Characteristics of patients and patterns of chronic venous disease of the lower limbs in a referral hospital in Cameroon

Marcus Fokou, MD,[a] Boniface Moifo, MD,[b] Emmanuel Fongang, MD,[c] Abel Teyang, MD,[a] *and* Wallinjon Muna, MD,[d] *Yaoundé, Cameroon*

ABSTRACT

Objective: The objective of this study was to investigate the magnitude of chronic venous disease (CVD) in sub-Saharan Africa, specifically the characteristics of the patients, the symptoms, the signs, and the severity.

Methods: From December 2013 to December 2016, a cross-sectional study was conducted of all consecutive patients with CVD aged ≥18 years and attending the outpatient clinic of the Yaoundé General Hospital in Cameroon. We recorded information on demographics, relevant medical history, symptoms, lifestyle, and clinical presentation. A duplex ultrasound examination investigated veins to seek obstruction and reflux (duration ≥0.5 second). The full Clinical, Etiology, Anatomy, and Pathophysiology (CEAP) classification was used to describe CVD, and severity was assessed by the Venous Clinical Severity Score (VCSS). Statistical significance was at $P < .05$.

Results: Altogether, 319 patients (503 affected legs) were enrolled; 54.3% of patients were men with a mean age of 44.5 years (18-85 years) and CVD duration of 3 months to 45 years (mean, 2.3 years). Patients had such risk factors as obesity (32.6%), family history of CVD (17.7%), multiparity, and lifestyle requiring long standing periods (64.8%). Only 15% of women older than 49 years were using birth control pills, and none older than 49 years were receiving hormone replacement therapy. Only 42.9% of patients had previously been treated for CVD, mainly with venoactive drugs (34.1%). Of the 503 legs, 366 (72.76%) were symptomatic in the following proportion: leg heaviness, 236 (64.48%); sensation of swelling, 236 (64.48%); pain, 194 (53%); sensation of "pins and needles," 87 (23.77%); night cramps, 89 (24.39%); and itching, 66 (18.03%). Men had more symptoms ($P = .027$). The mean total VCSS was 4.62 ± 4.15 (range, 1-21). The most frequent VCSSs were 0, 2, 3, and 4, and the components of the VCSS most frequently represented were pain, varicose veins, and edema.Patients were assigned to CEAP classes as follows. The C class included C0, 6.1%; C1, 35.4%; C2, 39.6%; C3, 42.7%; C4a, 11.9%; C4b, 4.9%; C5, 1.5%; and C6, 10.13%. The E class designated etiology as primary in 446 (88.66%), secondary in 49 (9.7%), and congenital in 8 (1.59%). The A class identified superficial veins in 365 (72.56%), deep veins in 218 (43.33%), and perforator veins in 22 (4.37%); no venous location was identified in 31 (6.16%). According to the P classification, of the 466 legs of level II and III CEAP, 289 (62%) had reflux, 43 (9.2%) had obstruction, 22 (4.6%) had both reflux and obstruction, and 113 (24.3%) had no venous disease identifiable, with no sex influence on the frequency of reflux ($P = .27$) but a higher proportion of obstruction in men ($P = .00029$).

Conclusions: Patients have many risk factors and are young with a male predominance. Most patients are symptomatic with advanced disease. The etiology is primary in most patients, and reflux is more common. (J Vasc Surg: Venous and Lym Dis 2017;■:1-6.)

Chronic venous disease (CVD) causes significant morbidity in diverse populations around the world. In most Western countries, it has been estimated that around 3% of total health care expenditures are linked to venous disorders and that varicose veins are present in 25% to 30% of female and 10% to 40% of male adults.[1-4] If this is true for the Western countries, there is a lack of evidence to support this statement as far as one of the main regions of the world is concerned: the tropical region and particularly sub-Saharan Africa, where >900 million people live.

In sub-Saharan Africa, there are a few anecdotal reports dating back to the 1970s. They used visual inspection methods and focused only on varicose veins and not the full spectrum of CVD. The contemporary noninvasive assessment with ultrasound was not available at that time.[5,6] The only available study concerning the black population in the modern phlebology era is the San Diego Population Study, which suggests that the characteristics of venous diseases in African Americans may differ from those in other ethnic groups, such as Hispanics, Asians, and non-Hispanic whites.[7] To the best of our knowledge, there is no reliable information available in the current and past medical-surgical literature concerning the black population living in tropical Africa in

From the Department of Surgery,[a] Department of Radiology,[c] and Department of Internal Medicine,[d] Yaoundé General Hospital; and the Department of Radiology, Yaoundé Gynaecology, Obstetrics, and Pediatrics Hospital.[b]

This work was funded by Servier through the Research Fund of the Union Internationale de Phlébologie (UIP). The principal investigator (M.F.) was awarded the UIP Research Fellowship Award in 2013.

Author conflict of interest: none.

Correspondence: Marcus Fokou, MD, Department of Surgery, Yaoundé General Hospital, PO Box 5408, Yaoundé, Cameroon (e-mail: mfokou@yahoo.com).

The editors and reviewers of this article have no relevant financial relationships to disclose per the Journal policy that requires reviewers to decline review of any manuscript for which they may have a conflict of interest.

2213-333X

https://doi.org/10.1016/j.jvsv.2017.08.012

the modern phlebology era. For this reason, we designed this study to investigate for the first time the magnitude of the problem in that region and particularly in patients attending our hospital. Using current concepts and standards, the study aimed to determine the characteristics of patients suffering from CVD; to describe the extent of CVD according to the Clinical, Etiology, Anatomy, and Pathophysiology (CEAP)[8] classification; and to assess severity by the Venous Clinical Severity Score (VCSS).[9]

METHODS

During a 3-year period from December 2013 to December 2016, a cross-sectional study was conducted of all consecutive patients with evidence of CVD who were >18 years old and attending the outpatient clinic of the Yaoundé General Hospital in Cameroon. This is a university teaching hospital and the only hospital in Cameroon with modern facilities to perform vascular surgery. Patients with a history of surgery or sclerotherapy on the leg were excluded for that leg. The Yaoundé General Hospital is a public general hospital. The vascular outpatient department receives about 400 new patients yearly from all sources (eg, other physicians, clinics, private hospitals). Among them, 35% are seen primarily for venous complaints. The city has >2 million inhabitants. It is the only center providing vascular surgery care for the city and the country (>20 million people) and even surrounding countries. Cameroon is a tropical country situated in Central Africa just above the equator. The population is monoracial black.

A structured interview recorded information on demographics and relevant medical history. Special consideration was given to information suggesting the etiology of the venous disease (primary, secondary, congenital), previous treatment for CVD (>1 year in the past), family history, symptoms potentially related to venous disease (leg heaviness, pain in the leg, sensation of swelling, itching, heaviness, night cramps, sensation of pins and needles in the legs), and lifestyle (especially duration of sitting and standing, be it professional or not, in a 16-hour active period from 6 AM to 10 PM). Smoking habit and exercise were ascertained; for women, parity, use of contraception for women younger than 49 years, and use of hormone replacement therapy for those older than 49 years and in menopause were also evaluated.

A comprehensive standardized clinical examination with the subject standing for >2 minutes was conducted by one of the two vascular surgeons to determine the magnitude of visible disease (C of the CEAP classification).

A duplex ultrasound examination, performed by the two radiologists using a 5 to 12 MHz transducer following a standardized protocol according to the Union Internationale de Phlébologie guidelines,[10,11] investigated the functional disease at various anatomic sites (superficial, deep, and perforator veins) and the pathophysiologic process (normal, reflux, and obstruction) to complete the CEAP classification. Reflux duration of ≥0.5 second or Valsalva reflux of ≥0.5 second was taken as evidence of valvular insufficiency (definition from the consensus document of the Union Internationale de Phlébologie[10]). Venous obstruction was assessed by the degree of compressibility of venous walls; complete compressibility was considered normal. Patients were evaluated with CEAP investigation levels I and II and investigation level III if necessary.

Quality control measures included a repeated scan by the other radiologist if doubtful results were obtained and periodically sequential duplex ultrasound scans by both observers on the same subjects to allow interobserver comparison of results.

To grade the severity of CVD in our patients, the VCSS was determined on the basis of current published reporting standards.[9] Scores for each attribute (0-3 points) and total score (0-30 points) were determined.

Statistics. All data were entered into a computer database using Epi Info 6. Analysis was separated as to participant or limb, as appropriate. Differences in means were tested by one-way analysis of variance, and categorical differences were tested with χ^2 statistics. The Student *t*-test was used for continuous parametric data differences. Adjusted prevalences were assessed by the general linear models procedure. The contributions of different factors to the various disease categories (C, E, A, and P) and potential interactions were tested by multiple logistic regression. Other tests were done as requested. Statistical significance was set at $P < .05$.

For all study procedures, participants provided informed consent after a detailed explanation of the study. The ethical committee of the hospital approved the study.

ARTICLE HIGHLIGHTS

- **Type of Research:** Hospital-based cross-sectional epidemiologic study
- **Take Home Message:** This study of 319 consecutive patients evaluated for chronic venous disease in an outpatient clinic in Cameroon revealed that 54.3% were male (mean age, 44.5 years). Of 503 limbs, 73% were symptomatic, often with severe disease (17% C4 and 10.1% C6) and a primary etiology (88.7%). Reflux was present in 67% and obstruction in 14%, and a higher proportion of obstruction occurred in men ($P = .00029$).
- **Recommendation:** More epidemiologic studies of venous disease in Africa are needed to better understand the contribution of chronic venous disease to overall morbidity in Africa.