Research Article ISSN 2639-8486

Cardiology & Vascular Research

Deep Vein Thrombosis of the Lower Limbs: Epidemiology and Risk Factors

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Received: 08 Aug 2025; **Accepted:** 20 Sep 2025; **Published:** 01 Oct 2025

Citation: Bah MB, Baldé EY, Camara OM, et al. Deep Vein Thrombosis of the Lower Limbs: Epidemiology and Risk Factors. Cardiol Vasc Res. 2025; 9(4): 1-5.

ABSTRACT

Introduction: *Deep vein thrombosis (DVT) is defined as the thrombotic obstruction of a deep vein trunk, most often located at the level of the lower limbs*

Methods: *We had conducted a retrospective and descriptive study over a period of two (2) years from January 1, 2022, to December 31, 2024, in the cardiology department of CHU Ignace Deen. We had included in the study all patients of both sexes, aged at least 18 years and hospitalized in the cardiology department of the National Ignace Deen Hospital for lower limb DVT confirmed by a venous Doppler ultrasound having agreed to participate in the study.*

Results: *The hospital prevalence in our series is 3.56% with a female predominance (8 men and 20 women), or a sex ratio of 0.4. The average age of our patients was 52.31 years 18.84, with extremes of 20 and 80 years. In our sample, medical risk factors were the most found in 61% of cases (Figure 1).*

Medical risk factors were respectively dominated by prolonged bed rest in 28 ,51% of cases (n = 8), recent travel with prolonged sitting position in 10,71% of cases (n = 3), bed rest in 12,5% of cases (n = 8) and neoplasia in 3,57% of cases (n = 1).

Conclusion: *DVT is a potentially serious and 'handicapping' pathology due to Vital complication that it can suddenly generate via pulmonary embolism or long-term functional via post-phlebitic disease (PPD).*

Keywords
TVP, CHU, Risk factors.

Introduction
Deep vein thrombosis (DVT) is defined as the thrombotic obstruction of a deep vein trunk, most often located at the level of the lower limbs: one distinguishes proximal DVT (popliteal vein, femoral, iliac or cellar) and distal DVT (veins in the legs: anterior or posterior tibial and fibular sural vein; soleus and gastrocnemius vein) [1].

DVT is characterized by a double complication; in the short term by the pulmonary embolism alone responsible for a high mortality rate, and in the long term by post-phlebitic disease causing a deterioration in the patient's quality of life on the one hand, and significant economic consequences on the other hand [2].

It affects 1-2/1000 people/year in the general population, but the incidence increases with age to reach 2-7/1000 people/year after 70 years [3].

In black Africa, venous thrombosis was considered rare. It is increasingly common in Africa and nowadays constitutes a real public health problem [4]. Indeed, many cases of DVT are observed thanks to the continuous increase in the number of cardiologists and radiologists capable of suggesting his diagnosis more or less easily. In addition, the westernization of lifestyle and the advent of HIV/AIDS significantly contribute to the increased incidence of DVT [5].

In Chad, the prevalence of DVT was 12.1%, and 26.4% in Benin in the same year [6,7].

In Togo, the frequency was 3.1% and 1.21% in Mali in 2018 [8,9].

Mbaye A et al. in Senegal, reported 222 cases of VTE including 148 cases of TVP and 74 cases of EP [10]. In Guinea, few data are available regarding the prevalence of deep vein thrombosis of the lower limbs. This is what motivated the realization of this work whose general objective was to describe the epidemiological profiles and risk factors for deep vein thrombosis of the lower limbs at the cardiology department of the Ignace Deen National Hospital.

Patients and Methods

Framework, Type and duration of study: We had conducted a retrospective and descriptive study over a period of two (2) years from January 1, 2022, to December 31, 2024, in the cardiology department of CHU Ignace Deen.

Selection Criteria

We included in the study all patients of both sexes, aged at least 18 years and hospitalized in the cardiology department of the National Ignace Deen Hospital for TVP of the lower limb confirmed by a venous Doppler ultrasound having agreed to participate in the study.

We had excluded any patient whose diagnosis of DVT was not confirmed by a venous Doppler ultrasound. Patients with DVT who had an inoperative record. Patients with superficial vein thrombosis.

Data Collection

The data collection database consisted of records of patients hospitalized for lower limb DVT that were accessed whenever possible. We had developed a survey form that included epidemiological data (Age, sex, gender, profession), risk factors (age > 60 years, history of unexplained deep vein thrombosis, neoplasia, HIV infection, Travel with prolonged sitting, Prolonged bed rest, Chronic venous insufficiency, plastered immobilization, Recent surgery, Caesarean section, a pregnancy or postpartum, postabortum, taking oestrogen progestagen).

Data management and Analysis

The data was collected on survey forms, then entered from the EpiData software version 3.1. The analysis was done using SPSS (Statistical Package for Social Science) version 21. Qualitative variables are presented in the form of frequency (absolute and relative) and quantitative ones as mean standard deviation.

Ethical Considerations

The data was collected under anonymity and confidentiality was respected.

Results

During the study period, 786 patients were hospitalized in the cardiology department, including 28 cases of deep vein thrombosis, a prevalence of 3.56%. They were 8 men and 20 women, for a sex ratio of 0.4. The average age of our patients was 52.31 years 18.84, with extremes of 20 and 80 years. The age group most affected was that of 20-55 years, or 75% (Table 1).

Table 1: Presentation of patients according to epidemiological data.

Variables	size	percentage
Age		
20-55	21	75
56 - 80	7	25
average age	52,31 ±18,84	Extreme 20 and 80 years
gender		
male	8	28,57
female	20	71,42

In our sample, medical risk factors were the most found in 61% of cases. (Figure 1). Medical risk factors were respectively dominated by prolonged bed rest years in 28 ,51% of cases (n = 8), recent travel with prolonged sitting position in 10,71% of cases (n = 3), bed rest in 12,5% of cases (n = 8) and neoplasia in 3,57% of cases (n = 1) (Table 2).

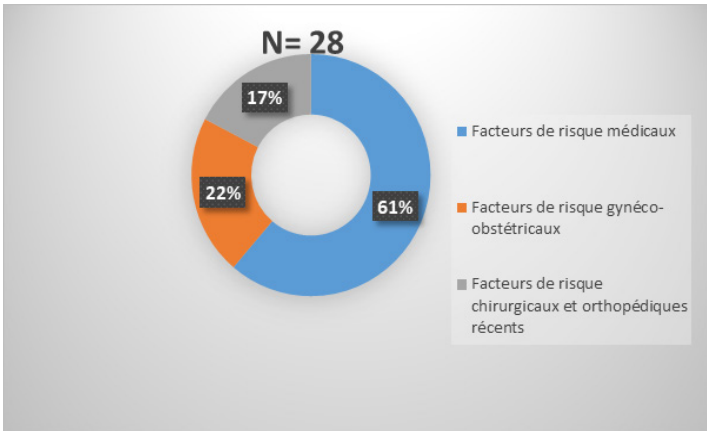

Figure 1: Distribution of patients according to the predominance of risk factors.

Four (4) patients had a surgery-related risk of DVT, with a frequency of 14.28%. One (1) case was observed in a patient under secondary orthopedic cast at a fracture, with a frequency of 3.57% (Table 2).

We had found 4 cases in patients who were under oestroprogestational contraception, or 14, 28%. Pregnancy was found in 2 patients with a frequency of 7.14% (Table 2).

Table 2: Presentation of patients according to risk factors.

risk factors	frequency	percentage
Facteurs de risque médicaux		
age ≥ 60	2	7,14
neoplasia	1	3,57
prolonged bed rest		
obesity	8	28,57
History of deep vein thrombosis		
chronic venous insufficiency	1	3,57
Recent trips with extended sitting		
Gynaecological-obstetric risk factors	1	3,57
contraception	1	3,57
pregnancy	3	10,71
	4	14,28
Postpartum	2	7,14
Recent surgical and orthopedic risk factors		
Surgery	1	3,57
Plaster	4	14,28
No factors	1	3,57
	5	17,85

Discussion

Like any retrospective study, this work has limits.

Can we quote:

The incomplete files;

The unavailability of certain biological explorations, particularly for diagnostic and etiological purposes.

The prevalence of DVT in our work was 3.56%. This result is close to the work of several authors. Indeed, Dioum reported a prevalence of 2.8% at the Grand Yoff Hospital in Dakar [11].

In a retrospective study at the Artiside Hospital the Dantec from 2008 to 2011, Bekkali reported a prevalence of 3.65% [12].

In Mauritania, Mint Boydiel [13] found a prevalence of 4% and Ben Salah et al. in Tunisia reported a prevalence of 2.5% [14].

On the other hand, the prevalence found in our study is higher than that of E.M. Ndiaye [15] who in 2015 reported a prevalence of 1.28%, from Kake and Sylla [16] in Conakry and of Sangaré and al. in Bamako who reported a similar prevalence of 1.8% [17].

In France and the United States, there was a lower prevalence of deep vein thrombosis in hospitals, which varied between 0.6 and 0.9% [18]. These differences in frequency are partly explained by the type of population studied, the diagnostic methods used and the method of epidemiological collection. This also shows that this pathology is still underestimated in our African environment, the average age in our study was 52 years. The most affected patients were those between 20 and 55 years of age, representing 75% of cases. These results were similar to the studies by Dioum [11] in Dakar, and Boukhris and al. in Tunisia, where the average age was 51 years [19].

The international study Endorse, which is a cross-sectional, international and observational epidemiological study conducted simultaneously in 32 countries, had found an average age of 64 years higher than in our series [20]. Indeed, it has been verified in the literature that advanced age alone represents an important factor in the occurrence of DVT [21].

We had noted a predominance of the female sex in our series, with a Sex-ratio H/F of 0.4 (8 men/20 women). These results are superimposable to the data from the literature that found a female predominance [8,12]. This predominance of DVT in women could be explained by the importance of risk factors that are specific to women such as contraception, pregnancy, postpartum,

gynecological and obstetric surgeries.

The main risk factors found in our study were: prolonged bed rest (28.57%), recent travel with prolonged sitting, contraception (14.28%), and surgery (14.28%). Our result is comparable to that of Njonnou in Yaoundé, found in his series prolonged bed rest (43%) and a long journey (19.4%) as the main risk factors for DVT [22]. Poitiers in France had found in its series a predominance of stasis factors and age above 60 years in 70% of cases, heart failure at 17% and progressive cancer at 8% of cases [22].

DVT is a multifactorial condition, so patients may have several concomitant risk factors. These associated factors significantly increase the probability of occurrence of a venous thromboembolic event. Several medical and surgical etiologies are described in the literature. Epidemiological studies have highlighted risk factors for MVTE, among which we can mention: older age, the notion of a recent surgery, progressive cancer, prolonged immobilisation, stroke, infection, heart failure, varicose veins and chronic venous insufficiency. Gynaecological-obstetric risk factors, in particular pregnancy, the post-partum period and contraception [23,24].

However, in our study no risk factors were found in 17.85% of cases. This would probably be linked to unthorough research and the inadequacy of the technical platform but also to the existence of hidden pathology such as cancers.

Conclusion

DVT is a potentially serious and 'handicapping' pathology due to Vital complication that it can suddenly generate via pulmonary embolism or long-term functional via post-phlebitic disease (PPD).

The estimate of DVT incidence is highly variable depending on the populations studied and the diagnostic methods used.

References

1. Richard I, Dominique L. 2nd ed. Paris: Elsevier-Masson. 2019; Chapter 21, deep vein thrombosis and pulmonary embolism. 2019.
2. Tahiri, A, Elmakhlouf A, Skalli M, et al. Bouzoubaa A, Srairi A: deep vein thrombosis of the lower limbs in Moroccan environment, in Maghreb Medical. 2013, 23: 21-35.
3. Raskob GE, Angchaisuksiri P, Blanco AN, et al. Thrombosis: a major contributor to global disease burden. Seminars in thrombosis and hemostasis. 2014; 40: 724-735.
4. Owono Etoundi P, Esiéne A, Bengono Bengono R, et al. Venous Thromboembolic Disease. Epidemiological Aspects and Risk Factors in Cameroonian Hospital. Health Sci Dis. 2015; 16: 1-4.
5. Ondze-kafata L, Kouala Landa C, Traore-Kissima A, et al. Venous thrombosis of the lower limbs in Brazzaville: about 44 cases. Card Trop. 2012; 135: 16-17.
6. Ali AA, Doune N, Youssouf YM, Bahar AM. Epidemiological, clinical, therapeutic and evolutionary aspects of pulmonary embolism at the CHU la Renaissance de N'Djamena (Chad): Retrospective study: Epidemiological aspects, clinical, therapeutic and evolutionary aspects of pulmonary embolism at the Centre hospitalier universitaire de la Renaissance in N'Djamena (Chad): A retrospective study. African Annals of Medicine. 2021; 14: 4340-4346.
7. Akanni D, Adjagba P, Adjadohoun S, et al. Results of thoracic angioscanners regarding 450 suspected pulmonary embolism in Cotonou: Multidetector computed tomography findings of 450 patients with suspected acute pulmonary embolism at Cotonou. African Medical Imaging Journal. 2020; 13: 12-19.
8. Pessinaba S, Atti YDM, Baragou S, et al. The pulmonary embolism at the university hospital Campus of Lomé (Togo): retrospective study about 51 cases. Pan Afr Med J. 2017: 27: 129.
9. Menta I, Coulibaly S, Ba HO, et al. Pulmonary Embolism in Hospitalization in the Department of Cardiology of Gabriel Toure University Hospital. World Journal of Cardiovascular Diseases. 2018; 8: 18-23.
10. Mbaye A, Dioum M, Ngaïdé AA, et al. Venous thromboembolic disease: prevalence, etiological factors and management in Cardiology Department of Dakar in Senegal. Angeiologie. 2016: 68: 47-53.
11. Dioum M. Venous thrombosis of limbs: epidemiological, diagnostic, therapeutic and evolutionary aspects: retrospective study over a period of 09 years on 148 cases collected in the cardiology department of the General Hospital of Grand Yoff in Dakar. Rev Afr Malgache Rech Sci Santé. 2017.
12. Bekkali Z. Venous thromboembolic disease in a hospital environment: clinical, paraclinical and evolutionary aspects about 143 cases collected at the cardiology department of the CHU Aristide Le Dantec [Internet]. [Senegal]: Cheikh Anta Diops University. 2012.
13. Mint Boydiel A. Epidemiological, clinical, paraclinical aspects therapeutics and evolutive of deep vein thrombosis: study retrospective about 75 files collected at the National Center of cardiology in Nouakchott (Mauritania). Med thesis [Internet]. [Dakar] : University Cheikh Anta Diop. 2012; 191; 142.
14. Ben Salah R, Frikha F, Kaddour N, et al. Etiological profile of deep vein thrombosis in the middle of internal medicine: a retrospective study of 318 cases. Ann Cardiol Angéiol. 2014; 63: 11-16.
15. Ndiaye EM, Touré NO, Thiam K, et al. Thromboembolic disease venous: epidemiological, clinical, paraclinical aspect, etiologic and evolutionary at the pulmonology clinic of CHNU in Fann. Rev. Mal Respir. 2015; 32: 176.
16. Kake A, Sylla D. Deep vein thrombosis of the lower limbs: at about 40 cases collected in Conakry. Deep Venous Thrombosis of the lower limbs in Conakry: a series of 40 cases. Tropical Cardiology. 2011; 150: 1-5.
17. Sangar I, Ba HO, Fofana CA, et al. Thrombophlepitis of the members in the cardiology department of the CHU Gabriel

Touré. Soc Med Mali. 2015; 3-6.

18. Allaert FA, Benzenine E, Quantin C. Hospital incidence and annual rates of hospitalization for venous thromboembolic disease in France and the USA. Phlebol J Venous Dis. 2017; 32: 443-447.
19. Boukhris I, Abdallah M, Bouslema K, et al. Venous thromboembolic disease: what other factors of risk in a North African population? A study of 276 cases. Ann Cardiol Angéiol. 2018; 67: 41-47.
20. Bergmann JF, Lloret-Linares C, Rami A, et al. Venous thromboembolism risk and prevention practice hospital: results obtained in France from the international study ENDORSE. Press Med. 2011; 40: e528-e537.
21. Silverstein MD, Heit JA, Mohr DN, Petterson TM, et al. Trends in the Incidence of Deep Vein Thrombosis and Pulmonary Embolism: A 25-Year Population-Based Study. Arch Intern Med. 1998; 158: 585.
22. Simeni Njonnou SR, Nganou Gnindjio CN, Ba H, et al. Epidemiology of thromboembolic venous disease in Yaoundé: transversal study in sub-Saharan Africa. Rev Internal Medicine. 2019; 40: A186.
23. Heit JA, O'Fallon WM, Petterson TM, et al. Impact relatif des facteurs de risque pour la thrombose veineuse profonde et Pulmonary embolism: a population-based study. Arch Intern Med. 2002; 162: 1245.
24. Heit JA, Spencer FA, White RH. The epidemiology of venous thromboembolism. J Thromb Thrombolysis. 2016; 41: 3-14.