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Diabetes Mellitus Duration and Major Adverse Cardiovascular Events Following Percutaneous Coronary Intervention: A Prospective Cohort Study

By

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[Tariq, A](#) (Tariq, Ayesha) ^[1] ; [Bhatti, Z](#) (Bhatti, Zohra) ^[2] ; [Khan, AH](#) (Khan, Amer. H.) ^[3] ; [Laghari, M](#) (Laghari, Madeeha) ^[4] ; [Talpur, BA](#) (Talpur, Bandeh Ali) ^[5] ; [Aamir, M](#) (Aamir, Muhammad) ^[1] ; [Hussain, K](#) (Hussain, Khalid) ^[1]

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Source

INTERNATIONAL JOURNAL OF VASCULAR MEDICINE

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Volume: 2026 Issue: 1

DOI: 10.1155/ijvm/8260099

Article Number

8260099

Published

2026

Indexed

2026-09-05

Document Type

Article

Abstract

Objective: This study is aimed at evaluating the impact of Type 2 diabetes mellitus (T2DM) duration on major adverse cardiovascular events (MACEs) after percutaneous coronary intervention (PCI). Methods: A single-center prospective cohort study was conducted in which 465 T2DM patients undergoing PCI and completing the 1-year follow-up were enrolled. Patients were divided into three groups based on duration of DM: < 5 years, 5-10 years, and > 10 years. The primary endpoint was MACE, a composite of nonfatal myocardial infarction (MI), stroke, coronary artery bypass grafting (CABG), repeat PCI, and mortality. Results: The incidence of MACE increased progressively with longer diabetes duration: 3.7% (< 5 years), 8.1% (5-10 years), and 13.9% (> 10 years), with particularly higher rates of stroke (0.6%-3.0%) and repeat PCI (1.8%-6.0%) among T2DM patients after PCI. The Kaplan-Meier analysis demonstrated a clear stepwise rise in cumulative MACE incidence over 12 months, with the highest event rates observed in patients with diabetes for more than 10 years (log-rank $p < 0.004$). Consistently, Cox proportional hazards models showed significantly elevated risk compared with the < 5-year group, with adjusted hazard ratios of 3.16 (95% CI: 1.06-9.47, $p = 0.039$) for 5-10 years and 4.37 (95% CI: 1.59-12.01, $p = 0.004$) for > 10 years. Conclusion: Patients with longer duration (> 10 years) of T2DM had the highest incidence and hazard of adverse cardiovascular events compared to shorter duration (< 5 years and 5-10 years). These results suggest that targeted

preventive strategies and closer post-PCI monitoring are essential for patients with prolonged diabetes duration.

Keywords

Author Keywords: [duration of diabetes mellitus](#); [major adverse cardiovascular events](#); [percutaneous coronary intervention](#); [Type 2 diabetes mellitus](#)
Keywords Plus: [IMPACT](#); [RISK](#); [DISEASE](#); [MORTALITY](#); [OUTCOMES](#); [TRIAL](#)

Author Information

Corresponding Address: Bhatti, Zohra (corresponding author)

▼ Int Islamic Univ Malaysia, Dept Pharm Practice, Kulliyyah Pharm, Kuantan, Malaysia

Corresponding Address: Talpur, Bandeh Ali (corresponding author)

▼ Trinity Coll Dublin, Sch Comp Sci & Stat, Dublin, Ireland

E-mail Addresses :

zohrabhatti@iium.edu.my; talpurba@tcd.ie

Addresses :

▼ ¹ Univ Lahore, Dept Pharm, Lahore, Pakistan

▼ ² Int Islamic Univ Malaysia, Dept Pharm Practice, Kulliyyah Pharm, Kuantan, Malaysia

▼ ³ Univ Tabuk, Fac Pharm, Dept Pharm Practice, Tabuk, Saudi Arabia

▼ ⁴ Univ Sains Malaysia, Sch Pharmaceut Sci, Dept Clin Pharm, Gelugor, Penang, Malaysia

▼ ⁵ Trinity Coll Dublin, Sch Comp Sci & Stat, Dublin, Ireland

E-mail Addresses :

zohrabhatti@iium.edu.my; talpurba@tcd.ie

Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Categories/ Classification

Research Areas: Cardiovascular System & Cardiology

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Journal information

INTERNATIONAL JOURNAL OF VASCULAR MEDICINE

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ISSN	2090-2824
eISSN	2090-2832
Current Publisher	WILEY, 111 RIVER ST, HOBOKEN 07030-5774, NJ
Research Areas	Cardiovascular System & Cardiology
Web of Science Categories	Peripheral Vascular Disease

0.7

Journal Impact
Factor™ (2025)



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