Research
Journal of Cardiology

OPEN ACCESS

Epidemioclinical Profile, Treatment, and Outcomes of Lower Limb Thrombophlebitis in the Cardiology Department of Kara University Hospital

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ABSTRACT

Background and Objective: Lower limb thrombophlebitis is a serious condition due to the imminent risk of pulmonary embolism, which is potentially fatal. The objectives of this study are to describe the epidemiological, therapeutic, and progression aspects of lower limb thrombophlebitis in the Cardiology Department of the University Hospital Centre (CHU) of Kara. **Materials and Methods:** This was a descriptive study with retrospective data collection conducted in the cardiology department of Kara University Hospital. A study protocol with a survey form was drawn up, and then data were collected from the records of patients hospitalized for lower limb thrombophlebitis during January, 2021 and December, 2023. The study sample consisted of 76 cases out of a total of 89 records (13 records eliminated for insufficient data). The data were recorded and analysed using Sphinx Plus V5 software. **Results:** The lower limb thrombophlebitis frequency in the department was 2.9%. The average age of the patients was 54.9 years, with a male predominance (sex ratio = 1.4). The main risk factors were advanced age over 60 years (42.1%), obesity (25%), neoplasia (18.4%), recent surgery (14.5%), and long journeys (11.8%). Functional signs were dominated by swelling and pain of the limb. Topographically, proximal thromboses were found in 81.6% and the popliteal site was the most frequent (40.8%). Thrombosis was bilateral in two patients (2.6% of cases). Low molecular weight heparin was the treatment of choice (82.9%) in the acute phase, and vitamin K antagonists were exclusively used for the relay. Complications were dominated by pulmonary embolism (15.8%). **Conclusion:** Thrombophlebitis of the lower limbs remains quite frequent in the department. Permanent risk factors were more frequent than transient factors. Complications are dominated by pulmonary embolism (15.8%), which is a medical emergency requiring rapid treatment because it quickly becomes life-threatening.

KEYWORDS

Thrombophlebitis, risk factors, Kara Teaching Hospital, Togo, lower limbs, pulmonary embolism

ISSN: 2151-8297 (Online)
ISSN: 1819-3404 (Print)
https://doi.org/10.3923/rjc.2025.1.7

Received: 17 Jun. 2025
Accepted: 17 Aug. 2025
Published: 18 Aug. 2025

INTRODUCTION

Thrombophlebitis is a complete or partial occlusion of a vein with inflammation, usually by an endoluminal clot, most often fibrous-cruoric. It is a serious condition because of its frequency and the immediate risk of causing a potentially fatal pulmonary embolism, hence the term Venous Thromboembolic disease (VTE). It is a relatively common condition. In the United States of America (USA), the hospital incidence of VTE is 1.4%, Deep Venous Thrombosis (DVT) is 0.9% and Pulmonary Embolism (PE) 0.7%[1]. In France, in a study conducted in Brittany, the annual incidence of DVT was 1.6 cases per 1,000 inhabitants, or, extrapolating to the entire French population, approximately 100,000 cases of DVT per year[2].

Formerly rare in Africa, once considered a curiosity among blacks, thrombophlebitis of the lower limbs has be come increasingly common in Africa and today constitutes a genuine public health problem[3-5]. Thus, in the Maghreb, the hospital prevalence of DVT is around 5.9% in Egypt and 2.5% in Tunisia[6,7]. In Sub-Saharan Africa, the prevalence of DVT varies greatly between countries: 1.3% of DVT in the National Hospital of Conakry (Guinea), 3.9% in Ziguinchor Hospital in Senegal, and 4.9% in the Cardiology Department of the University Teaching Hospital in Bamako (Mali)[8-10]. In Togo, the prevalence of VTE in hospitalized patients is 3.1%, but specific data on thrombophlebitis are lacking[11]. This is what motivated the present work, which aimed to describe the epidemiological, therapeutic, and progression aspects of thrombophlebitis of the lower limbs in the cardiology department of Kara University Hospital.

MATERIALS AND METHODS

Study area: The Current study was conducted in the Cardiology Department of the Kara University Hospital (CHU), a referral center in Northern Togo. The Kara Teaching Hospital comprises Technical and Medical Departments, including the Cardiology Department, which not only has qualified human resources but also an adequate technical platform for the diagnosis and management of thromboembolic diseases.

Study method: This was a retrospective and descriptive study of the records of patients who consulted or were hospitalized in the Cardiology Department of Kara University Teaching Hospital from January 1, 2021 to December 31, 2023, a three-year study period.

This study included all records of patients who were consulted or hospitalized in the Cardiology Department of Kara University Hospital during the study period. However, the study sample only included records of patients aged 18 and over with a confirmed diagnosis of lower limb thrombophlebitis. Then, excluded records of patients suspected of thrombophlebitis on the basis of clinical evidence but not confirmed by venous Doppler ultrasonography. Incomplete files were also excluded.

First of all, drafted a research protocol and created a survey form. Then, collected data from the survey form in the patient's medical records. This survey form enabled us to collect sociodemographic, clinical, paraclinical, therapeutic, and disease progression data.

Data processing and analysis: The data were recorded and analysed using Sphinx Plus V5 software. Quantitative variables were expressed as mean values followed by standard deviations. Qualitative variables were expressed as counts followed by percentages. Data processing was performed using Excel 2016 for graphics and Word 2016 for document preparation.

Ethical statement: Ethical approval was obtained from the Institutional Review Board of the Faculty Health Sciences of the University of Kara (Togo). We also obtained administrative approval from the general manager of the hospital. For confidentiality, records data was processed using specific unique identifiers.

Table 1: Distribution of patients according to VTE risk factors and comorbidities

	Number of patients	Percentage (%)
High blood pressure	33	43.4
Advanced age over 60	32	42.1
Obesity	19	25
Neoplastic predisposition	14	18.4
Recent surgery	11	14.5
Long journey	9	11.8
Trauma with cast placement	9	11.8
Family history of VTE	9	11.8
Diabetes	9	10.5
Chronic venous insufficiency	7	9.2
Smoking	6	7.9
Heart failure	4	5.3
Intercurrent infection	4	5.3
Personal history of VTE	4	5.3
Dyslipidemia	3	3.9
Pregnancy	2	2.6
Hormonal contraception	2	2.6
HIV infection	2	2.6

HIV: Human immunodefficiency virus and VTE: Venous thromboembolic disease

Table 2: Distribution of patients according to the physical signs found

	Number of patients	Percentage (%)
Body mass index		
• Normal	43	56.6
• Overweight	14	18.4
• Obesity	19	25
Presence of homan's sign	52	68.4
Unilateral edema with significant difference	37	48.7
Increase of local heat	36	47.4
Clinical probability based on the WELLS score		
• Low	10	13.2
• Intermediate	22	28.9
• High	44	57.9

RESULTS

Table 1 presents the distribution of patients according to various Venous Thromboembolism (VTE) risk factors and comorbidities. The most prevalent risk factor was high blood pressure, affecting 43.4% of the patients, followed closely by advanced age over 60 years (42.1%). Obesity was present in 25% of the cases, while neoplastic predisposition and recent surgical history were reported in 18.4 and 14.5% of the patients, respectively. Other factors such as long journeys, trauma with cast placement, family history of VTE, and diabetes were observed in approximately 10-12% of the patients. Less frequent contributors included chronic venous insufficiency, smoking, heart failure, intercurrent infection, and a personal history of VTE. The least common factors identified were dyslipidemia, pregnancy, hormonal contraception, and HIV infection, each representing 2.6 to 3.9% of the patient population. These findings indicate that multiple underlying conditions-particularly cardiovascular and metabolic disorders-are common among patients with VTE.

Table 2 shows the physical signs and clinical assessments of patients with suspected VTE. The majority of patients (56.6%) had a normal Body Mass Index (BMI), whereas 25% were classified as obese and 18.4% as overweight. Homan's sign was positive in 68.4% of the patients, making it the most common physical indicator. Unilateral edema with significant limb difference was reported in 48.7% of cases, and local heat increase was noted in 47.4% of patients. Based on the Wells score, which evaluates the clinical probability of VTE, 57.9% of patients fell into the high probability category, 28.9% had an intermediate score, and only 13.2% were classified as low probability. These results demonstrate a strong clinical correlation with VTE in most of the study population, confirming the value of both physical signs and probability scoring in the diagnostic process.

Table 3: Distribution of patients according to the location of the thrombosis

	Number of patients	Percentage (%)
Unilateral thrombosis	74	97.4
Bilateral thrombosis	2	2.6
Right lower limb	40	52.6
Left lower limb	36	47.4
Popliteal vein	31	40.8
Common femoral vein	26	34.2
Superficial femoral vein	22	28.9
Iliac vein	18	23.7
Deep femoral vein	14	18.4
Tibial vein	15	19.7
Sural vein	7	9.2
Fibular vein	4	5.2
Gastrocnemius veins	4	5.2
Superficial venous thrombosis	10	13.2
Deep venous thrombosis	74	97.4
Proximal venous thrombosis	62	81.6
Distal venous thrombosis	14	18.4
Association of deep and superficial thrombosis	8	10.5
Isolated superficial venous thrombosis	2	2.6
Isolated deep venous thrombosis	66	86.8

Table 3 outlines the anatomical distribution and type of thrombosis observed in the patient population. Unilateral thrombosis was overwhelmingly more frequent than bilateral involvement, reported in 97.4% of the cases. Both the right and left lower limbs were commonly affected, with incidences of 52.6 and 47.4%, respectively. The most frequently involved veins included the popliteal (40.8%), common femoral (34.2%), and superficial femoral veins (28.9%). Additional involvement of the iliac, tibial, deep femoral, sural, fibular, and gastrocnemius veins was also recorded. Deep Venous Thrombosis (DVT) accounted for 97.4% of cases, while superficial venous thrombosis was present in 13.2%. Proximal thrombosis occurred in 81.6% of patients, which was notably higher than distal thrombosis (18.4%). In a small proportion of cases, deep and superficial thromboses were found concurrently. These findings reflect typical thrombotic patterns seen in VTE, with a strong predilection for deep, proximal vein involvement.

DISCUSSION

The study was conducted in a department specializing in lower limb thrombophlebitis to identify various aspects that would allow us to estimate the extent of this disease in our department. This study encountered certain limitations and challenges, notably poor record keeping due to the lack of a proper archiving unit, which constitutes a bias in case selection and will certainly have an impact on the prevalence of this disease. During the study period, the hospital prevalence of lower limb thrombophlebitis was 2.9%. Study result is slightly lower than that reported earlier[12,13] in Rwanda, where found respectively 3.9% and 5.5% of lower limb venous thrombosis were found in their series. However, higher hospital prevalence rates in Benin were found 9.4 and 12.9%, respectively[12,13]. The disparity in the prevalence of DVT in these different studies carried out in the sub-region by the different methods used and also the study population or the department in which the study is carried out. To have the true value of the prevalence of this disease in the sub-region, it would then be necessary to carry out multicenter studies or studies with identical protocols. In this study, the male sex was the most represented, i.e., 57.9% of cases. This is contrary to the results of Manga *et al*.[9] in Senegal and Coulibaly *et al*.[10] in Mali, who reported a female predominance. Female predominance is often reported in the literature, and this is explained by the fact that women accumulate a certain number of risk factors for venous thromboembolic disease, such as taking estrogen-progestin hormones, a sedentary lifestyle, and periods of pregnancy.

The mean age of patients in study was 54.9 years, with extremes of 19 and 97 years. It is well established that age is a risk factor for venous thromboembolic disease because in the elderly we most often find a combination of several factors of the Virchow triad such as blood stasis caused by limitation of mobility, certain chronic pathologies (cardiac or respiratory failure) and also hypercoagulable states favoured by

neoplasia's and also chronic inflammatory diseases[14]. Regarding the search for promoting factors or etiological factors of thrombosis in our study, transient factors were dominated by recent surgery in 14.5%, long journey in 11.8%, trauma with plaster placement in 11.8% and pregnancy in 2.6%. As for permanent risk factors: Advanced age (>60 years) is found in 42.1% of cases, obesity in 25% and family history of VTE in 11.8% of cases. Current results show that permanent factors are more frequent than transient factors, unlike the results of other authors who find transient factors in higher proportions[15]. However, it is necessary to emphasize awareness to practice preventive measures in patients at risk of VTE. In this study, hypertension is the most common cardiovascular risk factor found in 43.4% of cases, followed by obesity in 25%. In the literature, high blood pressure is considered to be the most common cardiovascular risk factor and is also often considered a risk factor for venous thromboembolic disease due to its deleterious effects on the vascular endothelium. Classically, venous thrombosis of the limbs is easily recognized by its unilateral symptomatology marked by pain and edema. These two signs are found in our study in 75% and 85% of cases respectively. The frequency of these signs in our series is significantly different than that found by Manga *et al*.[9] in their study on deep venous thrombosis of the lower limbs in Ziguinchor hospital in senegal, where the authors report the presence of edema in 92% and pain in 64% of cases. This discordance in the frequency of these symptoms shows that the clinical presentation of phlebitis of the limbs can be diverse and varied, making clinical diagnosis difficult. The Homans sign is often sought to strengthen the presumption of thrombosis in a patient. This sign is found in 68.4% in our study, while it was found in 84%[9].

Paraclinically, venous Doppler ultrasound of the lower limbs is the examination of choice to confirm the diagnosis of venous thrombosis but also to specify the topography, allowing to distinction between superficial thrombosis from deep thromboses, and also between proximal and distal thromboses. In our study, the popliteal vein was the preferred site of thrombosis found in 40.8% of cases, followed by the common femoral vein in 36%. Ello *et al*.[16], also found the same preferred site, namely the femoral vein and the popliteal vein in 39 and 35% of cases, respectively.

The therapeutic management of lower limb thrombophlebitis in our department is mainly based on Low Molecular Weight Heparin (LMWH) in 82.9% of cases, compared to unfractionated heparin (UFH) used in 28.9% of cases. The same observation is made by Nkoke *et al*.[17]. in Cameroon on the majority use of LMWH in 100% of cases. The restrictive use of UFH and sometimes their unavailability explain their low use in most services. Vitamin K antagonists are exclusively used in our study for long-term management to the detriment of Direct Oral Anticoagulants (DOACs). The high cost of DOACs and also their unavailability explain their non-existent use. The use of physical means (compression stockings) must be systematic in the management of thrombophlebitis of the lower limbs to improve the prognosis and avoid post-phlebitis disease. This treatment is sometimes ignored by caregivers, as evidenced by the 81% of the prescriptions in study. This prescription of compression stockings was only 23% in the series of Manga *et al*.[9] in Senegal. Awareness-raising work must be done in our daily practice on the use of physical means to improve the quality of care for our patients.

CONCLUSION

This study conducted at the Cardiology Department of Kara University Hospital highlights a high frequency of lower limb thrombophlebitis among patients. The predominant risk factors identified were advanced age over 60 years, obesity, neoplastic conditions, recent surgery, and prolonged immobility due to long travel. Clinically, the condition was characterized primarily by limb swelling and pain. Proximal thrombosis was observed in 81.6% of cases, with the popliteal vein being the most frequently involved site (40.8%). Bilateral thrombosis was rare, noted in only 2.6% of patients. Low-molecular-weight heparin remained the treatment of choice. Pulmonary embolism, occurring in 15.8% of cases, was the most serious complication, underscoring the urgent need for early detection and intervention.

SIGNIFICANCE STATEMENT

Venous thrombosis of the lower limbs is a critical clinical condition that often precedes pulmonary embolism-a life-threatening emergency and a major public health concern. This study reveals that such thrombosis is relatively frequent in Northern Togo, with key etiological factors including advanced age, obesity, malignancy, and recent surgical history. The findings underscore the urgent need for targeted preventive strategies in high-risk populations to reduce morbidity and mortality associated with this often fatal disease. This study contributes to raising awareness and guiding early preventive action within similar clinical settings.

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