Scientific Research Publishing

Journal of Diabetes Mellitus, 2026, 16(2), 65-75
https://www.scirp.org/journal/jdm
ISSN Online: 2160-5858
ISSN Print: 2160-5831

Prevalence and Patterns of Coronary Artery Disease among Patients with Diabetes in a Resource-Limited Setting: A Pioneer Comparative Cross-Sectional Study

Amalia Owona[1,2], Serge Louis Tang Nlend[2], Hamadou Ba[2,3], Alain Patrick Menanga[1,2]

[1]Department of Cardiology, General Medicine and Subspecialties, Yaoundé General Hospital, Yaoundé, Cameroon
[2]Department of Internal Medicine and Specialties, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon
[3]Department of Cardiology, Garoua General Hospital, Garoua, Cameroon
Email: tanglendlouis@gmail.com, drhamadouba@yahoo.fr, apmcbl@hotmail.com

How to cite this paper: Owona, A., Tang Nlend, S.L., Ba, H. and Menanga, A.P. (2026) Prevalence and Patterns of Coronary Artery Disease among Patients with Diabetes in a Resource-Limited Setting: A Pioneer Comparative Cross-Sectional Study. *Journal of Diabetes Mellitus*, **16**, 65-75.
https://doi.org/10.4236/jdm.2026.162005

Received: February 14, 2026
Accepted: May 4, 2026
Published: May 7, 2026

Abstract

Introduction: Diabetes mellitus is a major risk factor for Coronary Artery Disease (CAD) and is associated with more severe clinical and anatomical presentations. However, data regarding the specific characteristics of CAD in diabetic patients from Sub-Saharan Africa remain limited and are virtually non-existent in Central Africa. **Aims:** In this pioneer study, we aimed to investigate the clinical, angiographic, and therapeutic specificities of Coronary Artery Disease (CAD) in diabetic patients within a sub-Saharan African context. **Methods:** We conducted a comparative cross-sectional study based on the DéRICA registry at the Yaoundé General Hospital, Cameroon. We included 82 consecutive patients (27 diabetics and 55 non-diabetics) undergoing coronary angiography. **Results:** The mean age was 60 years for both groups. Diabetic patients exhibited a significantly higher prevalence of dyslipidemia (81.5% vs. 41.8%; $p = 0.001$) and prior ischemic heart disease (77.8% vs. 43.6%; $p = 0.004$). Angiographically, diabetes was strongly associated with more severe anatomical coronary involvement. Diabetics were four times more likely to present with three-vessel disease (37.0% vs. 12.7%; OR = 4.03, 95% CI [1.33 - 12.28]; $p = 0.011$). Crucially, diabetes was associated with a sevenfold increase in Left Main Coronary Artery (LMCA) involvement (22.2% vs. 3.6%; OR = 7.57, 95% CI [1.41 - 40.55]; $p = 0.014$). Consequently, Heart Team discussions were significantly more frequent for diabetic patients (29.6% vs. 9.1%; $p = 0.025$). **Conclusion:** In Cameroon, diabetic patients with CAD present

with a markedly higher anatomical risk profile, characterized by diffuse three-vessel disease and critical LMCA lesions. These findings underscore the critical importance of early cardiovascular screening and multidisciplinary management in this high-risk population.

Keywords

Diabetes Mellitus, Coronary Artery Disease, Left Main Coronary Artery, Sub-Saharan Africa, Cameroon, Coronary Angiograph

1. Introduction

Coronary Artery Disease (CAD) remains a leading cause of cardiovascular morbidity and mortality worldwide, with a disproportionately high burden observed in patients with diabetes mellitus [1] [2]. Diabetes, characterized by chronic hyperglycemia, accelerates the development of atherosclerosis through complex synergistic mechanisms, including endothelial dysfunction, chronic inflammation, oxidative stress, and lipid metabolism abnormalities [3] [4]. Numerous studies have demonstrated that diabetes increases the risk of CAD by two to fourfold compared to the general population [5].

In diabetic patients, CAD presents with well-documented clinical and anatomical specificities, notably more diffuse involvement, a predominance of multivessel disease, and a higher frequency of left main coronary artery lesions [6] [7]. Furthermore, the increased prevalence of silent myocardial ischemia in this population often leads to delayed diagnosis and more severe clinical presentations at the time of management.

Despite therapeutic advances—including Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), and optimized medical therapy—the cardiovascular prognosis for diabetic patients remains unfavorable [8]. International guidelines emphasize the critical importance of an individualized and multidisciplinary approach for the management of these high-risk individuals [9].

In sub-Saharan Africa, and specifically in Cameroon, data regarding the specific characteristics of CAD in diabetic patients remain scarce [10]. To address this gap, the present study aimed to describe and compare the sociodemographic, clinical, biological, echocardiographic, angiographic, and therapeutic profiles of coronary artery disease between diabetic and non-diabetic patients in a contemporary Cameroonian cohort.

2. Materials and Methods

2.1. Study Design and Setting

We conducted a descriptive and analytical cross-sectional study over a three-year period, from November 8, 2022, to November 8, 2025, in Yaoundé, the capital of

Cameroon. The study was centered at the Yaoundé General Hospital, which hosts the city's first and only cardiac catheterization laboratory. This facility became operational in November 2022 and is overseen by a single lead interventional cardiologist.

2.2. Data Source and Study Population

Data were retrieved from the Yaoundé Registry of Interventional Cardiology Achievements (DéRICA), a comprehensive database including all patients admitted to the catheterization unit for cardiovascular explorations.

We included all patients undergoing coronary angiography for acute coronary syndromes (STEMI, NSTEMI, or unstable angina) in whom a significant coronary stenosis ≥ 50% was identified on Quantitative Coronary Angiography (QCA), regardless of whether they underwent subsequent Percutaneous Coronary Intervention (PCI). Sampling was consecutive, exhaustive, and non-probabilistic (purposive).

2.3. Exclusion Criteria

Patients were excluded if they presented with normal coronary arteries upon angiography, had incomplete clinical or angiographical records, or had a history of prior Coronary Artery Bypass Grafting (CABG) or PCI; in short, Patients with non-obstructive coronary arteries (<50% stenosis**)** were excluded. Additionally, patients with congenital heart disease or non-ischemic cardiomyopathies were excluded from the analysis.

2.4. Operational Definitions

- Diabetes mellitus was defined as a documented medical history of diabetes or the use of glucose-lowering medications. Information regarding diabetes type, duration of disease, treatment class (insulin vs oral antidiabetic drugs), and glycemic control indicators such as HbA1c was not consistently available in the registry and was therefore not included in the analysis.
- Hypertension: Defined as blood pressure ≥ 140/90$ mmHg or ongoing antihypertensive therapy.
- Dyslipidemia: Defined by an abnormal lipid profile or the use of lipid-lowering agents.
- Left Ventricular Ejection Fraction (LVEF): Considered impaired if $< 50\%$ as measured by echocardiography.
- Acute Coronary Syndromes (ACS), including ST-Segment Elevation Myocardial Infarction (STEMI), Non-ST-Segment Elevation Myocardial Infarction (NSTEMI), and Unstable Angina (UA). Defined in accordance with the prevailing European Society of Cardiology (ESC) guidelines.

2.5. Angiographical Procedures

Coronary angiographies were performed using a SIEMENS® Artis One angio-

graph. The morphological severity of coronary lesions was stratified according to the ACC/AHA classification (Types A, B1, B2, and C). Key angiographic parameters analyzed included the number of diseased vessels, coronary dominance, and the anatomical localization of lesions.

Heart Team discussions were conducted after coronary angiography in cases involving complex coronary anatomy, particularly multivessel disease or left main coronary artery involvement, or when the optimal revascularization strategy (percutaneous coronary intervention vs coronary artery bypass grafting) required multidisciplinary evaluation.

Decisions were made through a multidisciplinary discussion involving the interventional cardiologist and cardiac surgery team when necessary.

2.6. Statistical Analysis

Sample size calculation was not performed due to the exhaustive nature of the registry. Quantitative variables are expressed as mean ± Standard Deviation (SD) or median [interquartile range] and compared using the Student's t-test or the Mann-Whitney U test, as appropriate. Qualitative variables are presented as frequencies and percentages and were compared using the chi 2 test or Fisher's exact test.

Associations between variables were assessed using bivariate analyses with Odds Ratios (OR) and 95% confidence intervals. Multivariable regression analysis was not performed due to the relatively small sample size and the limited number of diabetic patients, in order to avoid model overfitting and unstable estimates.

Missing data were managed using complete-case analysis. Statistical significance was set at $p < 0.05$. All analyses were conducted using SPSS® version 26.

3. Results

3.1. Baseline Characteristics of the Study Population

A total of 115 patients underwent coronary angiography during the study period. Of these, 82 patients presented with significant coronary artery abnormalities and were included in the final analysis. The cohort was stratified into two groups: diabetic (n = 27) and non-diabetic (n = 55). The mean age of the overall population was 60.05 ± 9.43 years (range: 38 - 80 years).

3.2. Sociodemographic Characteristics by Diabetic Status

No significant difference was observed in the mean age between diabetic and non-diabetic patients (60.15 ±7.36 vs. 60.0 ± 10.35 years, respectively; $p = 0.941$). However, the 51 - 60 age group was significantly more prevalent among diabetic patients compared to non-diabetics (51.9% vs. 29.1%; OR = 2.63; 95% CI [1.01–6.81]; $p = 0.044$). (Table 1)

Sex distribution did not differ significantly between the two groups, with a marked male predominance across the entire study population.

Table 1. Sociodemographic characteristics of CAD Patients according to diabetic status.

Variables	Diabetes Yes (n = 27)	Diabetes No (n = 55)	*p*-value	OR (95% CI)
Mean Age ± SD (years)	60.15 ± 7.36	60.0 ± 10.35	0.941	MD*: 0.15 (−3.8 - 4.12)
Age Groups, n (%)				
<40 years	0	2 (3.6)	1.000	-
41 - 50 years	1 (3.7)	8 (14.5)	0.259	0.23 (0.03 - 1.91)
51 - 60 years	14 (51.9)	16 (29.1)	0.044	2.63 (1.01 - 6.81)
61 - 70 years	8 (29.6)	22 (40.0)	0.360	0.63 (0.24 - 1.69)
>70 years	4 (14.8)	7 (12.7)	1.000	1.19 (0.32 - 4.49)

MD: Mean Difference; SD: Standard Deviation; OR: Odds Ratio; CI: Confidence Interval.

3.3. Cardiovascular Risk Factors, Medical History, and Comorbidities

Diabetic patients exhibited a significantly higher prevalence of dyslipidemia compared to non-diabetics (81,5% vs 41,8%; OR = 6.12; 95% CI [2.02 - 18.56]; $p = 0.001$).

Regarding clinical history, ischemic heart disease was significantly more frequent in the diabetic group (77,8% vs 43,6%; OR = 4.52; 95% CI [1.60 - 12.95]; $p = 0.004$), as was mixed cardiomyopathy (40,7% vs 18.2 %; OR = 3.09; 95% CI [1.11 - 8.66]; $p = 0.028$).

In contrast, no significant differences were observed between the two groups regarding the prevalence of hypertension, smoking, heart failure, HIV infection, elevated lipoprotein(a), or impaired left ventricular ejection fraction (LVEF) (Table 2).

Table 2. Cardiovascular risk factors, medical history and comorbidities according to diabetes status.

Variables	Diabetes Yes (n = 27)	Diabetes No (n = 55)	*p*-value	OR (95% CI)
Medical History				
Prior Coronary Events, n (%)	0	4 (7.3)	0.300	-
Hypertension (HTN), n (%)	25 (92.6)	42 (76.4)	0.126	3.87 (0.81 - 18.58)
Dyslipidemia, n (%)	22 (81.5)	23 (41.8)	0.001	6.12 (2.02 - 18.56)
Smoking, n (%)	1 (3.7)	6 (10.9)	0.416	0.31 (0.04 - 2.75)
Heart Failure, n (%)	8 (29.6)	11 (20.0)	0.331	1.68 (0.59 - 4.85)
Cardiopathies				
Hypertensive Heart Disease, n (%)	13 (48.1)	32 (58.2)	0.391	0.67 (0.26 - 1.68)
Ischemic Heart Disease, n (%)	21 (77.8)	24 (43.6)	0.004	4.52 (1.60 - 12.95)
Mixed Cardiomyopathy, n (%)	11 (40.7)	10 (18.2)	0.028	3.09 (1.11 - 8.66)
Comorbidities				
HIV Infection, n (%)	2 (7.4)	2 (3.6)	0.595	2.12 (0.28 - 15.90)
Elevated Lp(a) (≥50 mg/dL), n (%)	11 (61.1)	21 (48.8)	0.381	1.65 (0.54 - 5.05)

Continued

Impaired LVEF (<50%), n (%)	18 (69.2)	28 (50.9)	0.120	2.17 (0.81 - 5.82)
Pre-admission Medical Therapy				
DAPT, n (%)	27 (100)	51 (92.7)	0.297	-
OMT, n (%)	18 (66.7)	42 (76.4)	0.352	0.62 (0.23 - 1.71)

OR: Odds Ratio; CI: Confidence Interval; HTN: Hypertension; Lp(a): Lipoprotein (a); LVEF: Left Ventricular Ejection Fraction; DAPT: Dual Antiplatelet Therapy; OMT: Optimal Medical Therapy.

3.4. Presentation Delays, Clinical Indications, and Angiographic Patterns

Consultation delays following the index event did not differ significantly according to diabetic status. Similarly, the distribution of clinical indications for coronary angiography—specifically STEMI and NSTEMI—was comparable between diabetic and non-diabetic patients.

However, diabetic patients presented with a significantly higher burden of disease, characterized by a higher frequency of three-vessel disease (37.0% vs 12.7%; OR = 4.03; 95% CI [1.33 - 12.28]; $p = 0.011$), indicating more extensive coronary involvement (Table 3).

Table 3. Time to consultation, clinical indications, and angiographic characteristics according to diabetic status.

Variables	Diabetes Yes (n = 27)	Diabetes No (n = 55)	*p*-value	OR (95% CI)
Time from Event				
<24 hours, n (%)	4 (14.8)	2 (3.6)	0.088	4.61 (0.79 - 26.96)
1 - 30 days, n (%)	14 (51.9)	34 (61.8)	0.389	0.67 (0.26 - 1.69)
1 - 3 months, n (%)	6 (22.2)	6 (10.9)	0.196	2.33 (0.67 - 8.08)
>3 months, n (%)	3 (11.1)	13 (23.6)	0.179	0.40 (0.10 - 1.56)
Indications				
STEMI, n (%)	12 (44.4)	26 (47.3)	0.809	0.89 (0.35 - 2.25)
NSTEMI, n (%)	4 (14.8)	9 (16.4)	1.000	0.89 (0.25 - 3.19)
Unstable angina, n (%)	11 (40.7)	20 (36.4)	0.701	1.20 (0.47 - 3.09)
Coronary Dominance				
Right dominance, n (%)	18 (66.7)	34 (61.8)	0.668	1.24 (0.47 - 3.25)
Left dominance, n (%)	3 (11.1)	10 (18.2)	0.530	0.56 (0.14 - 2.24)
Balanced, n (%)	6 (22.2)	11 (20.0)	0.816	1.14 (0.37 - 3.51)
Extent of Coronary Disease				
Single-vessel disease, n (%)	12 (44.4)	33 (60.0)	0.183	0.53 (0.21 - 1.35)
Double-vessel disease, n (%)	3 (11.1)	8 (14.5)	1.000	0.73 (0.18 - 3.02)
Three-vessel disease, n (%)	10 (37.0)	7 (12.7)	**0.011**	4.03 (1.33 - 12.28)

OR: Odds Ratio; CI: Confidence Interval; STEMI: ST-Segment Elevation Myocardial Infarction; NSTEMI: Non-ST-Segment Elevation Myocardial Infarction.

3.5. Procedural Characteristics and Lesion Morphology

The arterial access site used for coronary angiography was similar across both groups. Notably, diabetic patients demonstrated a significantly higher rate of Left Main Coronary Artery (LMCA) involvement (22.2% vs 3.6%; OR = 7.57; 95% CI [1.41 - 40.55]; $p = 0.014$). (Table 4)

No significant differences were observed regarding the involvement of other coronary arteries or lesion classification according to the ACC/AHA criteria.

Table 4. Procedural characteristics and lesion morphology according to diabetic status.

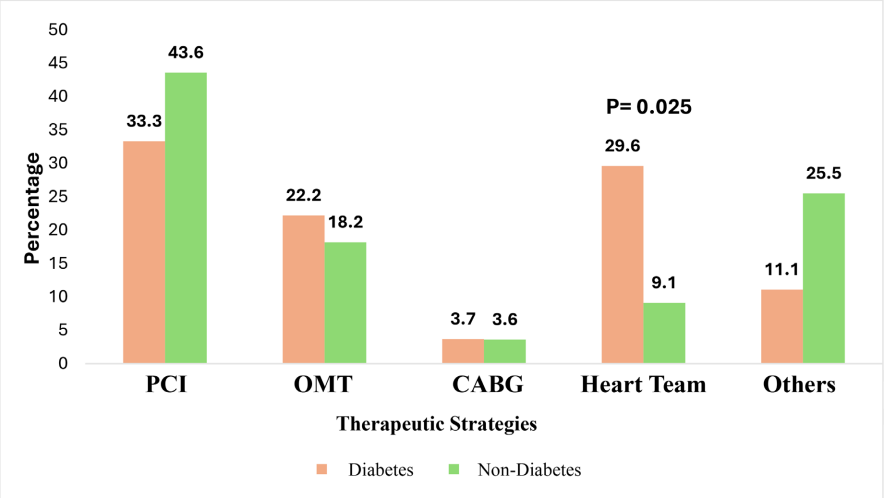
Variables	Diabetes Yes (n = 27)	Diabetes No (n = 55)	*p*-value	OR (95% CI)
Arterial Access Site				
Femoral, n (%)	8 (29.6)	23 (41.8)	0.285	0.58 (0.22 - 1.57)
Radial, n (%)	19 (70.4)	32 (58.2)	0.285	1.71 (0.64 - 4.57)
Site of Significant Obstructive Lesions				
Left Main Coronary Artery (LMCA), n (%)	6 (22.2)	2 (3.6)	**0.014**	7.57 (1.41 - 40.55)
Left Anterior Descending (LAD), n (%)	21 (77.8)	33 (60.0)	0.111	2.33 (0.81 - 6.71)
Circumflex Artery (Cx), n (%)	13 (48.1)	16 (29.1)	0.090	2.26 (0.87 - 5.87)
Right Coronary Artery (RCA), n (%)	12 (44.4)	18 (32.7)	0.301	1.64 (0.64 - 4.23)
ACC/AHA Lesion Classification				
Type A, n (%)	5 (19.2)	11 (20.8)	0.874	0.91 (0.28 - 2.96)
Type B1, n (%)	2 (7.7)	8 (15.1)	0.484	0.47 (0.09 - 2.39)
Type B2, n (%)	4 (15.4)	5 (9.4)	0.467	1.75 (0.43 - 7.14)
Type C, n (%)	7 (26.9)	9 (17.0)	0.302	1.80 (0.59–5.55)
Non-Identified (NI), n (%)	8 (30.8)	20 (37.7)	0.543	0.73 (0.27–1.99)

OR: Odds Ratio; CI: Confidence Interval; LMCA: Left Main Coronary Artery; LAD: Left Anterior Descending; Cx: Circumflex; RCA: Right Coronary Artery; ACC/AHA: American College of Cardiology/American Heart Association.

3.6. Revascularization Modalities

Revascularization strategies, including Percutaneous Coronary Intervention (PCI), Optimal Medical Therapy (OMT), or Coronary Artery Bypass Grafting (CABG), did not differ significantly between the two groups.

Nevertheless, the requirement for a Heart Team discussion was significantly more frequent in the diabetic group (29.6% vs 9.1%; OR = 4.21; 95% CI [1.22 - 14.49]; $p = 0.025$), reflecting the increased decision-making complexity in this population (Figure 1).



PCI: Percutaneous Coronary Intervention, OMT: Optimal Medical Therapy; CABG: Coronary Artery Bypass Graft.

Figure 1. Therapeutic strategies and revascularization modalities according to diabetic status.

4. Discussion

This study highlights the distinct clinical, angiographic, and therapeutic features of Coronary Artery Disease (CAD) among diabetic patients in Cameroon. Our results show that, compared to non-diabetics, diabetic patients present with significantly more extensive coronary involvement, characterized by a predominance of multivessel disease and more frequent Left Main Coronary Artery (LMCA) involvement. These observations confirm the heightened severity profile of diabetic CAD widely described in the international literature [5] [11].

Diabetes mellitus is a major and independent cardiovascular risk factor. It increases the risk of CAD by twofold to fourfold, independent of other traditional risk factors. This association is driven by complex pathophysiological mechanisms involving chronic hyperglycemia, insulin resistance, endothelial dysfunction, systemic inflammation, and accelerated atherosclerosis [4]. These mechanisms not only promote the progression of atheromatous plaques but also enhance their anatomical diffusion and complexity.

In our cohort, the significantly higher frequency of three-vessel disease in diabetic patients is consistent with prior research showing that diabetic CAD is often diffuse, multi-segmental, and preferentially affects distal segments [7]. This specific anatomical distribution largely explains the poorer prognosis observed in diabetic coronary patients, with an increased incidence of Major Adverse Cardiovascular Events (MACE) and higher long-term mortality [12].

A pivotal finding of our study is the striking association between diabetes and LMCA involvement. Diabetic patients in our Cameroonian cohort faced a more than sevenfold increased risk of LMCA lesions compared to non-diabetics (OR = 7.57; 95% CI [1.41 - 40.55]; $p = 0.014$). Several studies have previously reported this preferential involvement of critical proximal segments in diabetics, exposing these

patients to a high risk of left ventricular dysfunction and severe acute complications [7]. This lesion localization increases management complexity and justifies the frequent need for surgical revascularization or multidisciplinary consultation.

Clinically, we observed no significant difference in consultation delays or indications for coronary angiography between diabetic and non-diabetic patients. However, the literature emphasizes that silent myocardial ischemia is more prevalent in diabetics, contributing to diagnostic delays and more advanced clinical presentations [13]. This clinical peculiarity could partially explain the increased anatomical severity observed in our diabetic population.

Regarding associated risk factors, dyslipidemia was significantly more frequent among diabetic patients, confirming its central role in the pathophysiology of diabetic atherosclerosis [3]. Conversely, other cardiovascular comorbidities, such as hypertension and smoking, did not differ significantly between groups, suggesting that diabetes exerts its own independent aggravating effect on CAD beyond the accumulation of traditional risk factors.

Therapeutically, revascularization strategies—specifically PCI versus optimal medical therapy—did not differ significantly. However, the more frequent requirement for Heart Team discussions in diabetic patients (29.6% vs 9.1%) reflects the increased decision-making complexity arising from lesion diffusion and anatomical severity. Current international guidelines underscore the importance of a multidisciplinary approach for high-risk patients with multivessel or LMCA involvement [14].

Major clinical trials, notably the FREEDOM trial, have demonstrated the superiority of Coronary Artery Bypass Grafting (CABG) over Percutaneous Coronary Intervention (PCI) in diabetic patients with multivessel disease regarding long-term mortality and MACE [8]. Similarly, the SYNTAX trial highlighted higher rates of repeat revascularization in diabetic patients treated with PCI, particularly for complex lesions. Beyond revascularization, the emergence of new therapeutic classes, such as SGLT2 inhibitors and GLP-1 receptor agonists, has transformed management by demonstrating cardiovascular benefits independent of glucose-lowering effects [15].

Strengths and limits

Our study has several strengths, notably the detailed analysis of clinical and angiographic characteristics in a sub-Saharan African context where data remain limited [10].

However, the modest sample size and the observational nature of the study limit the generalizability of the results. In addition, detailed data regarding diabetes characteristics, such as disease duration, treatment modality, and glycemic control (HbA1c), were not systematically available in the registry. These factors may influence the severity and extent of coronary artery disease in diabetic patients. Also, due to the relatively small sample size, particularly the limited number of diabetic patients, multivariable regression analysis was not performed. Consequently, the associations observed should be interpreted cautiously, as potential confounding

factors could not be fully adjusted for. Finally, because of the cross-sectional design and the angiography-based sampling strategy, the present study identifies associations rather than causal relationships, and the findings may reflect a population with relatively high cardiovascular risk.

Despite these limitations, our findings provide original and pertinent data on CAD specificities in Cameroon, underscoring the urgent need for early detection and a multidisciplinary management approach tailored to this high-risk population.

5. Conclusion

In conclusion, this pioneer study in Cameroon demonstrates that diabetic patients present with a significantly higher burden of coronary artery disease compared to their non-diabetic counterparts. Our findings reveal a distinct angiographic phenotype characterized by a high prevalence of multivessel disease and left main coronary artery involvement. These anatomical complexities, often compounded by poorly controlled dyslipidemia, necessitate a systematic multidisciplinary approach through "Heart Team" discussions to optimize revascularization strategies. As the first report from the DéRICA registry, this work underscores the urgent need for intensified cardiovascular screening and aggressive risk factor management among the growing diabetic population in Sub-Saharan Africa.

AI Disclosure

Gemini AI was used for sound translation and reference verification.

Ethical Considerations

The study was conducted with approval from the Institutional Ethics Committee of Yaoundé General Hospital. Although a formal approval number was not assigned, the study was authorized by the hospital authorities. The study reporting followed the STROBE guidelines for observational studies.

Conflicts of Interest

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

References

[1] World Health Organization (2024) Cardiovascular Diseases (CVDs). WHO. https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)

[2] Magliano, D.J. and Boyko, E.J. (2021) IDF Diabetes Atlas, 10th Edition. International Diabetes Federation. http://www.ncbi.nlm.nih.gov/books/NBK581934/

[3] Brownlee, M. (2005) The Pathobiology of Diabetic Complications: A Unifying Mechanism. *Diabetes*, **54**, 1615-1625. https://doi.org/10.2337/diabetes.54.6.1615

[4] Beckman, J.A., Creager, M.A. and Libby, P. (2002) Diabetes and Atherosclerosis: Epidemiology, Pathophysiology, and Management. *JAMA*, **287**, 2570-2581. https://doi.org/10.1001/jama.287.19.2570

[5] Haffner, S.M., Lehto, S., Rönnemaa, T., Pyörälä, K. and Laakso, M. (1998) Mortality

from Coronary Heart Disease in Subjects with Type 2 Diabetes and in Nondiabetic Subjects with and without Prior Myocardial Infarction. *New England Journal of Medicine*, **339**, 229-234. https://doi.org/10.1056/nejm199807233390404

[6] Le Feuvre, C. (2009) Maladie coronaire chez les patients diabétiques. *La Presse Médicale*, **38**, 964-972. https://doi.org/10.1016/j.lpm.2009.02.013

[7] Goraya, T.Y., Leibson, C.L., Palumbo, P.J., Weston, S.A., Killian, J.M., Pfeifer, E.A., *et al.* (2002) Coronary Atherosclerosis in Diabetes Mellitus: A Population-Based Autopsy Study. *Journal of the American College of Cardiology*, **40**, 946-953. https://doi.org/10.1016/s0735-1097(02)02065-x

[8] Farkouh, M.E., Domanski, M., Sleeper, L.A., Siami, F.S., Dangas, G., Mack, M., *et al.* (2012) Strategies for Multivessel Revascularization in Patients with Diabetes. *New England Journal of Medicine*, **367**, 2375-2384. https://doi.org/10.1056/nejmoa1211585

[9] Wijns, W., Kolh, P., Danchin, N., Di Mario, C., Falk, V., Folliguet, T., *et al.* (2010) Guidelines on Myocardial Revascularization: The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTs). *European Heart Journal*, **31**, 2501-2555. https://doi.org/10.1093/eurheartj/ehq277

[10] Nkoke, C. and Luchuo, E.B. (2016) Coronary Heart Disease in Sub-Saharan Africa: Still Rare, Mis-Diagnosed or Underdiagnosed? *Cardiovascular Diagnosis and Therapy*, **6**, 64-66.

[11] The Emerging Risk Factors Collaboration, (2010) Diabetes Mellitus, Fasting Blood Glucose Concentration, and Risk of Vascular Disease: A Collaborative Meta-Analysis of 102 Prospective Studies. *The Lancet*, **375**, 2215-2222. https://doi.org/10.1016/s0140-6736(10)60484-9

[12] Rawshani, A., Rawshani, A., Franzén, S., Sattar, N., Eliasson, B., Svensson, A., *et al.* (2018) Risk Factors, Mortality, and Cardiovascular Outcomes in Patients with Type 2 Diabetes. *New England Journal of Medicine*, **379**, 633-644. https://doi.org/10.1056/nejmoa1800256

[13] Valensi, P., Pariès, J., Brulport-Cerisier, V., Torremocha, F., Sachs, R., Vanzetto, G., *et al.* (2005) Predictive Value of Silent Myocardial Ischemia for Cardiac Events in Diabetic Patients: Influence of Age in a French Multi-Center Study. *Diabetes Care*, **28**, 2722-2727. https://doi.org/10.2337/diacare.28.11.2722

[14] Cosentino, F., Grant, P.J., Aboyans, V., Bailey, C.J., Ceriello, A., Delgado, V., *et al.* (2019) 2019 ESC Guidelines on Diabetes, Pre-Diabetes, and Cardiovascular Diseases Developed in Collaboration with the EASD. *European Heart Journal*, **41**, 255-323. https://doi.org/10.1093/eurheartj/ehz486

[15] Rolek, B., Haber, M., Gajewska, M., Rogula, S., Pietrasik, A. and Gąsecka, A. (2023) SGLT2 Inhibitors vs. GLP-1 Agonists to Treat the Heart, the Kidneys and the Brain. *Journal of Cardiovascular Development and Disease*, **10**, Article 322. https://doi.org/10.3390/jcdd10080322