

APOE ϵ 4 carriership status enhances age-related changes in Alzheimer's disease plasma biomarkers concentrations



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Introduction

- Common risk factors for AD are older age, female sex, and carriership of the *APOE* ϵ 4 allele.
- Plasma biomarkers can be used to detect AD pathology even in early disease stage.
- Little is known about how AD risk factors interact with each other to influence AD plasma biomarker concentrations.

Methods



Netherlands Twin Register (N = 6167)
 30 to 80 year old
 64% female
 30% *APOE* ϵ 4 carrier



Analyses 1 (Netherlands Twin Register):

- Biomarker concentrations over age with *APOE* ϵ 4 interaction.
- Biomarker concentrations over age with *APOE* ϵ 4 interaction, stratified on sex.
- Repeat of 1 and 2 with PRS_{AD}.



EMIF (N = 205)
 50 to 94 year old
 58% female
 33% *APOE* ϵ 4 carrier
 24% A β PET positive



Analyses 2 (EMIF):

- Biomarker concentrations over age with *APOE* ϵ 4 interaction.
- Biomarker concentrations over age with *APOE* ϵ 4 interaction, stratified on A β PET status.

Conclusion

- PRS_{AD} does not affect AD plasma biomarker concentrations in cognitively normal individuals.
- The effect of *APOE* ϵ 4 on p-tau217 is reflective of developing AD pathology and sex-specific.

Abbreviations

AD: Alzheimer's disease; A β PET: amyloid- β positron emission tomography; A β -42/40, amyloid- β -42/40 ratio; *APOE*: apolipoprotein E; p-tau217, phosphorylated tau-217; PRS_{AD}, AD polygenic risk score

Aim

Investigate how interactions between Alzheimer's disease genetic risk factors, age, and sex affect plasma concentrations of Alzheimer's disease biomarkers in cognitively normal individuals.

Results

