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Venous Thromboembolic Disease in the Cardiology Department of the Nianakoro Fomba Hospital in Segou (HNF)

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Abstract

Venous thromboembolic disease (VTE) is a nosological group that consists mainly of deep vein thrombosis (DVT) and pulmonary embolism (PE). The objective of our study was to determine the hospital prevalence of VTE in this Nianakoro Fomba Regional Hospital (HNF) in Ségou, Mali, to describe the sociodemographic aspects of these patients and the therapeutic possibilities in this locality. **Materials and Methods:** We conducted a prospective descriptive study from June 2019 to June 2020 in the cardiology department of the HNF of Ségou. All patients of all ages and both sexes who had VTE on clinical and paraclinical criteria (pulmonary Angio scan and/or venous Doppler echo) during the study period were included. **Result:** 31 patients were included out of 366 hospitalized patients, with a hospital prevalence of 8.47%. The 41-60 and 61 - 80 age groups were both dominant with 35.48% of cases each. The female sex was the most represented with 58.06% of cases and a sex ratio of 0.97. High blood pressure (hypertension) was the preeminent cardiovascular risk factor in 32.2% of cases and predisposing factors for VTE were dominated by immobilization (41.94%), peripartum (16.13%) and heart failure (16.13%). Dyspnea and chest pain were the frequent reasons for consultation with 93.54% and 83.87% of cases respectively and 6 patients (19.35%) had calf pain. More than 3/4 of the patients had tachypnea or 90.32% and

tachycardia in nearly 74.19%. The clinical probability of VTE was intermediate at 51.61% according to the Wells score. D-Dimers were elevated in 38.70%, or all 12 patients who performed it. The electrocardiogram (ECG) recorded a sinus rhythm in 93.54% of cases, a right branch block and atrial fibrillation (AF) in 35.48% and 6.45% of cases, respectively. Dilation of the right ventricle was present in 64.51% of cases with PAH in 61.29% on cardiac Doppler ultrasound. In the majority of cases (82.15%) it was a massive bilateral proximal and distal pulmonary embolism. Treatment was based on low molecular weight heparin (HPBM) and antivitamin K (AVK) in all patients (100%). No bleeding incidents; the average hospital stay was 10 days and an intra-hospital mortality rate of 29%.

Keywords

Venous Thromboembolic Disease, Nianakoro Fomba-Ségou-Mali Hospital

1. Introduction

Venous thromboembolic disease (VTE) is a nosological group that consists mainly of deep vein thrombosis (DVT) and pulmonary embolism (PE). Indeed, between 70 and 80% of PE would be the complication of a DVT of the lower limbs [1]. Venous thromboembolic disease (VTE) is a common condition associated with high morbidity and mortality [2]. The etiological investigation is an essential part of its management. The risk factors (RF) of VTE are well known and patients who suffer from this pathology have one or more RFs and the risk is additive. Evaluations of the venous thromboembolic risk should be systematic in any patient, hospitalized medical or surgical. It must lead to the decision whether or not to initiate prophylaxis [3]. Prophylaxis is effective in reducing morbidity and mortality in patients at risk of developing VTE [2]. The annual incidence of PE is estimated to be between 60 and 111 cases per 100,000 population and is responsible for 10,000 to 20,000 deaths per year worldwide [1]. In the United States, VTE is the third most common cardiovascular disease and it is estimated that between 100,000 and 180,000 patients per year die from its complications [4]. In France, VTE affects about 0.2% of the population and is associated with a mortality rate of 10% [2]. In Côte d'Ivoire, the prevalence of DVT is 0.95%, whereas it is 1.17% in Senegal [5] In Mali, a study carried out by COULIBALY S *et al.* from 2014 to 2016, found a hospital prevalence of 4.95% in the cardiology department of the CHU du Point G [6]. Our study, a first at the HNF in Ségou, focused on the socio-demographic, clinical and therapeutic aspects of VTE in Ségou.

Materials and methods: This was a prospective descriptive study extended from June 20, 2019 to June 20, 2020, focusing on the exploitation of the records of hospitalized patients and followed in the cardiology department of the HNF of Ségou. Inclusion criteria: Patients of all ages and both sexes were hospitalized in the cardiology department of Ségou Hospital during the study period for

venous thromboembolic disease documented by pulmonary angioscanner and/or venous Doppler echo of the limbs. Patients admitted for other cardiovascular conditions were not included. Informed consent was obtained with strict respect for confidentiality. Data were collected from patients' medical records. The variables studied were sociodemographic characteristics (age and sex), clinical (cardiovascular risk factor, risk factor for thromboembolic disease, clinical signs) and paraclinical parameters (biology, Electrocardiogram, echocardiography, venous doppler, and Pulmonary CT angiography) treatments applied and disease progression. SPSS Statistics 22, Microsoft WORD and EXCEL 2016 were used for data collection and analysis, with results presented in graphical and tabular form.

The clinical probability score used was the WELLS score.

SCORE DE WELLS DANS L'EVALUATION CLINIQUE DE LA TVP	
Facteurs prédisposants	
Cancer actif (en cours de traitement actif ou palliatif ou découvert depuis moins de 6 mois)	1 point
Parésie, paralysie ou immobilisation plâtrée récente des membres inférieurs	1 point
Alitement récent > 3 jours ou chirurgie majeure < 4 semaines	1 point
Examen Clinique	
Douleur à la palpation du trajet des veines profondes	1 point
Tuméfaction (=œdème généralisé) de tout un membre	1 point
Tuméfaction unilatérale d'un mollet (>3 cm de différence entre les 2 côtés) NB.: mesure faite 10 cm sous la tubérosité tibiale antérieure	1 point
Œdème prenant le godet	1 point
Développement d'une circulation veineuse collatérale superficielle (non variqueuse)	1 point
Diagnostic alternatif au moins aussi probable que celui de TVP	−2 points
Probabilité clinique FAIBLE (3%) score: 0 point **Probabilité clinique INTERMEDIAIRE (17%) score: 1 - 2 points** **Probabilité clinique FORTE (75%) score > ou = 3 points**	

2. Results

Out of 366 patients hospitalized in ward 31 were hospitalized for VTE, a hospital prevalence of VTE of 8.47% (Figure 1).

The age groups [41 - 60] and [61 - 80] were the most represented in both sexes, with an average age of 54.74 years and a standard deviation of 19.734 for age extremes of 24 and 109 years. The female sex was in the majority with 58.06% of cases, a sex ratio of 0.97 (Table 1). High blood pressure (HBP) was the preeminent cardiovascular risk factor with 32.25% of cases and the predisposing factors for VTE were dominated by immobilization (41.94%), peripartum (16.13%) and heart failure (16.13%) (Table 2). Dyspnea and chest pain were the frequent reasons

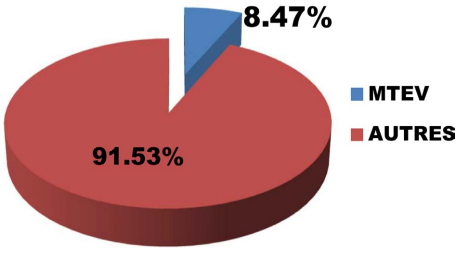

Figure 1. Frequency of VTE.

Table 1. Distribution by age groups and sex.

Age range	Female		Male		Total	
	Number	%	N	%	N	%
20 - 40 ans	5	16.13	2	6.45	7	22.60
41 - 60 ans	6	19.35	5	16.13	11	35.48
61 - 80 ans	5	16.13	6	19.35	11	35.48
81 ans et plus	2	6.45	0	0	2	6.45
Total	18	58.06	13	41.94	31	100

Table 2. Distribution of patients by risk factors.

Risk factors	Number	Percentage
Dominant cardiovascular risk factor		
High blood pressure (HBP)	10	32.25
Risk factor of TEV		
Immobility	13	41.94
Pregnancy and postpartum	5	16.13
Heart failure	5	16.13
Hormonal birth control	2	6.45
Orthopedic surgery	2	6.45
Unknown	4	12.90

for consultation with 93.54% and 83.87% of cases respectively, more than 3/4 of the patients had tachypnea or 90.32% and tachycardia in almost 74.19% and 6 patients (19.35%) had a clinical picture of lower limb phlebitis (Table 3). The clinical probability of VTE was intermediate in 54.84% according to the GENEVA score. D-Dimers were elevated in 38.70%, or all 12 patients who performed it. The electrocardiogram (ECG) recorded a sinus rhythm in 93.54% of cases, a right branch block and atrial fibrillation (AF) in 35.48% and 6.45% of cases, respectively... Echocardiography was observed as a dilation of the right ventricle in 64.51% of cases and PAH in 61.29% (Table 4). The pulmonary Angio scan found in 82.15% of cases a massive proximal and bilateral distal pulmonary embolism. Treatment was based on low molecular weight heparin

Table 3. Distribution of patients by clinical signs.

	Signs	Numbers	Percentage
Dominants functional signs	Dyspnea	29	93.54
	Chest pain	26	83.87
Signs general	Fever	10	32.3
	Tachypnea	28	
Central physical signs	Tachycardia	23	74.19
	Gallop B3	4	12.90
	Muffled heart sounds	22	70.96
Peripheral physical signs	Phlebitis of the lowers limbs	6	19.35

Table 4. Distribution of patients by cardiac ultrasound.

Cardiac ultrasound	Number	Percentage
Left ventricular dilation	10	32.25
Right ventricular dilation	20	64.51
Pulmonary arteriel hypertensien	19	61.29
Right ventricular systolic dysfunction	23	74.19

Table 5. Distribution of patients by treatment and Evolution.

Treatment	Number	Percentage
Low molecular weight heparine	31	100
Vitamin K antagonist	31	100
Evolution		
Favorable	22	71
Death	9	29

(HPBM) and antivitamin K (AVK) in all patients (100%). No bleeding incidents; the average hospital stay was 10 days with an intra-hospital mortality rate of 29% (Table 5).

3. Comments and Discussion

The study included some difficulties, including:

- The small size of our sample,
- The non-realization of certain additional examinations for lack of their availability.

Our frequency of 8.47% is about double the 4.95% of Coulibaly [6]. The small size of our sample could be the explanation. Age groups [41 - 60]; [61 - 80] were the most affected compared to [21 - 40], [41 - 60] in Coulibaly [6]. The average age was 54.74 ± 19.734 identical to that of Coulibaly [6] which reported an average age of 54 ± 17.79. There was a female predominance of 58.1%, a rate close to

63.22% of COULIBALY [6]. This could be explained by the frequency of pregnancy and the use of hormonal contraception in female. Hypertension was the dominant cardiovascular risk factor with 32.25% and close to COULIBALY's 34.63% [6]. Immobilization with 29.03% of cases was the predominant risk factor for VTE, in agreement with FOFANA [7] which found bed rest and HIV infection as etiological factors of VTE. Dyspnea was present in (93.54%) followed by chest pain in (83.87%) at admission, same finding with the rest of the literature [8] [9]. Approximately 51.6% of the patients received had arrived at the hospital in an overall CI table showing a delay in management. The clinical probability of VTE was intermediate based on the GENEVA score in 54.84% of cases; while at Coulibaly [6], it was strong in 25.93%. D-Dimers were elevated in 38.70%, *i.e.* all 12 patients who performed it, a rate similar to that of Coulibaly [6]. Dilation of VD was observed in 64.51% of our patients, associated with pulmonary arterial hypertension in 61.29% of cases controlling severity. These results are superimposed on those of Damoro [10]. At thoracic angio-CT pulmonary embolism was proximal and bilateral distal in 82.15% of cases, higher than the 60.92% of Coulibaly [6]. 6 patients had venous thrombosis (19.35%) against 1.15 in Coulibaly [6]. All our patients benefited from anticoagulant treatment based on heparin and antivitamin K, classic in the literature [11]. The average length of hospitalization was 10 days ± 3.7 in about 51.61% of our patients; while it was 12.33 days ± 7.8 days at COULIBALY [6]. There was 29% intra-hospital case fatality, a rate much higher than the rest of the literature [6]. This can be explained by the small size of our sample.

4. Conclusion

Thromboembolic disease, although underdiagnosed, still represents a significant risk of morbidity and mortality in our health facilities. This work allowed us to assess the prevalence of VTE, the risk factors for VTE as well as intra-hospital morbidity and mortality. As management remains difficult, prevention remains the only effective way to combat VTE.

Conflicts of Interest

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

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