

Association of High-Sensitivity Cardiac Troponin I with Dementia Risk in Individuals with and without Type 2 Diabetes



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Glycaemic dysregulation and elevated hs-cTnI may jointly identify individuals at higher risk of incident dementia, with the highest risk observed among participants with type 2 diabetes and elevated hs-cTnI.

INTRODUCTION

Dementia is a growing public health challenge, with cardiometabolic dysfunction increasingly recognized as an important contributor to dementia risk.

High-sensitivity cardiac troponin I (hs-cTnI), a marker of subclinical myocardial injury, has been associated with dementia risk. However, whether this association varies across glycaemic status remains unclear.

This study examined hs-cTnI in relation to incident dementia across glycaemic status in the Whitehall II cohort.

METHODS

Exposure - hs-cTnI

- Hs-cTnI was measured at Phase 9 and categorized as ≤5.2 or >5.2 ng/L.

Outcome - Dementia

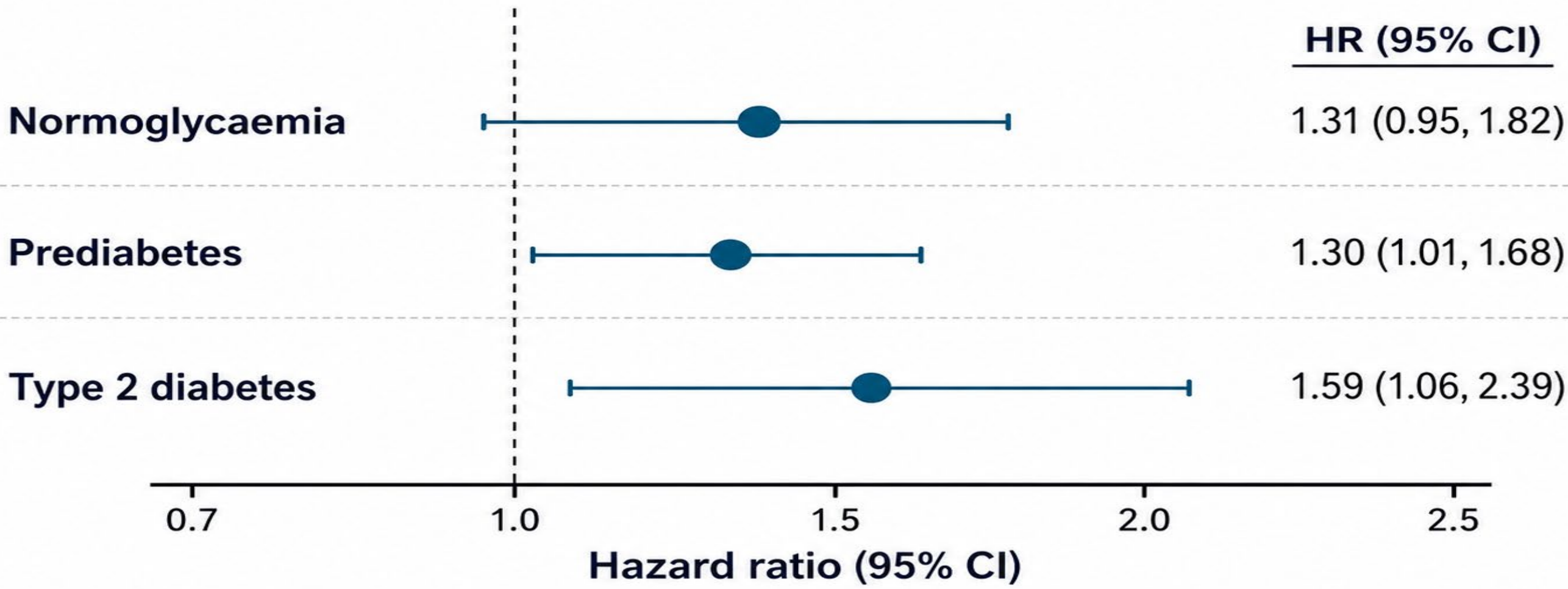
- Identified via linkage to national health records
- Standardized ICD-10 definitions

Statistical analysis

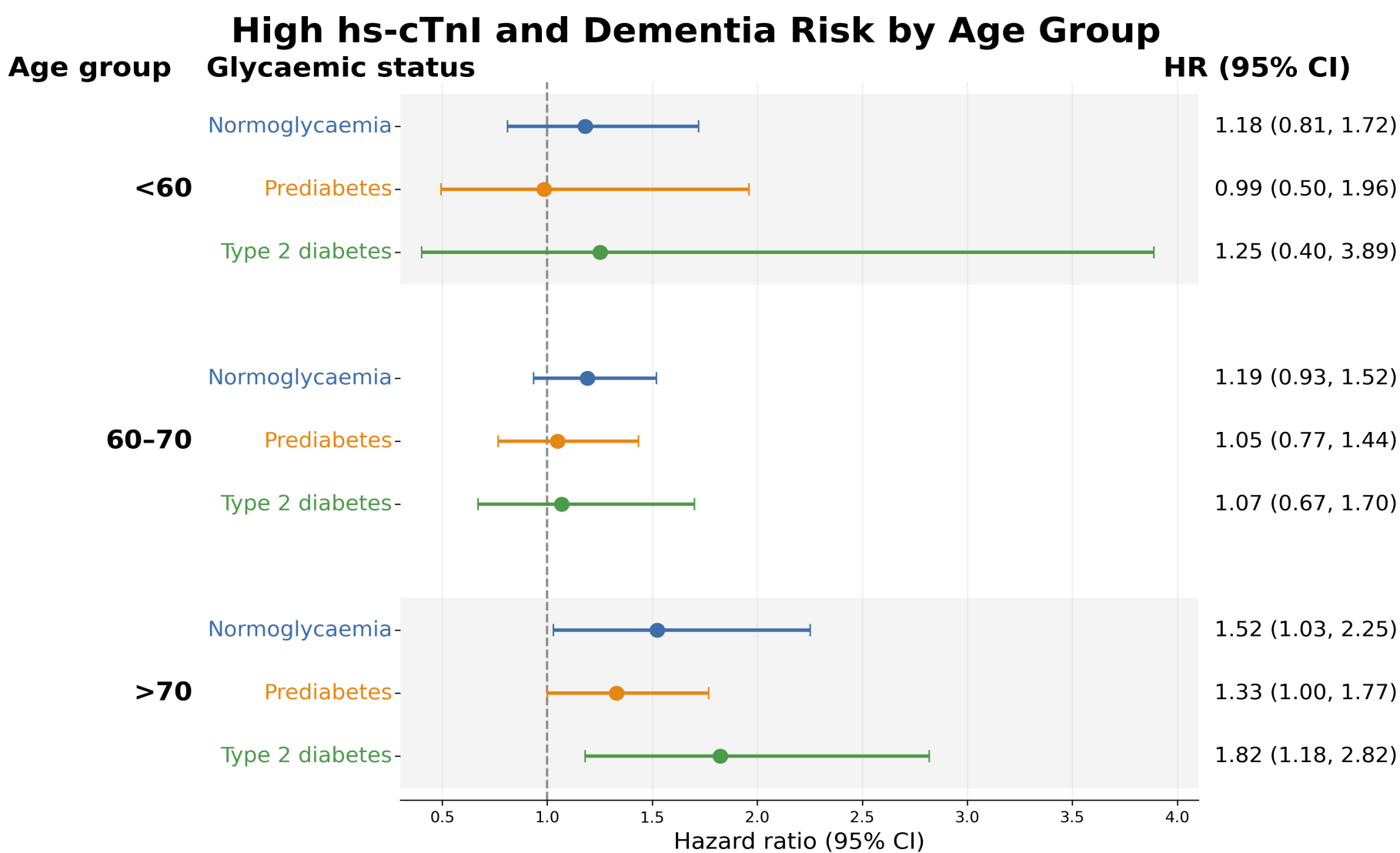
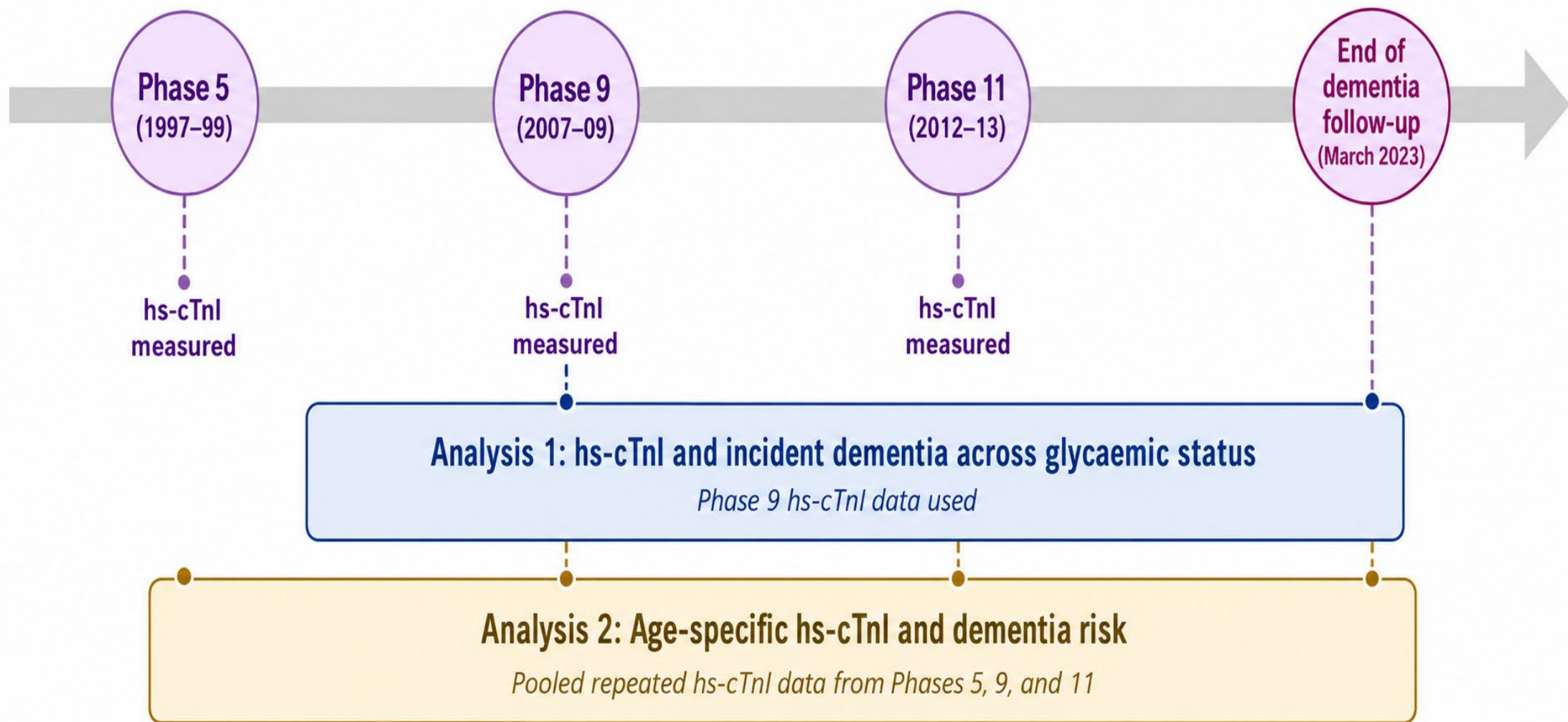
Cox models examined hs-cTnI and dementia risk within each glycaemic group. Among participants with type 2 diabetes, age-specific hs-cTnI were additionally assessed.

RESULTS

High hs-cTnI and Incident Dementia Risk



High hs-cTnI vs low hs-cTnI within each glycaemic group



CONCLUSION

Elevated hs-cTnI was associated with higher dementia risk, particularly among individuals with type 2 diabetes.

Among participants with type 2 diabetes, hs-cTnI elevation in later life was linked to greater dementia risk, suggesting that subclinical myocardial injury may help identify high-risk individuals.