



Original Article

## Demographic of deep vein thrombosis at a Tertiary Institution in Nigeria

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Received: 02 October 2024  
Accepted: 03 November 2024  
Published: 22 November 2024

DOI  
10.25259/KPJ\_33\_2024

Quick Response Code:



### ABSTRACT

**Objective:** This study aims to determine the prevalence of deep vein thrombosis (DVT) in Calabar, Cross River State, Nigeria. Deep vein thrombosis is a spectrum of venous thrombo-embolism, which is due to a complex interplay between genetic and acquired risk factors and the second most common cause of morbidity and mortality. There is an increasing trend in the number of patients with DVT

**Materials and methods:** A retrospective study with 5 years of data (2018-2022) obtained from the medical register of the department of haematology, University of Calabar Teaching Hospital, Calabar. The data collected were analysed using Microsoft Excel 2016 and IBM Statistical Package for Social Sciences version 26.

**Results:** A total of 13 cases were seen during the 5-years period with male to female ratio of 1:2.2 and a mean age of  $45.31 \pm 12.45$ . Most patients were in their 30s and 40s and from and from the Efik tribe.

**Conclusion:** This study aims to awaken our consciousness of the increasing epidemiological burden of DVT in our environment and helps to enhance further investigation into the relationship between DVT, genetics, and tribe. Furthermore, establishing a venous thromboembolism multidisciplinary management team is sacrosanct for records and quality management.

**Keywords:** Deep vein thrombosis, Prevalence, Calabar

### INTRODUCTION

Thrombosis is a silent killer and the second most common cause of morbidity and mortality worldwide.<sup>[1]</sup> The World Health Organization estimates that 17.5 million people die from cardiovascular disease (CVD) attributed to thrombosis, with over three-quarters of these cases occurring in low- and middle-income countries, such as Nigeria.<sup>[2-4]</sup> Venous thromboembolism (VTE) comprises deep vein thrombosis (DVT) and pulmonary embolism, which is the third most common cause of CVD globally.<sup>[5]</sup> Furthermore, it is associated with increased mortality rate, health costs, and recurrence.<sup>[6]</sup> The pathogenesis of DVT is a complex interplay between genetic predisposition and acquired risk factors. There are several risk factors for DVT, which includes; age, gender, race, surgery, use of oral contraceptives, cancer, paripartum period and prolonged immobilisation.<sup>[6-8]</sup> Several studies have, for example hospitalised patient reported a higher incidence of VTE in Africa, American than in Asian and Native American.<sup>[9-15]</sup> The implication of these studies is that the incidence of DVT might be higher in African population compared to other races.<sup>[9-15]</sup> Despite above information, there is paucity of data on the demographics and prevalence of DVT in our environment. Therefore, this study aims to estimate the demographic and prevalence of adult DVT in our environment.

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## MATERIAL AND METHODS

### Study design

This study is a retrospective study on DVT patients seen at the University of Calabar Teaching Hospital (UCTH) from January 2018 to October 2022.

### Study area

The hospital is a 600 bed space tertiary health institution that renders specialist care to its host and neighbouring communities.

### Subject

This includes 13 patients that were diagnosed and managed of DVT at the UCTH, out of the 2947 patient seen during the period of review. The diagnosis was made using the validated clinical wells scoring system with confirmation by a coloured compression Doppler-ultrasound scan.

### Selection criteria

Those whose information were retrieved from the medical records with evidence of proper documented, well scored and Doppler findings of DVT were included, while those with any form of omission were excluded from the study. These data and results collected were analysed using Microsoft Excel 2016 and IBM Statistical Package for the Social Sciences version 26. The data were analysed using simple inferential statistics (frequency and percentage).

## RESULTS

Deep Vein Thrombosis (DVT) at the University of Calabar Teaching Hospital involved 13 individuals, comprising 31% males and 69% females. The age distribution is presented in Table 1. The tribal distribution revealed that most cases were from the Efik tribe (5 individuals), followed by the Igbo tribe (2 individuals). Other tribes represented by one case each included Biase, Boki, Hausa, Obudu, Oron, and Ugep. The gender and tribe distributions are presented in [Figures 1 and 2] respectively.

The annual distribution of DVT cases varied over a five-year period: 2 cases in 2018, 5 in 2019, 3 in 2020, 1 in 2021, and 2 in 2022. This demographic overview highlights both the tribal diversity and the annual fluctuations in DVT incidence at the hospital.

The result is presented in [Figure 3].

## DISCUSSION

This study reviews the prevalence of diagnosed adult DVT at UCTH but does not include individuals with asymptomatic

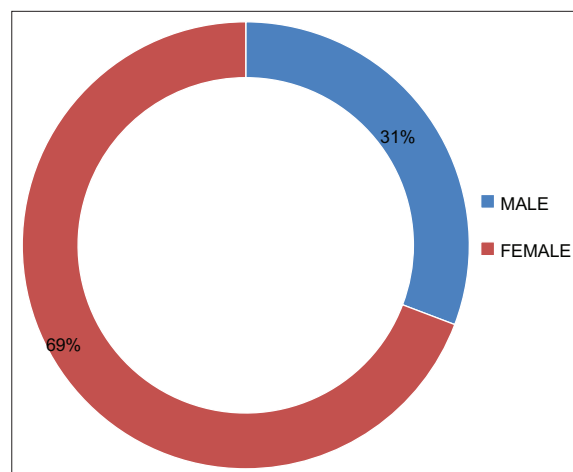


Figure 1: Sex distribution.

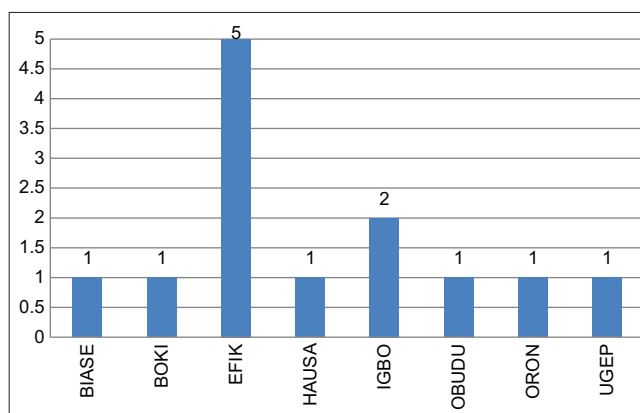


Figure 2: Tribe distribution.

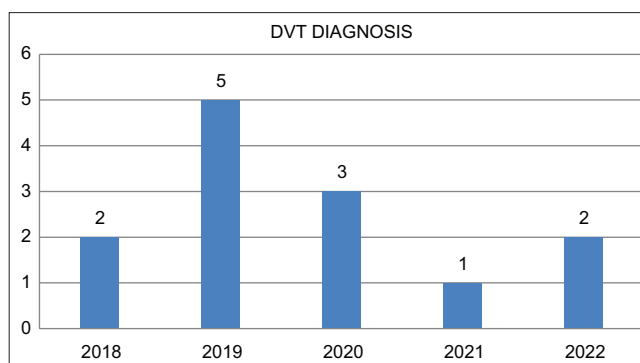


Figure 3: Yearly distribution. Total patients seen = 2947, and prevalence of deep vein thrombosis = 0.44%.

DVT or those with symptoms not investigated. A total of 2947 patients were seen during the period of review. DVT constitutes 0.44% of all patients seen during the period review. This is at variance with a similar study conducted in the United States of America, which reported a higher prevalence of 5.04%.<sup>[16]</sup> Another study conducted by Danwang *et al.* in Africa reported a prevalence between 2.6% and 9.6% of

**Table 1:** Age range distribution.

Age range	Frequency	Percentage
30–39	5	38.46
40–49	4	30.77
50–59	2	15.38
60–69	1	7.69
≥70	1	7.69
Total	13	100.00

Mean age – 45.31±12.45, Median age – 41, Minimum age – 33, Maximum age – 70

DVT in post-operation patients.<sup>[17]</sup> Moreso, another study by Muleledhu *et al.*<sup>[18]</sup> reported a prevalence of 2.4% in Nigeria. This variation can be attributed to differences in study design, poor awareness among Physicians, underdiagnosis due to lack of facilities and also, and DVT managed by other specialists such as the Vascular Surgeon, Pulmonologist, Cardiologist, and Anaesthiologist. This study also shows female preponderance, with a male-to-female ratio of 1:2.2. This is similar to the findings by Mugeni *et al.* on proximal DVT among hospitalised medical and obstetric patients in Rwanda.<sup>[19]</sup> This can be attributed to the fact that males at this age perform a lot of activities compared to their female counterparts. Furthermore, females at this age ingest more of oral contraceptives to prevent unwanted pregnancies apart from reduced activities. This study also reviews a mean age of 45.31 ± 12.45 and the median age of 41 years, with 15.3% above 60 years. This is similar to the finding by Mugeni *et al.*<sup>[19]</sup> who also reported that the bulk of the patients were below 65 years. This was in contrast with Western studies, which reported that DVT is predominantly a disease of middle-aged and elderly with markedly increasing incidence with age.<sup>[20]</sup> This study also showed that the prevalence of DVT was more with the Efik tribe, followed by the Igbos residing in Calabar. This may be attributed to either the location of the hospital within the Efik settlement, sedentary lifestyle due to the cultural practice of fattening females within the age of marriage, which falls within the age bracket of prevalence of DVT; also, it may be attributed to diet (Afang) which is rich in crude fat and carbohydrate. DVT was said to be highest in 2019 due to the increased number of Specialist Haematologist and facilities, which has improved diagnosis and management of DVT. This was followed by 2020, which may be attributed to the COVID-19 pandemic and it is associated with lockdown measures. The lowest value was recorded in 2021 due to increased awareness of the risk and prevention of DVT among physicians and the populace.

## CONCLUSION

This study aims to awaken our consciousness on the increasing epidemiological burden of DVT in our environment and helps

to enhance further investigation into the relationship between DVT, genetics, and tribe. Furthermore, the establishment of a VTE multidisciplinary management team is sacrosanct for records and quality management.

## Limitation

Poor documentation, poor record keeping, and lack of VTE safety zone.

## Authors' Contributions

Akaba Kingsley; Conceptualise, review. Edakabasi Akaba; Literature search. Omini Godwin; Methodology and discussions.

## Ethical approval

Since this study is a retrospective study, the Institutional Review Board approval is not required.

## Declaration of patient consent

Patient consent is not required as the patient's identity is not disclosed or compromised.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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**How to cite this article:** Akaba K, Akaba E, Godwin O. Demographic of deep vein thrombosis at a Tertiary Institution in Nigeria. *Karnataka Paediatr J.* 2024;39:84-7. doi: 10.25259/KPJ\_33\_2024.