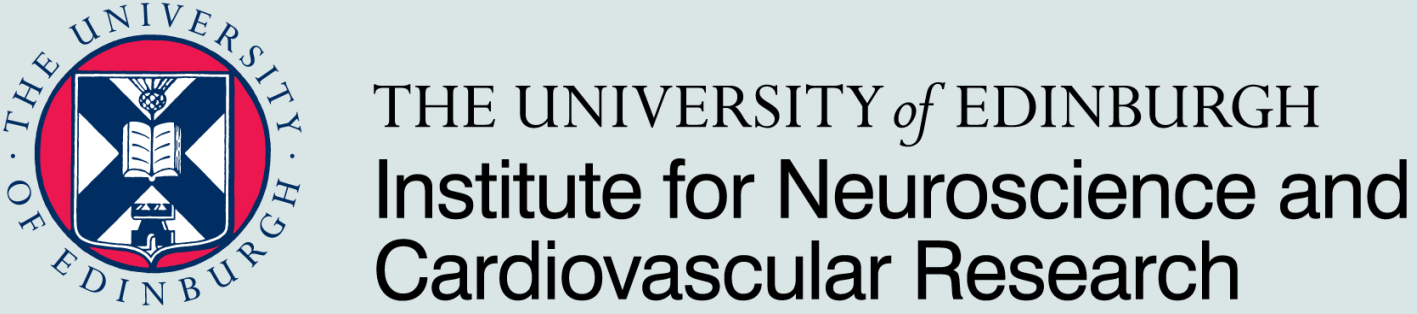


Deprescribing cardiovascular medications in adults with dementia: evidence from target trial emulation and cumulative exposure modelling

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Background

Aim: Estimate the causal treatment effect of deprescribing antihypertensives, antiplatelets, and statins among people with dementia.

People with dementia

- Are at high risk of drug side effects
- May have compromised adherence to medication instructions
- Are underrepresented in clinical trials

Where the risk-benefit balance of cardiovascular therapy is in doubt, one option is to withdraw or ‘deprescribe’ medication.

Methods

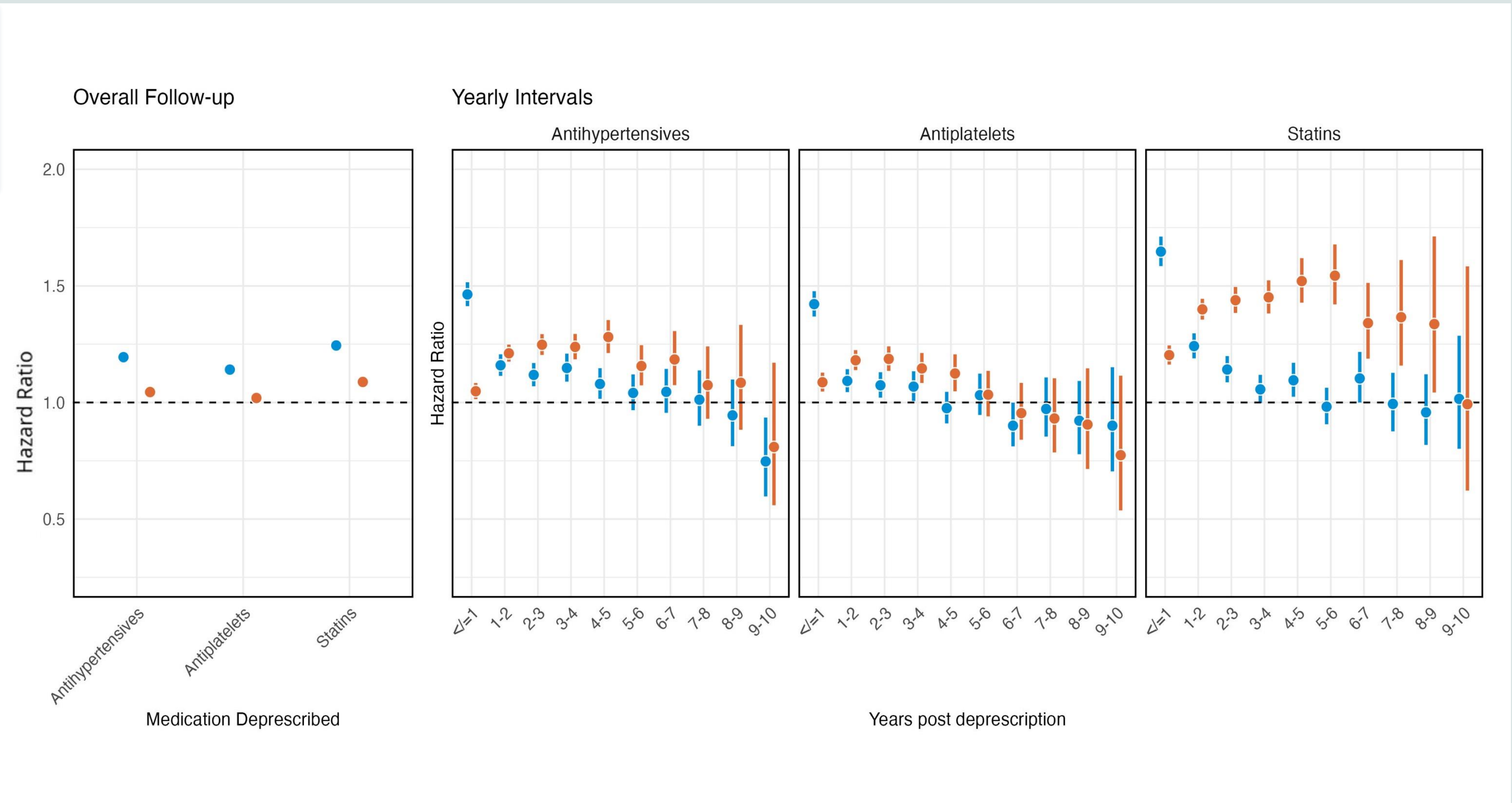
Using 2007-2021 Scottish electronic healthcare records, we

- 1) Estimated the **deprescribing treatment effect** using a matched cohort analysis embedded within a target trial emulation framework
- 2) Explored a **dose-response relationship** using a cumulative exposure study
- 3) Used a **negative control exposure** to determine the specificity of our findings.

122,070 individuals had a diagnosis of dementia, of whom 92,725, 75,896, and 77,570 had demonstrated continuous use of antihypertensives, antiplatelets and statins respectively for at least 1yr

All-cause mortality

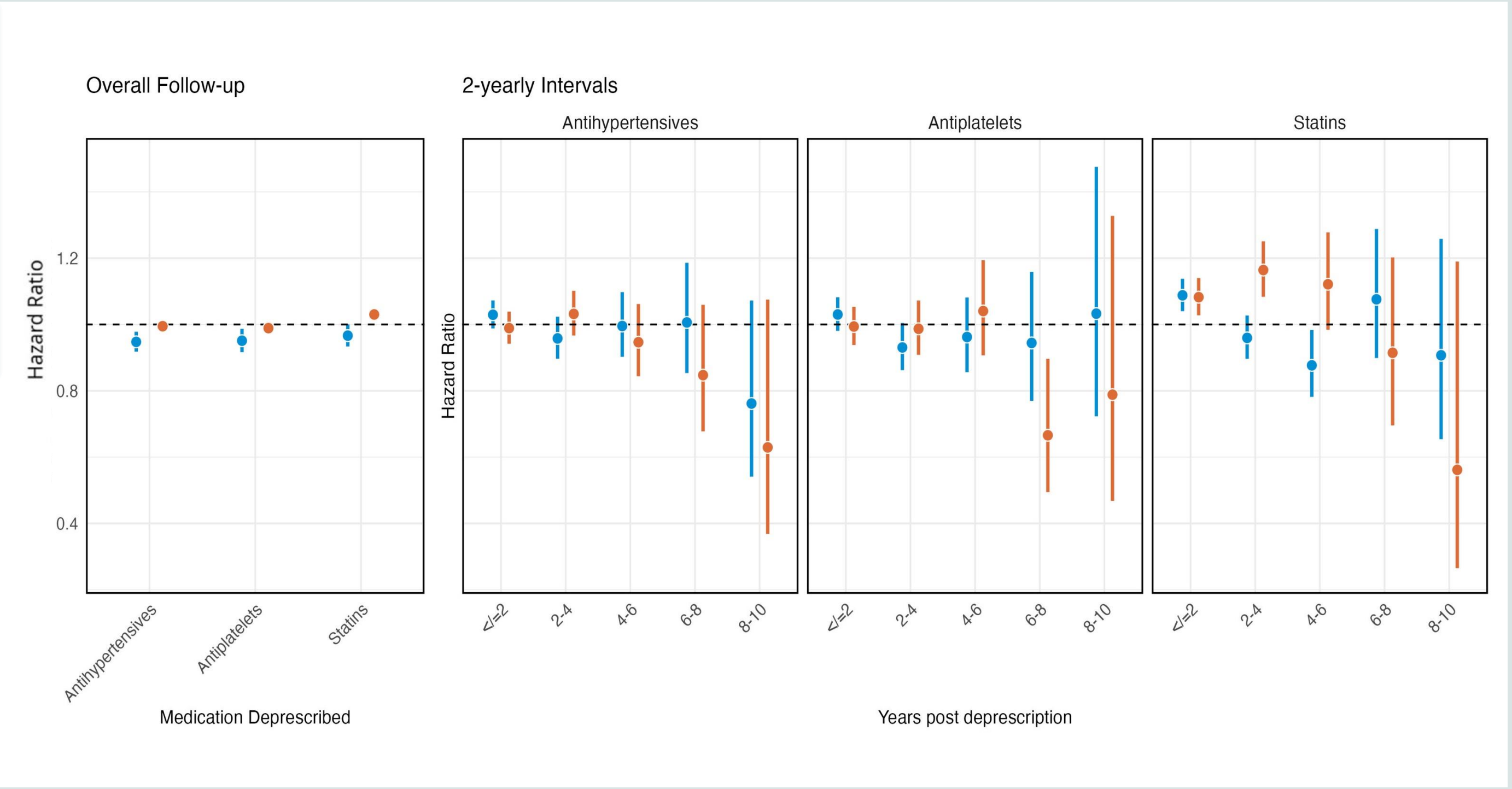
- Adjusted hazard ratio (aHR) for mortality was >1 across all medications over entire follow-up in both models
- aHR raised in the first 5-6yrs, followed by a decline with each additional year spent deprescribed



Major adverse cardiovascular events

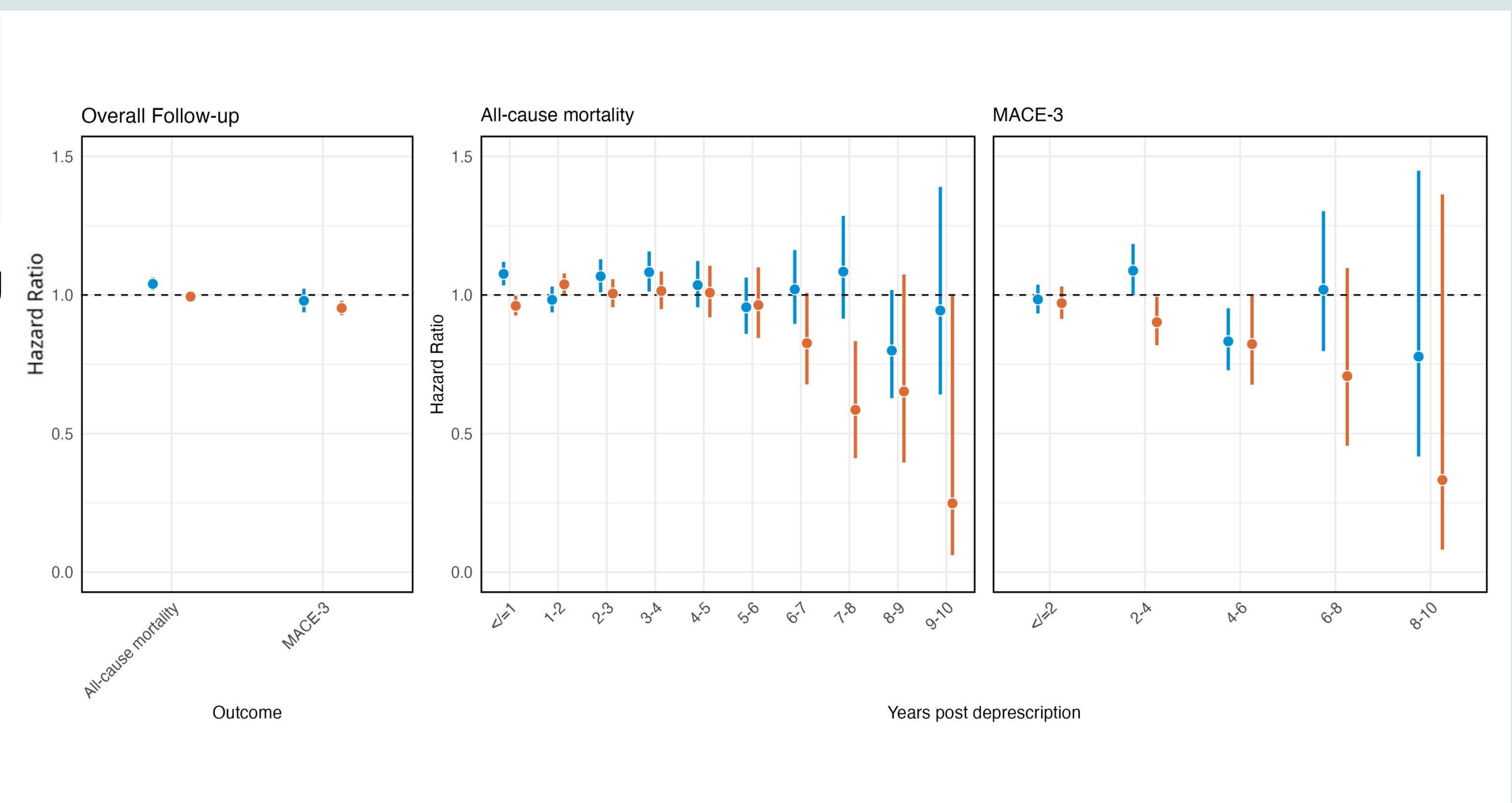
Stroke, Myocardial Infarction, Cardiovascular Death

- aHR was around null across all medications over entire follow-up
- General decline in aHR with each additional 2yrs spent deprescribed



Negative control exposure

- Paracetamol deprescribing used as a negative control exposure
- aHR was around null over entire follow-up for both outcomes
- Similar declining trend observed when treatment effect was allowed to differ over time



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Key:

Study

- Target Trial Emulation
- Cumulative Exposure

Discussion

Antihypertensive, antiplatelet, and statin deprescribing is not associated with an increased risk of major adverse cardiovascular events in adults with dementia

Across both study designs, we found that deprescribing any of antihypertensives, antiplatelets, or statins was associated with:

- 1) An overall higher risk of all-cause mortality, likely reflecting the context of the deprescribing decision
- 2) No increased risk of stroke, myocardial infarction, or cardiovascular death

While risk appeared to decline over time, negative control exposure analysis suggests this temporal trend may reflect residual confounding related to factors influencing deprescribing decisions

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