Trends in Diabetes, Obesity and Metabolism

Open access

Case Report

Magnitude and Determinants of Diabetic Retinopathy Among Diabetic Patients Attending Biet-Mekae Community Hospital

Aldiouma Guindo[1*], **Yeya dit Sadio Sarro**[1]

[1,2]*Department of Medicine, Centre de Recherche et de Lutte contre la Drépanocytose (CRLD), 03 BP 186 Bamako, Mali*

*Correspondence: Aldiouma Guindo, Department of Medicine, Centre de Recherche et de Lutte contre la Drépanocytose (CRLD), 03 BP 186 Bamako, Mali, E-mail: guindoal@hotmail.com, DOI: 10.1042/TDOM.3.1.0005

Abstract

Diabetic retinopathy is a progressive microvascular complication of diabetes mellitus and remains a leading cause of visual impairment and blindness among adults worldwide. It develops as a result of chronic hyperglycemia, which causes damage to retinal blood vessels, leading to increased vascular permeability, ischemia, and, in advanced stages, neovascularization.

Keyword: Diabetes mellitus, Diabetic retinopathy, Proliferative DR, Non-proliferative DR, HgbA1c

Received date: Feb 12, 2026; **Accepted date:** Feb 19, 2026; **Published date:** Feb 30, 2026

Citation: Aldiouma Guindo (2026) Department of Medicine, Centre de Recherche et de Lutte contre la Drépanocytose (CRLD), 03 BP 186 Bamako, Mali. TDOM, 3:1

Copyright: © 2026, Aldiouma Guindo. All intellectual property rights, including copyrights, trademarks rights and database rights with respect to the information, texts, images, logos, photographs and illustrations on the website and with respect to the layout and design of the website are protected by intellectual property rights and belong to Publisher or entitled third parties. The reproduction or making available in any way or form of the contents of the website without prior written consent from Publisher is not allowed.

Introduction

The rising global burden of diabetes has led to an increase in the number of individuals at risk of diabetic retinopathy, particularly in low- and middle-income countries where routine screening services may be limited. Early detection is essential, as the condition is often asymptomatic in its initial stages.

Variable	Description
Study design	Hospital-based cross-sectional
Population	Adults with diabetes mellitus
Study setting	Community hospital
Data collection	Interview, clinical examination, laboratory investigations
Primary outcome	Presence of diabetic retinopathy

Table 1: Baseline characteristics of study participants.

Identifying the prevalence and associated risk factors of diabetic retinopathy is crucial for designing effective screening and preventive strategies **[Table 1].**

Methods

A hospital-based cross-sectional study was conducted among diabetic patients attending a community hospital. Data were collected using structured interviews, clinical examinations, and relevant laboratory investigations.

Information regarding demographic characteristics, duration of diabetes, treatment history, blood pressure status, lipid levels, and glycemic control was obtained. Ophthalmologic examination was performed to diagnose and classify diabetic retinopathy

Category	Variables
Demographic	Age, sex
Clinical	Duration of diabetes, blood pressure, BMI
Laboratory	HbA1c, lipid profile
Lifestyle	Physical activity
Ophthalmic	Presence and severity of diabetic retinopathy

Table 2: Variables assessed during the study.

Statistical analysis was carried out to determine the prevalence of diabetic retinopathy and to identify factors independently associated with its development using regression models **[Table 2]**.

Results

Risk Factor	Association	Type
Long duration of diabetes	Strong	Non-modifiable
Poor glycemic control	Strong	Modifiable
Hypertension	Moderate–Strong	Modifiable
Dyslipidemia	Moderate	Modifiable
Older age	Moderate	Non-modifiable
Physical inactivity	Moderate	Modifiable

Table 3: Risk factors associated with diabetic retinopathy.

The study found that a considerable proportion of diabetic patients were affected by diabetic retinopathy. The condition was more frequently observed among patients with long-standing diabetes and those with poor glycemic control **[Table 3].**

Additional factors associated with increased risk included hypertension, dyslipidemia, older age, and low levels of physical activity. Patients with uncontrolled blood glucose levels showed a significantly higher likelihood of developing retinal complications compared to those with stable glycemic control.

Discussion

The findings indicate that diabetic retinopathy remains a significant public health concern among individuals with diabetes. The strong association between disease duration and retinopathy highlights the cumulative effect of prolonged hyperglycemia on retinal microvasculature.

Poor glycemic control emerged as a key modifiable risk factor, reinforcing the importance of maintaining optimal blood glucose levels to prevent complications. The role of hypertension and lipid abnormalities further suggests that diabetic retinopathy is influenced by multiple interrelated metabolic factors.

Lifestyle factors such as physical inactivity also contribute to disease progression, emphasizing the need for comprehensive management strategies.

Conclusion

Diabetic retinopathy is a common complication among diabetic patients and is strongly linked to both modifiable and non-modifiable risk factors. Early screening, strict glycemic control, blood pressure management, lipid regulation, and lifestyle modification are essential to reduce the risk of vision loss.

REFERENCES

1) Rathod AM, Verpaele S, Kelvin M, Leybourne MI. Uranium: An overview of physicochemical properties, exposure assessment methodologies, and health effects of environmental and occupational exposure. Environ Geochem Health. 2023;45(5):1183-1200.
2) Utting N, Namsechi B, McMullen C, Brydie J, Ahad JM. Comparing simulated shallow subsurface spills of diluted bitumen and conventional crude oil. J Contam Hydrol. 2022;251:104099.
3) Bolliet C, Kriech AJ, Juery C, Vaissiere M, Brinton MA, Osborn LV. Effect of temperature and process on quantity and composition of laboratory-generated bitumen emissions. J Occup Environ Hyg. 2015;12(7):438-449.
4) Ren Y, Zhang L, Duan W, Han Z, Guo J, Heydenrych MD, et al. Performance of bitumen coating sheet using biomass pyrolysis oil. J Air Waste Manag Assoc. 2020;70(2):219-227.
5) Mundt KA, Dell LD, Crawford L, Sax SN, Boffetta P. Cancer risk associated with exposure to bitumen and bitumen fumes: An updated systematic review and meta-analysis. J Occup Environ Med. 2018;60(1):e6-e54.
6) Choi E, Kim J. The association between work-life balance and health status among Korean workers. Work. 2017;58(4):509-517.
7) Bhargav H, Srinivasan TM, Varambally S, Gangadhar BN, Koka P. Effect of mobile phone-induced electromagnetic field on brain hemodynamics and human stem cell functioning: Possible mechanistic link to cancer risk and early diagnostic value of electronphotonic imaging. J Stem Cells. 2015;10(4):287.
8) Dutoit CE, Binet L, Fujii H, Lattuati-Derieux A, Gourier D. Nondestructive analysis of mummification balms in ancient Egypt based on EPR of vanadyl and organic radical markers of bitumen. Anal Chem. 2020;92(23):15445-15453.
9) Dew WA, Hontela A, Rood SB, Pyle GG. Biological effects and toxicity of diluted bitumen and its constituents in freshwater systems. J Appl Toxicol. 2015;35(11):1219-1227.
10) Keogh C, Wallace E, O'Brien KK, Galvin R, Smith SM, Lewis C, et al. Developing an international register of clinical prediction rules for use in primary care: A descriptive analysis. Ann Fam Med. 2014;12(4):359-366.