Cardiology & Cardiovascular Research

Research Article

Venous Thromboembolic Disease (VTD) of the Limbs: Epidemiological, Diagnostic and Therapeutic Aspects at the Internal Medicine and Cardiology Department of the Amirou Boubacar Diallo National Hospital (HNABD) of Niamey: About 165 Cases

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Abstract

Introduction: Deep vein thrombosis (DVT) of the lower limbs and pulmonary embolism (PE) are two clinical expressions of the same disease, venous thromboembolism (VTE). DVT and PE share the same risk factors and curative anticoagulant treatment. The aim of our study is to contribute to the knowledge of venous thromboembolic disease (VTE) in its epidemiological, diagnostic and therapeutic aspects in the cardiology department of the Amirou Boubacar Diallo National Hospital in Niamey.

Methodology: This was a retrospective and descriptive study from 01 January 2016 to 31 December 2021 in its first phase, prospective and descriptive from 01 January 2022 to 30 June 2022 in its second phase i.e. 78 months. Our study included patients hospitalized with imaging-confirmed VTE.

Results: One hundred and sixty-five (165) cases of venous thromboembolic diseases were retained over this study period out of all hospitalized patients, which was 4885 patients, i.e. a hospital frequency of 3.37%, the female sex was predominant, i.e. 55% (90 cases) of the sample with a sex ratio of 0.88. The mean age of our patients was 54.07 ± 16.25 years with extremes of 22 and 83 years. The 55.0 - 64.0 age group was the most represented. Risk factors for VTE were dominated by prolonged bed rest with 23.6% of cases, followed by obesity with 14.5% of cases. Dyspnea was the clinical leader with 79.49% of cases in pulmonary embolism (PE) and leg pain in 76.4% of cases in deep vein thrombosis (DVT). One hundred and thirty-two (132) patients had deep vein thrombosis (DVT), of which 108 had proximal DVT (81.81%) and 24 had distal DVT (18.19%).

On CT angiography, of the 39 cases of pulmonary embolism (PE), localized obstruction on the right was predominant with 46.15%; it involved the left pulmonary artery in 23.07% of cases. Right axial deviation was the majority electrical abnormality accounting for 36.35% of cases, followed by right ventricular hypertrophy with 27.27% of cases. Pulmonary arterial hypertension, right cavitary dilation and right intra-cavitary thrombi and were the most frequent ultrasound abnormalities, with 12.72% respectively; 9.1% and 9.1% of cases. The death rate was 10.9% of cases.'

Conclusion: Venous thromboembolic disease is a common reason for hospitalization. It can be serious with an often guarded prognosis, hence the need for rigorous management and prevention in patients at risk.

Keywords

Venous thromboembolic disease, Amirou Boubacar Diallo National Hospital, Niamey, Niger.

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Received: January 03, 2024; **Accepted:** February 07, 2024; **Published:** February 15, 2024

Citation: Dodo Boubacar, Issoufou Garba, Saley Hammadou, Idrissa Hama, Maliki A Moctar, et al. Venous Thromboembolic Disease (VTD) of the Limbs: Epidemiological, Diagnostic and Therapeutic Aspects at the Internal Medicine and Cardiology Department of the Amirou Boubacar Diallo National Hospital (HNABD) of Niamey: About 165 Cases. Cardiol Cardiovasc Res. 2024;2(1):1-5.

Introduction

Deep vein thrombosis (DVT) of the lower extremities and pulmonary embolism (PE) are two clinical expressions of the same disease, venous thromboembolic disease (VTE). Also, DVT and PE share the same risk factors and curative dose anticoagulant therapy [1,2]. However, while their pathophysiology and anatomical origin are most often common, their evolution differs [3,4].

The annual incidence of DVT in France is 1.8/1,000/year; that of the PE of 0.6/1,000/year. It increases with age, with the average age of the disease at 60 years [5]. In sub-Saharan Africa, particularly Benin, the frequencies of venous thrombosis and pulmonary embolism are 1.76% and 2.79% respectively [6]. Venous thromboembolic disease is a common pathology that a large number of practitioners are confronted with on a daily basis (cardiologist, vascular doctor, emergency physician, general practitioner, etc.). The vast majority of deep vein thrombosis occurs in the lower limbs, but the incidence of venous thrombosis of the upper limbs and neck is not uncommon in certain circumstances, including tumor or cancer diseases. The prognosis is dominated by the risk of pulmonary embolism but also by complications specific to the venous system that are frequently neglected, such as post-phlebitic disease for example.

Patients and Method

Scope and Type of Study:

Type and period of study: This was a retrospective and descriptive study from 01 January 2016 to 31 December 2021 and prospective and descriptive from 01 January 2022 to 30 June 2022 i.e. 78 months.

Study Population

Our study focused on patients hospitalized in the cardiology department of the Amirou Boubacar Diallo National Hospital (HNABD).

Inclusion Criteria

- All patients with thrombophlebitis of the limbs confirmed by venous Doppler ultrasound of the limbs;
- All patients with pulmonary embolism confirmed by chest CT angiography.

Non-inclusion criteria

- Non-hospitalized patients;
- Patients who refused to participate in the prospective phase of the study or had incomplete records.

Parameters studied

The data collected were epidemiological (age, sex, occupation, marital status, history, etc.), clinical, paraclinical (biological abnormalities, ECG abnormalities, radiographic, ultrasound and CT abnormalities), therapeutic (type of treatment undertaken) and progressive (length of hospitalization, complications and outcome).

Data analysis

Qualitative variables were represented in numbers and percentages, and quantitative variables were represented in mean and standard deviation. Data analysis was performed using SPSS version 22.0 software. The significance level for comparisons was 0.05.

Results

Epidemiological and Sociodemographic Data

One hundred and sixty-five (165) cases of venous thromboembolic diseases were retained over this study period out of all hospitalized patients, which was 4885 patients, i.e. a hospital frequency of 3.37%. The majority of patients were from the Niamey region. Female sex was predominant, accounting for 55% (90 cases) of the sample with a sex ratio of 0.88.

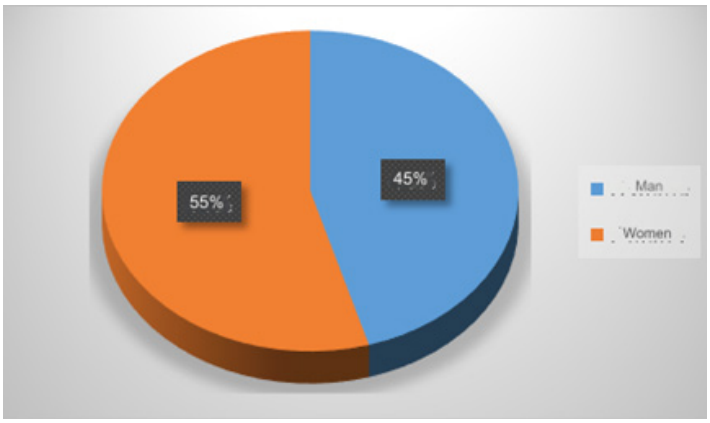

Figure 1: Distribution of Patients by Sex.

The mean age of our patients was 54.07 ± 16.25 years with extremes of 22 and 83 years. The 55.0 - 64.0 age group was the most represented. Prolonged bed rest was the leading risk factor for thromboembolic disease with 23.6% (39 cases), followed by obesity with 14.5% (24 cases).

Clinical signs

Leg pain and decreased leg sloshing took first place with 126 cases each (76.4%), limb edema accounted for 65.5% of cases in our series.

Table 1: Distribution of patients by clinical signs in DVT:

Clinical signs of DVT	Number	%
Leg pain	126	76,4
Decrease in sloshing	126	76,4
Homans' sign	117	70,9
Limb edema	108	65,5
Local Heat	90	54,5
Fever	30	18,2

Paraclinical signs

DVT involved the left lower limb in 61.36% of cases and 36.36% in the right lower limb with femoral localization in 70.45% of cases.

Table 2: Distribution of patients according to Doppler CT location.

Members	Number	%
Lower Extremity G	81	61,36
Lower Extremity D	48	36,36
Upper Extremity D	03	2,28
Upper Extremity G	00	00

On CT angiography, of the 39 cases identified, right pulmonary embolism was predominant with 46.15%; it involved the left pulmonary artery in 23.07% of cases; it was bilateral in 7.69% of cases and involved the trunk of the pulmonary artery in 23.07% of cases.

Right axial deviation was the majority electrical abnormality with 36.35%, followed by right ventricular hypertrophy with 27.27%. Pulmonary arterial hypertension, right cavitary dilation and right intra-cavitary thrombi and were the most frequent ultrasound abnormalities, with 12.72% respectively; 9.1% and 9.1% of cases.

Evolutionary aspect of VTD

There was a mean length of hospitalization of 4.74 days with extremes of 1 to 30 days, the death rate in this series was 10.9% of cases.

Analytical study

There is no statistically significant correlation between sex and the occurrence of venous thrombosis in our study.

There is also no statistically significant correlation between age and the occurrence of venous thrombosis.

Discussion

This study has its limitations, including an underestimation of the number of cases of thromboembolic diseases due to the very incomplete files that had to be discarded and the non-availability of certain complementary examinations in our country. The very high cost of the majority of examinations did not allow us to address certain aspects of this study, including the search for etiological factors.

In our study, 165 VTE cases were selected from 4885 hospitalization records, i.e. a hospital prevalence of 3.36%, Touré AI et al. found a similar prevalence of 3.9% in the same department [7].

In Mali according to Walbane et al. [8], the prevalence of EVD was 4.02%; In Côte d'Ivoire, A. Adoh et al. also found a prevalence of 2.5% of venous thromboembolic diseases among all hospitalized cardiac patients [9]. In European countries, the prevalence ranges between 17 and 42% [10,11]. The decline in prevalence among blacks compared to the European series could be explained by the existence of a racial factor: blacks have a significantly lower platelet count and a significantly higher platelet volume [12].

We observed a predominance of patients living in Niamey, the capital, and surroundings in a proportion of 69.1%, the same observation by Fatima et al., at the Hassan II University Hospital in Morocco in 2013, which reported a proportion of 59% living in Fez [13] and Coulibaly in Mali in 2016, which reported 65% of subjects from Bamako [14]. This predominance could be justified by the proximity and accessibility of the HNABD on the one hand and the readiness to request a health service in urban areas on the other. We observed a female predominance in a proportion of 54.56% with a sex ratio of 0.88. This female predominance was found by Walbane et al. [8] and Traoré [15] with 68.60% and 56% respectively. Seydou.M et al. also found 69% women in their study. The results found in our study corroborate the data in the literature. Venous thromboembolic disease occurs in both men and women, with a relative predominance of women [16,17].

The 55-64 age group was mainly represented, i.e. 25.5% of patients, followed by the 45-50 age group with 20% of patients. The mean age in our series was 54.07 ± 16.25 years with extremes of 22 and 83 years. A. Adoh et al. in Côte d'Ivoire [9] found an average age of 40 years for all venous thromboembolic diseases with a sex ratio in favour of men, including 46 years for men and 33 years for women. J. E. Touze et al., also in Côte d'Ivoire [18], found an average age of 38 years. Seydou. M et al. in Niger reported a mean age of 51.5 years ± 18.7 years with extremes of 15 to 87 years [19]. Bed rest, due to the blood stasis it causes, has been regularly cited in the literature as an important factor in the occurrence of thrombosis [17,20-23]. This was confirmed in our study where it was found as the most common risk factor for thromboembolic disease in 23.26%

of our patients. It most often occurred in the context of trauma, heart disease or childbirth. Nossent et al. in the West Indies [24] noted that 43% of immobilized patients had deep vein thrombosis of the limbs. In our study there is a predominance of housewives, patients with high economic income represented 21.8% of patients. It challenges the concept that cardiovascular diseases are of interest to wealthy social classes.

Clinical data are essential elements in the diagnosis of venous thrombosis of the limbs. In all our patients, we noted the four classic signs of thrombophlebitis namely edema and pain in the leg, decreased calf sloshing, and Homans' sign. Edema of the lower extremity and thigh or leg pain are the predominant clinical manifestations of DVT. Thigh or leg pain and edema of the lower limb were 76.4% and 65.5% of cases, respectively. Doctor. M et al. in Senegal reported a predominance of these two manifestations in 81% of cases [25]. Tachycardia, dyspnea, and chest pain were the most prevalent in PE with 58.97%, 79.49%, and 30.76%, respectively. We deduce that these signs should prompt us to pay more attention to the search for PE in patients who are bedridden or have DVT. The data from our study on the frequency of clinical signs are consistent with the data in the literature.

In terms of venous Doppler ultrasound, the left lower limb was the most affected at 61.36%, our results were superimposed on those of Dioum. M et al., who also found this predominance of the left lower limb in 60% of cases [25]. No patients presented with bilateral venous thrombosis. Three patients presented with phlebitis of the upper limb, or 2.28% of cases, secondary to haemodialysis catheters. According to chest CT scan, among the 39 patients with pulmonary embolism, 7.69% of the cases had bilateral pulmonary embolism; 23.07% of the obstructions were located in the left branch of the PA and 46.15% in the right branch.

Our results differ from Adam's. A et al. in Chad, which reported 67.8% respectively; 18,2%; and 13.2% [26].

On the electrocardiogram, the classic interest of right axial deviation, right ventricular hypertrophy, right bundle branch block and the S1Q3 appearance recognized as signs in favor of pulmonary embolism emerged. Doppler echocardiography was normal in at least 50% of cases, whether DVT or PE, pulmonary arterial hypertension was present in 12.72% of cases. Patients with venous thromboembolic disease stayed in hospital for an average of 4.74 days with extremes between 1 and 30 days. The minimum duration of one (01 day) corresponded to that of a patient received for pulmonary embolism and died on the same day of admission to the ward. The hospital course was judged to be favourable in 85.46% of patients and we recorded a case fatality rate of 10.90%, this result is higher than that found in Mali by Walbane et al. i.e. 5.71% [8].

Conclusion

According to our study, thromboembolic disease is significantly discovered by edema of the lower extremity, leg pain, thigh pain for deep vein thrombosis of the lower extremities. In the case of pulmonary embolism, its manifestations are mainly dominated by tachycardia, chest pain, and dyspnea. Anticoagulant therapy is the basic therapeutic means in the management of patients. This venous thromboembolic disease remains a public health problem, hence the interest of prospective work to be considered in order to fill the deficits of the present study, in particular the search for constitutional etiologies.

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