

Venous Thromboembolic Diseases: Epidemiological, Clinical, Para clinical, Therapeutic and Evolutionary Aspects: Retrospective Study over a Period of 7.5 Years about 112 Cases collected in the Internal Medicine and Cardiology Department of Lnth

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ABSTRACT

Introduction: venous thromboembolism (VTE) is a real public health problem in the world due to its frequency and severity since the mortality from an untreated thromboembolic episode is around 30%. Because of its chronic and disabling complications (post-thrombotic disease and chronic thromboembolic pulmonary hypertension), it is responsible for a deterioration in the quality of life of patients.

Objective: The aim of this work was to contribute to the study of the epidemiological, clinical, Para clinical, therapeutic and evolutive aspects of venous thromboembolism disease in the internal medicine and cardiology department of the Amirou Boubacar Diallo National Hospital.

Patients and Methods: It's a prospective study from July 1st, 2019 to June 30th, 2020 and retrospective from January 1st, 2013 to June 30th, 2019 (7 years and 6 months) about 112 patients with whom the diagnostic of deep venous thrombosis (DVT) and / or pulmonary embolism (PE) had been done.

Results: In our study, the prevalence of venous thromboembolism has been estimated at 3.9% of hospitalized patients with cardiovascular diseases. There was a female predominance (sex ratio 1.38). The average age of patients was 52 years. Teabed-rest prolonged was the frequent risk factor (66%). The clinical symptomatology was dominated by oedema of the lower limb (83.3%) and pain in limb palpation (82.1%) in case of DVT, the dyspnea (23.02%) and thoracic pain (11.6%) in case of PE. The attack of the left lower limb prevailed (45.5%). The sinus tachycardia (25.9%) was the predominant electrical sign at the ECG. Through the Doppler of the lower limbs, the popliteal and femoral veins were the most involved with 22.3% and 17.8% respectively. According to the chest angio-CT, the left pulmonary artery was obstructed in 100% of case. The treatment was essentially made of low molecular weight heparins (90.1%) replaced quickly by vitamin k antagonist (began the first day of the heparin therapy) and / or of unfractionated heparin (9%). The most common complication was PE due to DVT and the overall mortality was 12.5%.

Conclusion: VTE is pathology in young adults and elderly characterized by the formation of a clot in a vein responsible for the obstruction of the latter causing local inflammatory signs and / or its pulmonary migration which could be fatal. The prevention and treatment of VTE are based on anticoagulants.

Keywords

Deep venous thrombosis, Pulmonary embolism, Epidemiology, Risk factors, Diagnosis, Anticoagulant, Evolution, Niamey, Niger.

Introduction

VTE is the same pathological entity which combines two acute clinical manifestations: DVT and PE. Through its impact on morbidity and mortality and medical costs, it still represents a major public health issue. VTE is a multifactorial pathology frequently acquired in hospital settings [1]. Its annual incidence is 1 to 2 cases per 1000 people in the general population and whose vital and functional prognosis can be serious [2,3].

The objective was to study the epidemiological, clinical, Para clinical, therapeutic and evolutionary aspects of this pathology with a view to improving treatment.

Materials and Methods

This was a retrospective study from July 1, 2019 to June 30, 2020 and retrospective from January 1, 2013 to June 30, 2019 (7 years and 6 months), carried out in the internal medicine and cardiology department of the Amirou Boubacar Diallo National Hospital.

Were included all patients or records of patients admitted to the service, in whom the diagnosis of DVT and / or PE was made during the period of the study.

Data were collected from the interview, clinical examination and patient records using a pre-established individual survey sheet.

For each patient included, the following parameters were studied:

Epidemiological aspects: Frequency, sex, age, ethnicity, profession, origin;

Anamnestic data: Reason for consultation, mode of recruitment to the service, FDR, triggering factor, admission times;

Clinical aspects: Constants, clinical entities, functional signs, physical signs, Wells clinical probability scores, comorbidities;

Para clinical aspects: Biological examinations, ECG, venous Doppler ultrasound of IM, thoracic CT angiography, chest radiography, cardiac ultrasound;

Therapeutic and evolutionary aspects: Type of anticoagulant received, compression bandage and Restraint elastic venous, INR monitoring, short-term evolution and complications, length of hospitalization, method of discharge and mortality. The data was entered and analyzed on Sphinx v5. More Text entry was done in Microsoft Word 2016, and tables and figures were entered in Microsoft office Excel. As a static test, we used chi-square with significance level $p < 0.05$.

Results

We collected 112 cases of VTE during the study period. The prevalence was 3.9% of all cardiovascular pathologies. The female sex was predominant with 58% against 42% for the male sex. The sex ratio (F / M) was 1.38 in favor of women. The age group of 60

years and over was the most represented, at 37.5%. The mean age of the patients was 52.8 years with age extremes of 14 years and 90 years. $\frac{3}{4}$ (75%) of our patients came.

In consultation for edema of the lower limbs + limb pain which represented 46.4% with an admission delay of ≤ 10 days (50.9%). Prolonged bed rest was the predominant FDR at 66%, while 1.7% had no MTEV FDR found (Table 1).

Table 1: distribution of patients according to the RDFs.

Risk factors	Workforce	Percentage
Trauma	11	9.8%
Prolonged bed rest	74	66%
History of TED	9	8.1%
Cancer	2	1.7%
COVID-19	3	2.6%
Obesity	22	19.6%
Postpartum	10	8.9%
Recent operations	3	2.6%
Contraception	13	11.6%
Tobacco	22	19.6%
Alcohol	11	9.8%
HIV infection	16	14.2%
HF / decompensated respiratory failure	20	17.8%
Venous insufficiency / varicose veins	7	6.2%
Central venous catheter	9	8.1%
Other	15	13.4%
No History	21	18.7%

The clinical symptoms were dominated by edema of the limb (83.3%) and pain on palpation (82.1%) in the case of DVT, dyspnea (23.2%) and chest pain (11, 6%) in case of PE. 71.4% of our patients had isolated DVT, 14.3% EP and 14.3% DVT + EP (Figure 1).

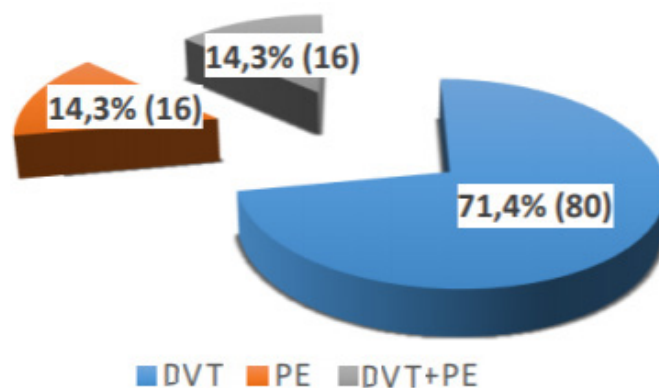


Figure 1: Distribution of patients according to clinical entities.

Involvement of the left lower limb predominated 45.5%. When assessing the Wells score, the clinical probability was mean at 70% for PE and 64.6% for DVT. Sinus tachycardia was the predominant electrical sign with a rate of 25.9% on the ECG. On venous Doppler ultrasound of MI the popliteal and femoral veins were the most frequently involved with 22.3% and 17.8% (Table 2).

Table 2: Distribution of patients according to the location of the DVT on venous Doppler ultrasound.

Affected veins	Workforce	Percentage
Tibial	7	6.25%
Femoral	20	17.8%
Popliteal	25	22.3%
External iliac	4	3.5%
Tibio-popliteal	2	1.7%
Tibioiliac	1	0.9%
Tibio-femoral	1	0.9%
Femoro-popliteal	8	7.1%
Femoro-saphenous	4	3.5%
Femoro-iliac	3	2.6%
Poplito-femoro-iliac	4	3.5%
Lateral brachial	1	0.9%

On CT angiography, APG was the most frequently obstructed in the two patients who were able to perform this examination. The treatment consisted mainly of LMWHs (90.1%) quickly relayed by VKA (on the first day of heparin therapy) and / or unfractionated heparin (9%). The evolution was favorable (80%) under treatment. The most common complication was PE secondary to 8.9% DVT and overall mortality was 12.5%.

Discussion

In our series, the hospital frequency of VTE is 3.9% of all cardiovascular pathologies. Our results are close to those of Walbane [4] in Mali who reported a hospital frequency of 4% of CVD. All these data show the importance of VTE, which was long considered an African rarity. Most patients were ≥ 60 years old, i.e. 37.5% with extremes of ages of 14 and 90 years for an average age of 52.8 years. These figures are close to those noted by Pottier et al. [5] in Nantes who noted that 70% of hospitalized patients were over 60 years old. In the literature, it appears that the risk of venous thromboembolic diseases increases with age and some authors emphasize the predominance of these pathologies in the elderly [6,7]. The mean age of the disease is 60 years, with the incidence increasing markedly with age, for both women and men [8]. Thus, our results corroborate the data in the literature.

Bed rest, due to the blood stasis it causes, was found in 74 patients, or 66% in our study. It was most often associated with obesity and smoking with 22 patients each, or 19.6%, and HIV infection in 16 patients, or 14.2%. Other series: Rouf. S [9], Sangaré et al [10], Apollinaire [11] and Hajar [12] found similar results with respectively: 26.4%; 59.1%; 58.6% and 37.2%. This proves the importance of bed rest in the genesis of VTE. This bed rest is most often associated with another pathology which may itself be an associated RDF or not. In our series the cases of VTE were distributed between isolated DVT with 80 cases, ie 71, isolated PE and PE associated with DVT with 16 cases, or 14.3% each. Our results are similar those of Walbane [4] who found 70% isolated DVT, 18.5% PE and 11.5% DVT complicated with PE. In our study, PE had dyspnea as the predominant functional sign with 23.2% chest pain in 11.6% and hemoptysis in 8.1%. For Raveloson [13] in Madagascar, dyspnea and chest pain were the

2 obvious signs of PE on admission with respectively 32, 55. In our study, the most represented physical signs were edema of the limb and pain on palpation of the limb with respectively 83.3% and 82.1%. Local heat and reduced calf ballooning were found in 64.3% and 52.6%, respectively. Homans' sign was positive in 45.5% of cases. The same observations were made by: Dioum et al [14]: pain on palpation of the limb 81%, reduction in sloshing 59% and Homans + 43% and Grenard and Mahé [15]: edema of the limb 48.1%, pain on palpation 52.9% and local heat 25.9%. Most of the clinical manifestations of DVT are: pain on palpation of the calf, positive Homans sign and increase in local heat and calf volume, edema of the lower limb taking or not taking the bucket, decreased passive calf sloshing and fever [16]. Our results, as well as those of several other studies, agree with the data in the literature. In our series, the D-dimer level was positive ($> 500\text{ng / ml}$) in all the patients who performed this examination, ie 59.8% of cases. Our results are close to those of other authors such as Raveloson [13], Walbane [4] and Vincent [17] with respectively: 100%, 100% and 96.9% positive assay. It appears in the literature that the level of D-dimer should lead us to rule out a diagnosis of VTE and to cease the investigation of patients at low risk [19]. In our study anemia was found in 19.6%. The same observation was made by Apollinaire [11] who noted anemia in 55.2%. Our results agree with the data in the literature, anemia has been described as one of the main RDFs involved in thrombogenesis by a phenomenon of acquired hypercoagulability leading to an abnormality in blood viscosity [18]. In our series, the ECG was normal in 39.3%. Sinus tachycardia was found in 25.9% and S1Q3 dextrorotation in 13.4%. Our results are close to those of Walbane [4] who noted a normal ECG in 55.71%, a BBD in 14.28%, an axial deviation in 12.86% and an S1Q3 appearance in 7.14%.

The ECG is more often normal in VTE. In our study, the popliteal and femoral veins were the most frequently affected by DVT with 22.3% and 17.8%, respectively. Our results are different from several other authors: For Sangaré et al. [10], the femoral vein was the most affected (50%); For Boukili. K [20], the femoral vein was the most affected in 64.6% of patients. In our study, the majority of our patients, i.e. 90.1%, had received an initial curative treatment based on enoxaparin (LMWH) in combination with acenocoumarol (AVK). While 9% had benefited from FNH due to CKD. Our results are close to those of Raveloson [13] and Rouf. S [9] with respectively 2%, 8.1% FNH and 98%, 90% LMWH + AVK. Only one patient, or 0.9%, had received DOAC in our study. This is due to the high cost of this therapeutic class which limits its use. In our study, we found served as a complication in 22 patients or 19.6%. PE secondary to DVT was the most common complication at 8.9%. Our results are lower than those observed by Boukili. K [20] and Bensaid [21] who found a complication rate of 24% and 21% respectively. During our study the mortality rate was 12.5%. Patients over 65 were the most affected, accounting for 10.7% of deaths. Among these deaths, 6 patients or 5.3% had an associated comorbidity: 3 cases of HIV infection, erysipelas, hypertension / IRCT and CRF. Our results are superior to those found by Raveloson [13], Sangaré et al. [10] and Dioum et al.

[14] with respectively a mortality rate of 9.3%, 4.5% and 2.7%. This difference could be explained by the fact that in our study the cases of death are mainly linked to pre-existing diseases. The literature had underlined that after a venous thromboembolic event in subjects aged over 65 years, this rate is 11% after 30 days and 31% after one year; and in young subjects, it is 4% after 30 days and 14% after one year [22].

In the cases with COVID 19 we usually add antibiotics as clavulanic acid and azitromycin with colchicin and corticosteroids in pulmonary embolism.

Conclusion

According to our study, which was to determine the epidemiological, clinical, Para clinical, therapeutic and evolutionary aspects, VTE is frequent in women and especially in subjects aged 60 and over.

Clinical signs were dominated by pain and edema of the lower limbs for DVT and dyspnea in PE. The determination of the D-dimer level and the venous ultrasound Doppler of the IM were the two most performed Para clinical examinations for diagnostic confirmation. The curative treatment was generally based on the LMWH, relayed early by the AVK, associated with mechanical treatments and treatment of contributing factors. The evolution is sometimes disappointing, 12.5% of deaths despite the initiation of anticoagulant treatment.

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