

Prevalence of high-risk plasma p-tau217 levels and 5-year transition of risk status in 70-year-olds

-The Gothenburg H70 Birth Cohort Study



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Introduction

Plasma p-tau217 at high-risk levels has been shown to predict amyloid- β pathology in Alzheimer's disease in both general populations and clinical samples (1,2). However, studies on the temporal dynamics of plasma p-tau217 in the general population is limited.

Aim

To examine the prevalence of high-risk plasma p-tau217 levels and the five-year transition rate in p-tau217 status among community-dwelling 70-year olds in Gothenburg, Sweden and assess the cognitive status for each risk group.

Method

We measured plasma p-tau217 in participants from the Gothenburg H70 Birth Cohort Study in Sweden (n=1157) when participants were 70 years old, and again 5-7 years later (n=771). Plasma p-tau217 concentrations were quantitatively measured using Lumipulse G p-tau217 cartridges (Lot: D4C5023) and substrate (Lot: 5050), based on chemiluminescent enzyme immunoassay (CLEIA) technology on the fully automated LUMIPULSE® G1200 platform (Fujirebio, Japan). Participants were also carefully characterized on overall health and cognitive performance. The prevalence of high-risk plasma p-tau217 status (>0.34 pg/mL), as well as the 5-7 year transition pattern was determined together with changes in cognitive performance.

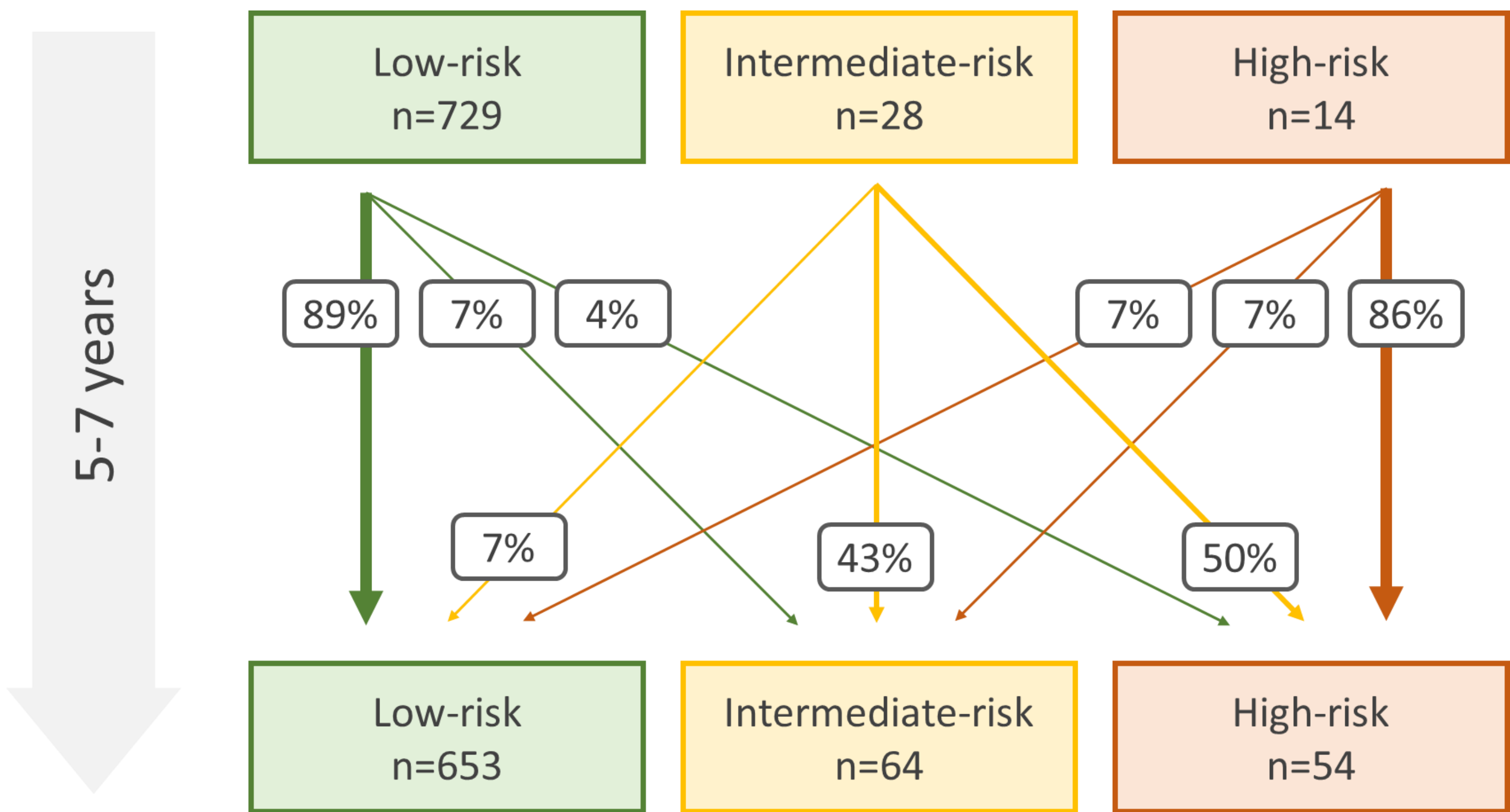


Figure 1 Five-year changes in risk of A β pathology, using plasma p-tau217 in the Gothenburg H70 Birth Cohort Study. Cut-offs for risk determination according to Palmqvist et al.(1).

Results

The prevalence of high-risk plasma p-tau217 levels was 3.6% at the age of 70 years. The absolute majority in the low-risk group (89%) remained in the low-risk group at follow-up, while only 4% converted to the high-risk group. Meanwhile, the prevalence of dementia at follow-up among participants transitioning to the high-risk group (21.4%) was more than 10-times higher than among participants remaining in the low-risk group (1.7%). For participants categorized to the high-risk group at baseline and remaining in the high-risk group over the follow-up period, the prevalence of dementia was 16.7% at follow-up. In the high-risk group, cognitively unimpaired individuals had a 27% incidence rate of progression to cognitive impairment defined by clinical dementia rating over the follow-up period.

Discussion

A low-risk plasma p-tau217 at the age of 70 will stay low for the majority of individuals. However, individuals transitioning to a higher risk-category had a higher prevalence of dementia at follow-up.

References

1. Palmqvist S, Warmenhoven N, Anastasi F, et al. Plasma phospho-tau217 for Alzheimer's disease diagnosis in primary and secondary care using a fully automated platform. *Nat Med* 2025; 31(6): 2036-43
2. Mielke MM, Frank RD, Dage JL, et al. Comparison of Plasma Phosphorylated Tau Species With Amyloid and Tau Positron Emission Tomography, Neurodegeneration, Vascular Pathology, and Cognitive Outcomes. *JAMA Neurol* 2021; 78(9): 1108-17.

TAKE HOME MESSAGE

A low-risk plasma p-tau217 at the age of 70 stays low for the vast majority. However, transitioning to a higher risk-category results in a higher prevalence of dementia after 5-7 years.

