

Introduction

- Major Adverse Cardiovascular Events (MACE) are the leading cause of mortality worldwide and in the United States of America¹
- Type II Diabetes mellitus (DM) is a well-known risk factor for MACE²
- Chronic low-grade inflammation can be seen in both diabetes and prediabetes³
- There is sparse research available examining the association between prediabetes and cardiovascular disease

Aims and Objectives

- To gain a better understanding of the overall progression of prediabetes
- To determine the incidence rates of MACE in patients with prediabetes, diabetes mellitus, and normal Hemoglobin A1c (HbA1c) levels
- To elucidate any associations between MACE and patients with prediabetes
- To analyze whether or not prediabetic patients are at an increased risk of MACE when compared to patients with normal HbA1c levels

Methods

- Retrospective analysis of patients at Beaumont Health, Michigan between 2006 and 2020.
- Divided patients into five groups based on their HbA1c trends over the study period
- Group 1: prediabetic (pDM) patients who remained pDM
- Group 2: pDM who progressed into DM
- Group 3: pDM who normalized their HbA1c
- Group 4: patients who maintained a normal HbA1c
- Group 5: patients with HbA1c persistently in the DM range.
- Analyzed and compared rates of MACE across all groups by univariate and multivariate regression analyses.

Results

Figure 1. A total of 119,271 patients were included in the final analysis and categorized into their respective group based on their initial and peak HbA1c throughout the study.

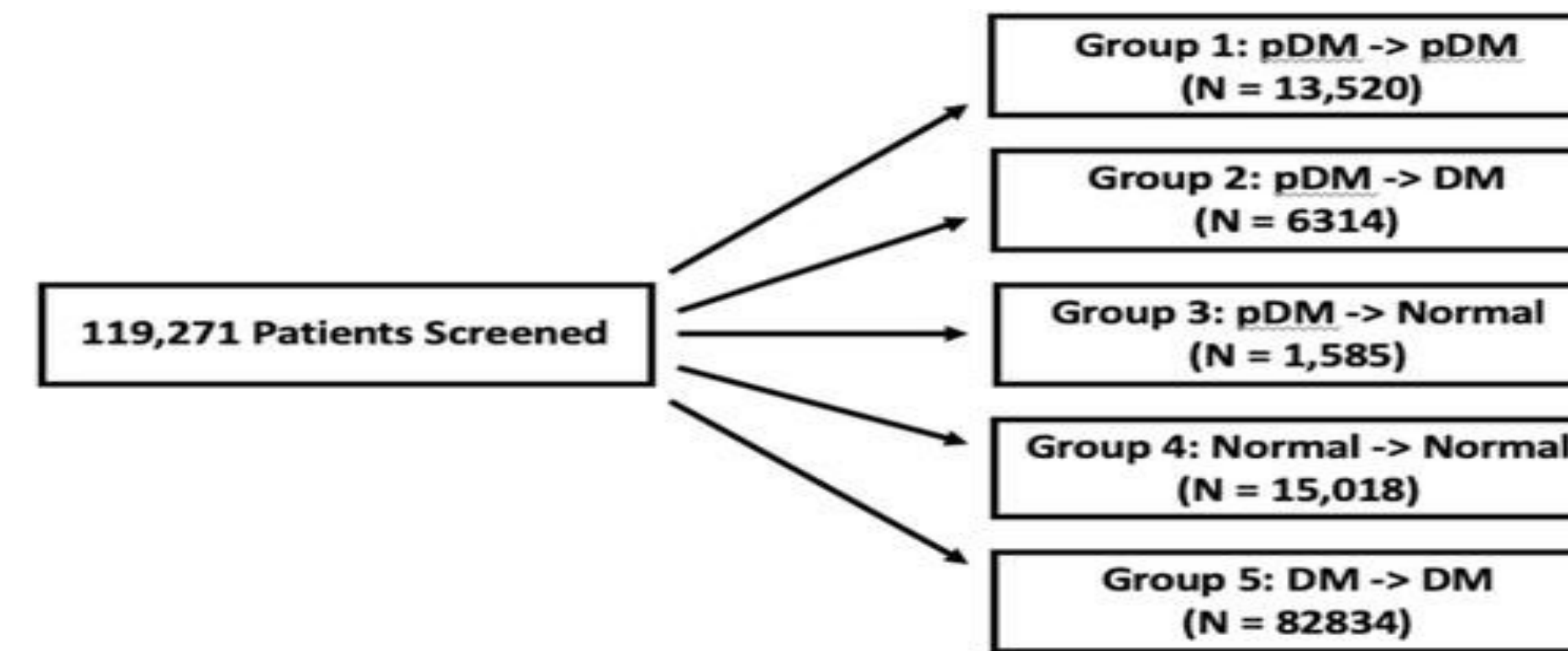


Figure 2. Kaplan–Meier’s survival curves of MACE and mortality according to HbA1c group. Unadjusted analysis showed that when compared to patients with normal A1c, prediabetic and diabetic patients had elevated risk for overall MACE and mortality. NL: Normal HbA1c ; pDM: prediabetes; DM: diabetes mellitus

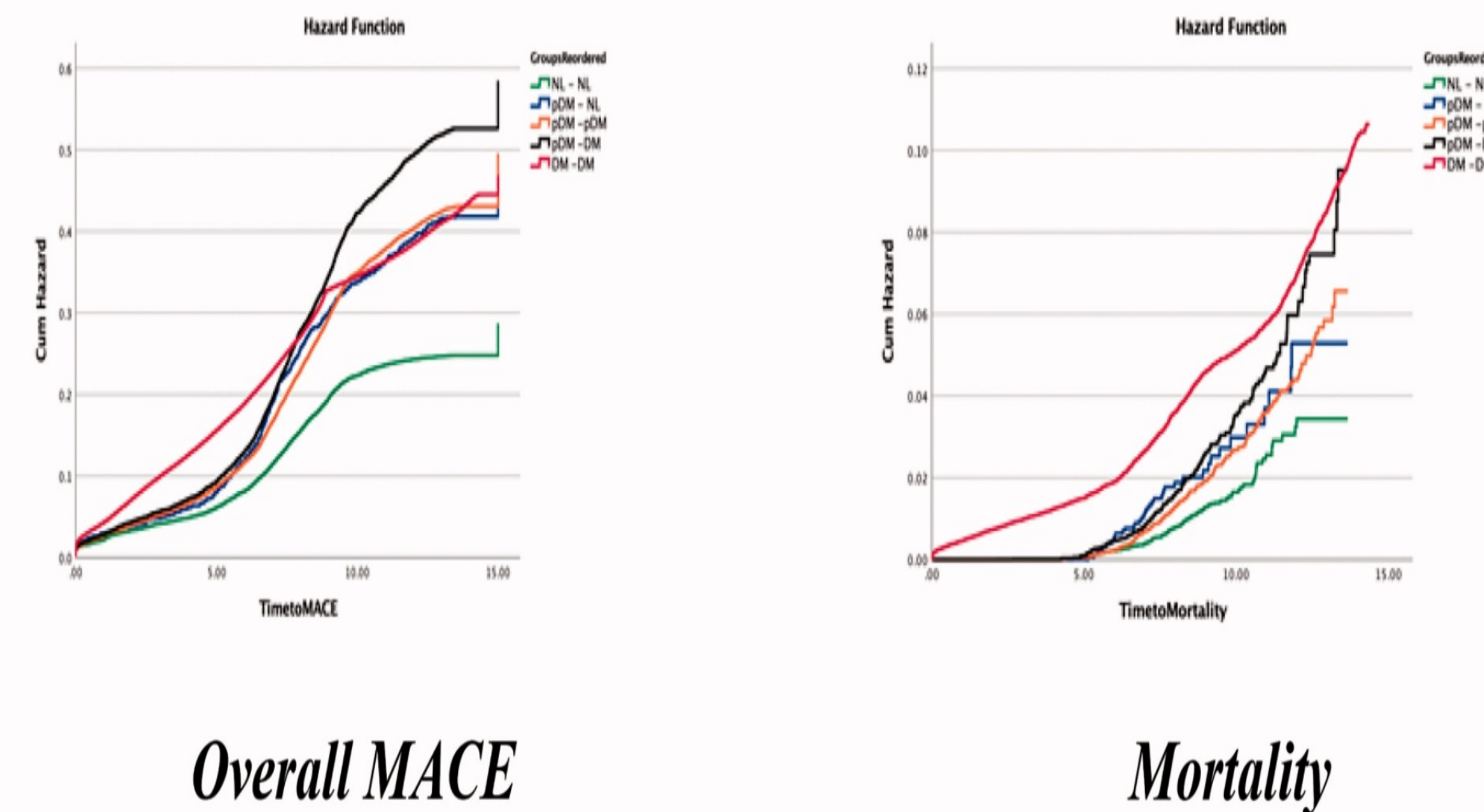
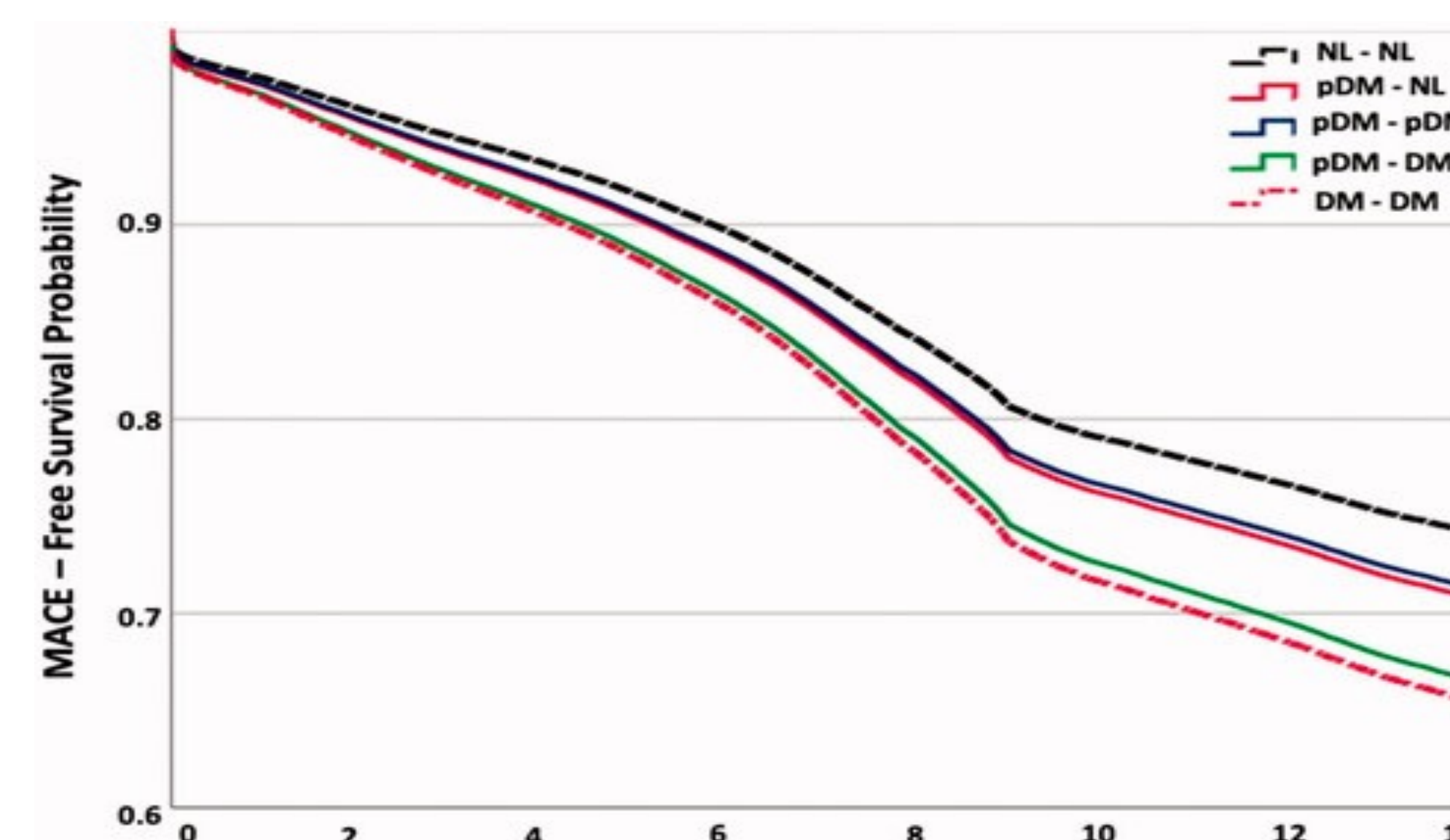


Figure 3. After adjusting for age, BMI, gender, hypertension, hyperlipidemia, atrial fibrillation, peripheral artery disease, CKD, COPD, smoking status and alcohol use in the logistic regression model, we have found an increased odds of MACE in group 1 and group 5



Conclusions

- Prediabetes is a risk factor for MACE
- Patients whose HbA1c decreased from the prediabetic range to normal range experienced fewer cardiovascular events compared to patients with persistent HbA1c in the prediabetic range
- Patients with prediabetes who progress into diabetes mellitus may represent a particularly high-risk group
- Prediabetes may very well be its own clinical entity with associated morbidity and mortality that is often left undertreated

References

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Acknowledgements

This study was supported by a Blue Cross Blue Shield Foundation grant. Statistical assistance was provided by Patrick Karabon, M.S. and Lihua Qu, Ph.D.