Factor V

Cardiothoracic index

106. Pulmonary Hyperlucency: 1.
○ No 2. Yes ○

Go to '108-Ascent of a diaphragmatic dome' if Hyperclarity Pulmonary: = "No"

107. If Yes Seat:

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108. Ascent of a diaphragmatic dome: 1. No 2. Yes

Go to '110-Banded Atelectasis:' if Ascension of a diaphragmatic dome = "No"

109. If yes, specify (Ascent of a diaphragmatic dome)

1. Right 2. Left

110. Band atelectasis:

1. No 2. Yes

Go to '112-Left Middle Arch Protrusion:' if Band Atelectasis: = "No"

111. If yes Seat (Band atelectasis):

112. Middle arch projection Left: 1. No 2.

Yes

113. Triangular consolidation with pleural base: 1. No 2.

Yes

Go to '115-Pleural Effusion' if Pleural-Based Triangular Condensation = "No"

114. If yes, specify (Triangular condensation with pleural base):

1. Right 2. Left

115. Pleural effusion 1. No 2.

Yes

Go to '117-Others(Radiology)' if Pleural effusion = "No"

116. If yes, specify (Pleural effusion): 2. Left

1. Right

117. Others (Radiology)

VI. ECG:

118. Rhythm: 1.

Regular 2. Irregular

119. If irregular, specify:

The question is only relevant if Rhythm: = "Regular"

120. FC ECG

121. Heart Axis:

1. Left 2. Right

122. QRS:

1. Ends 2. Expand

123. Hypertrophies:

1. HAD 2. HAG 3. HVD 4. HVG

You can check multiple boxes (maximum 2).

124. BDB

1. Incomplete 2. Complete You 3. Law 4. Left

can check multiple boxes (maximum 2).

125. Aspect S1Q3: 1.

No 2. Yes

126. Aspect S1Q3T3: 1.

No 2. Yes

127. Ischemia: 1.

No 2. Yes

Go to '129-Atrial Fibrillation' if Ischemia: = "No"

128. If yes, specify the territory

129. Atrial fibrillation

1. No 2. Yes

130. Others (ECG)

VII. CARDIAC ECHOGRAPHY:

131. DTDVG(in mm)

132. DTSOG(in mm)

133. DTSVG(in mm)

134. DAo(in mm)

135. FEVG (in %)

136. Interventricular septum (in mm)

137. DTDVD(in mm)

138. PP(in mm)

139. VG KINETICS

140. VCI

141. DOPPLER+VALVES

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142. IM

143. IA

144. IT

145. PAPS

146. TAPSE (in mm)

147. Septal curvature

148. C/C

149. Thrombus echo
○ 1. Yes ○ 2. No

150. SI thrombus, seat
☐ 1. Pulmonary artery ☐ 2. Right ventricle ☐ 3. Other
You can check multiple boxes (maximum 2).
The question is only relevant if Thrombus echo = "Yes"

151. If 'Other', specify:

152. Number of thrombi
The question is only relevant if Thrombus echo = "Yes"

Venous echodoppler of the lower limbs

153. Signs of thrombophlebitis
○ 1. Yes ○ 2. No

154. If yes, specify the side
○ 1. Left ○ 2. Right ○ 3. Bilateral
The question is only relevant if Signs of thrombophlebitis = "Yes"

155. Other venous echodoppler

VIII. THORACIC ANGIOSCANNING:

156. Thrombus
○ 1. No 2. Yes
Go to '158-Massive:' if Thrombus = "No"

157. If yes (Thrombus):
○ 1. Unilateral ○ 2. Bilateral

158. Massif:
○ 1. No 2. Yes

159. Vascular Amputation
○ 1. No 2. Yes

160. If yes, location (Vascular Amputation):

161. Other CT angiography

A. Risk factors:

162. Risk factors
☐ 1. Age
☐ 2. HTA
☐ 3. Obesity
☐ 4. Smoking
☐ 5. Immobilization
☐ 6. Surgery
☐ 7. Trauma
☐ 8. Neoplasms
☐ 9. Infections
☐ 10. General diseases
☐ 11. Heart failure 13. Nephrotic
☐ 12. Myocardial infarction
☐ Sd 15. Post partum
☐ 14. Pregnancy
☐ 17. Others
☐ 16. Medications
☐
You can check multiple boxes (maximum 14).

163. If yes, specify (General illnesses):
The question is only relevant if Risk Factors = "Diseases general"

164. If yes, specify (Medications):
☐ 1. Estrogen-progestin contraception
☐ 2. Menopausal hormone replacement therapy
☐ 3. Chemotherapy
You can check multiple boxes.
The question is only relevant if Risk Factors = "Medications"

165. Other risk factors
The question is only relevant if Risk Factors = "Others"

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XI. TREATMENT:

166. Treatments 1.

☐ Thrombolysis 3. ☐ 2. Dobutamine
☐ Dopamine 5. ☐ 4. Norepinephrine
☐ Adrenaline 7. ☐ 6. Filling 8.
☐ Oxygen therapy 9. ☐ Assisted ventilation
☐ Heparin (LMWH) ☐ 10. AVK
☐ 11. Diuretics ☐ 12. Others

You can check multiple boxes (maximum 10).

167. Dobutamine, dose

The question is only relevant if Treatments = "Dobutamine"

168. Dopamine, dose

The question is only relevant if Treatments = "Dopamine"

169. Noradrenaline, dose

The question is only relevant if Treatments = "Noradrenaline"

170. Adrenaline, dose

The question is only relevant if Treatments = "Adrenaline"

171. Filling, specifying the solutions

The question is only relevant if Treatments = "Filling"

172. Oxygen therapy, specify dose

The question is only relevant if Treatments = "Oxygen therapy"

173. Assisted ventilation

The question is only relevant if Treatments = "Assisted ventilation"

174. Heparin (LMWH), dose

The question is only relevant if Treatments = "Heparin (LMWH)"

175. AVK, dose

The question is only relevant if Treatments = "AVK"

176. Diuretics, specify the molecule and the dose

The question is only relevant if Treatments = "Diuretics"

177. Molecule used if thrombulysis

The question is only relevant if Treatments = "Thrombolysis"

178. Thrombolysis delay compared to entry

The question is only relevant if Treatments = "Thrombolysis"

179. Accident or incident

○ 1. Yes ○ 2. No

Go to '181-Others(treatment):' if Accident or incident = "No"
The question is only relevant if Treatments = "Thrombolysis"

180. Specify accident/incident

The question is only relevant if Treatments = "Thrombolysis"

181. Others (treatment):

The question is only relevant if Treatments = "Others"

XII. EVOLUTION:

182. evolution

○ 1. Favorable ○ 2. Unfavorable

183. If Unfavorable (Complications)

The question is only relevant if evolution = "Unfavorable"

184. Length of hospitalization:

185. Exit:

186. Death

○ 1. Yes ○ 2. No

187. Death, specify 1.

○ During hospitalization ○ 2. After the release

The question is only relevant if Death = "Yes"

188. Cause(Death):

The question is only relevant if Death = "Yes"

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189. Deadline:

The question is only relevant if Death = "Yes"