

Adiponectin and biomarker-confirmed Alzheimer’s disease in a tertiary memory clinic: A cross-sectional study

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INTRODUCTION: Adiponectin dysregulation has been implicated in Alzheimer’s disease (AD), but the respective roles of total and high -molecular-weight (HMW) adiponectin, as well as central versus peripheral mechanisms, remain unclear. We aimed to investigate the association between biomarker-confirmed AD and plasma total adiponectin, HMW/total adiponectin ratio, and CSF/plasma adiponectin ratio, used as an indirect marker of central–peripheral distribution. We also assessed correlations with CSF amyloid and tau biomarkers.

METHODS: In this monocentric cross-sectional study, 134 participants (90 AD, 44 controls) from a tertiary memory clinic were included. Plasma and CSF total adiponectin were measured by ELISA, and plasma HMW adiponectin by chemiluminescent immunoassay. Associations were analyzed using multivariate linear regression adjusted for age, sex, body mass index.

RESULTS

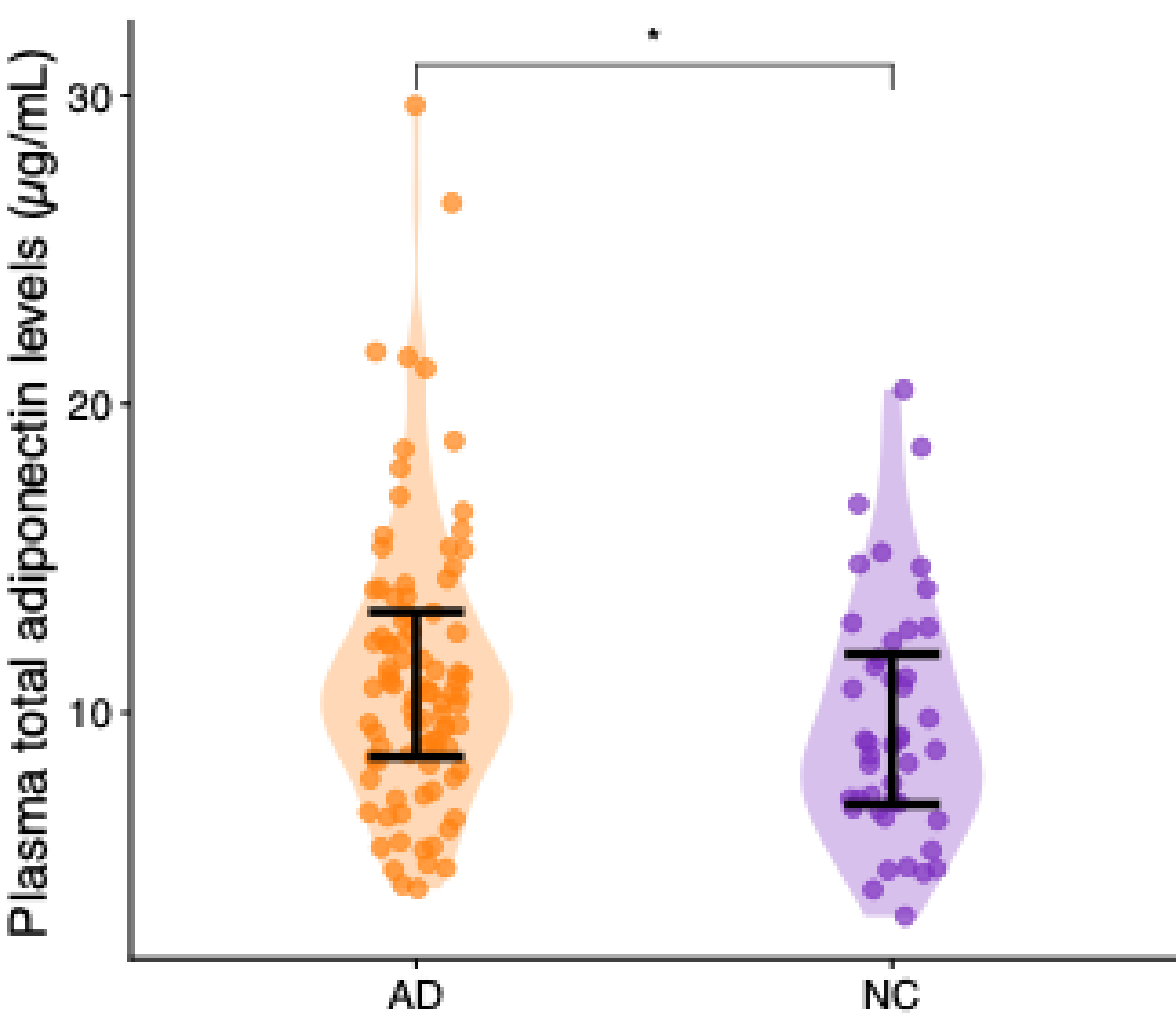
CONCLUSIONS

52.2% were women.

Median age 71 [63, 77] years old.

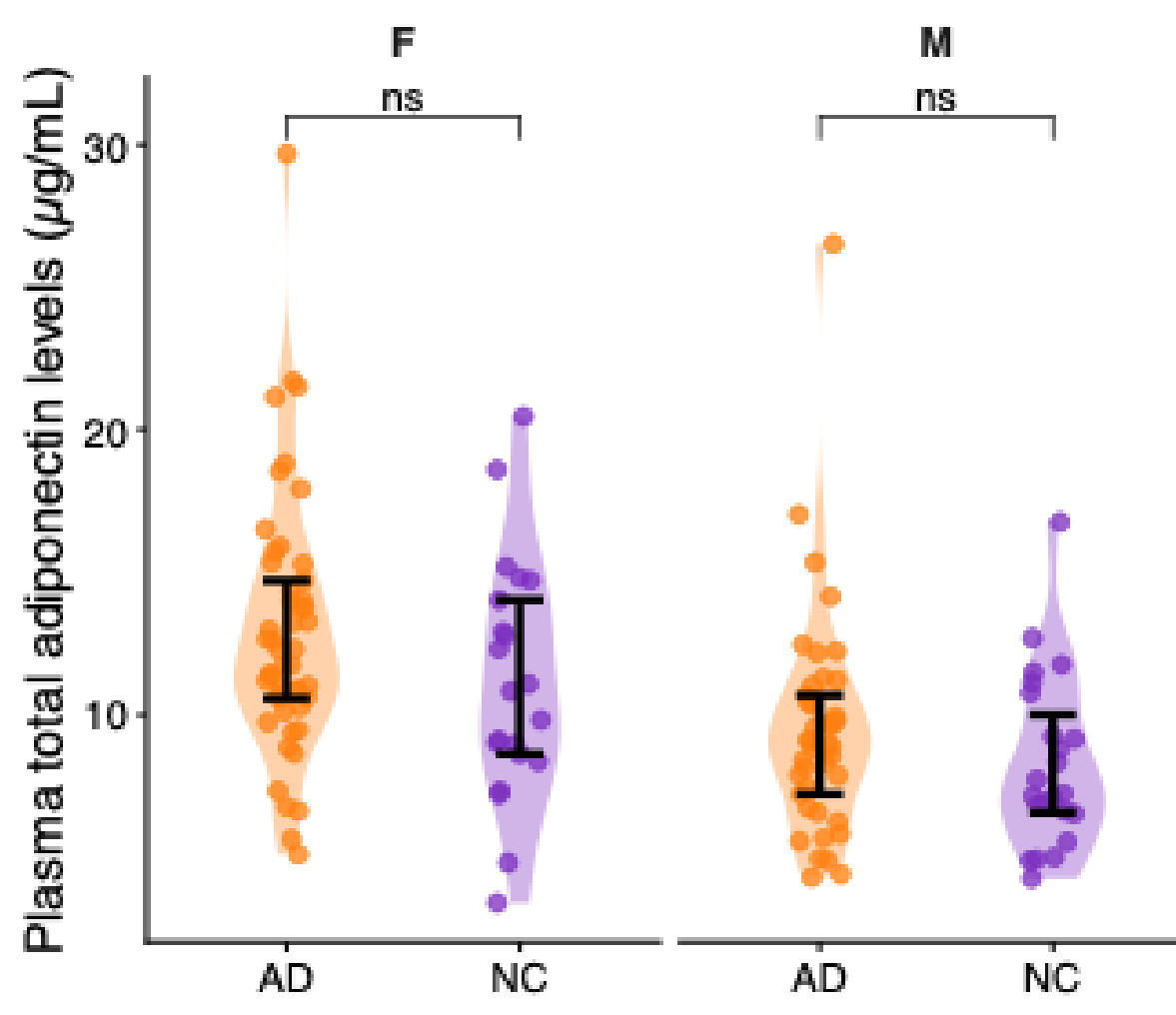
Compared with NC, patients with AD were older, more frequently female, displayed more frequent APOE ε4 carriership and showed lower MMSE scores (21 vs 27).

Plasma total adiponectin levels



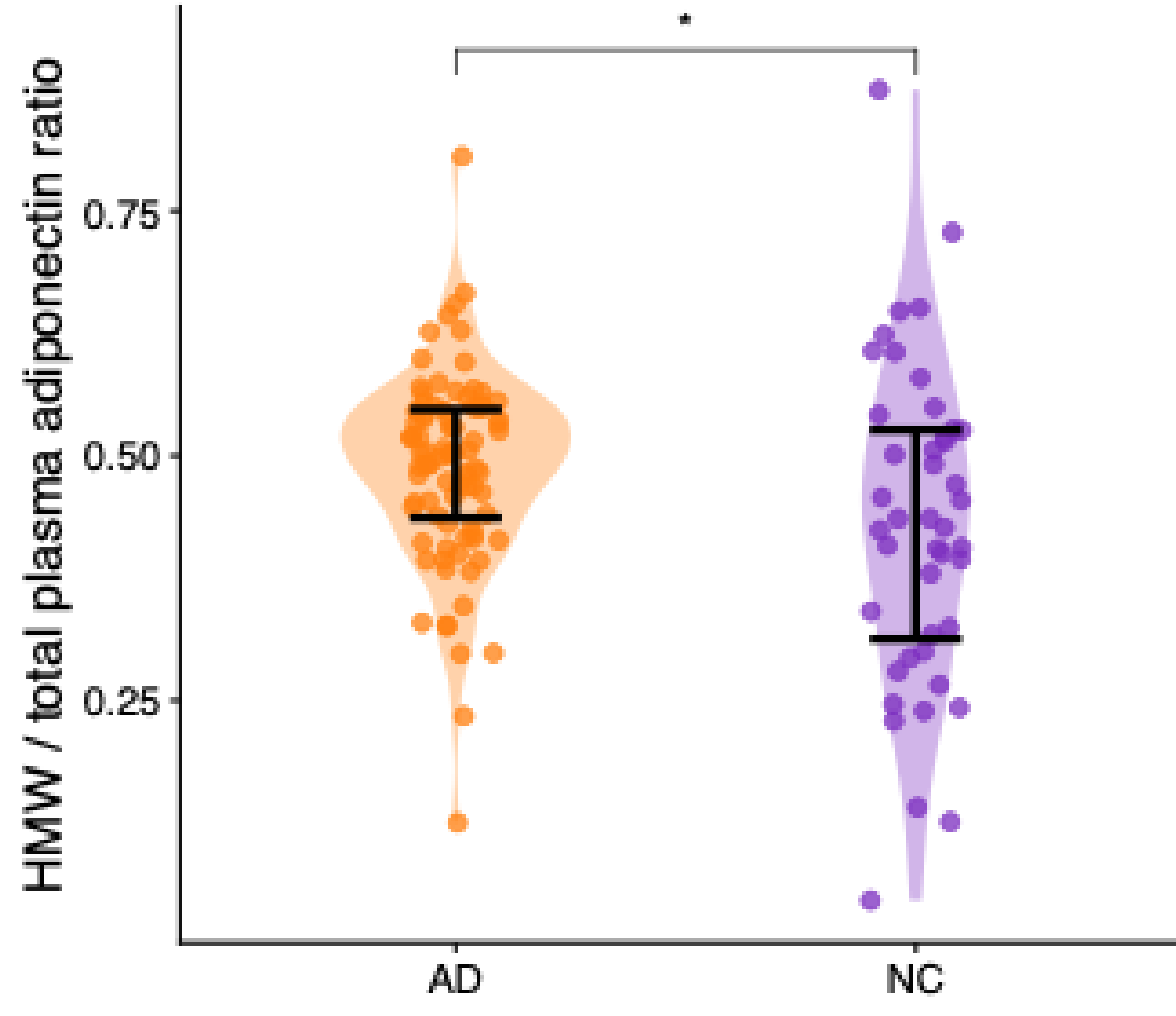
In a multivariate model adjusted for age, sex and BMI, the diagnosis of AD was no longer significantly associated with higher plasma total adiponectin levels ($\beta = 0.8$ (0.8), $p = 0.3$).

Plasma total adiponectin levels sex-stratified



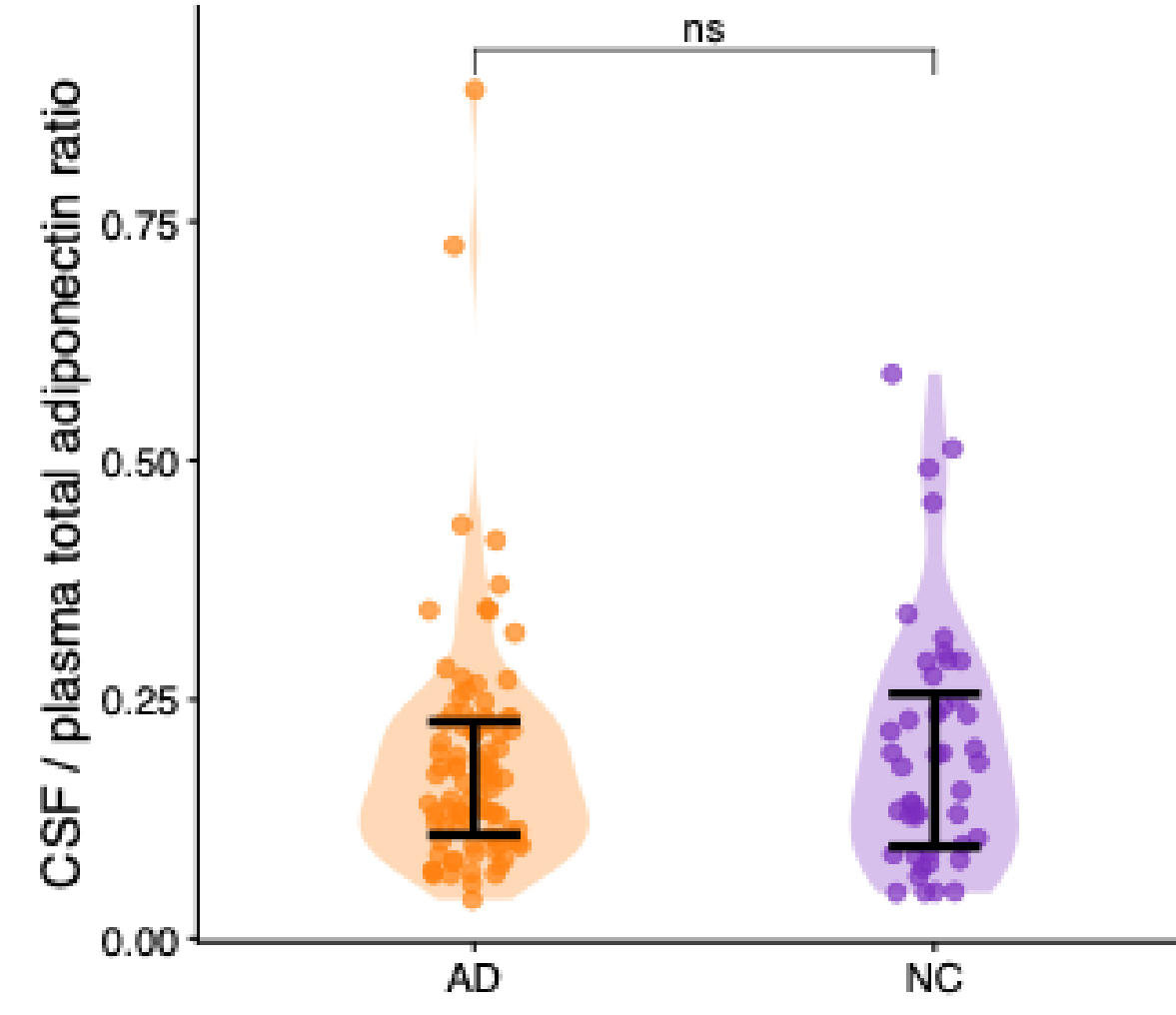
In a multivariate model adjusted for age, sex and BMI, the diagnosis of AD was no longer significantly associated with higher plasma total adiponectin levels ($\beta = 0.8$ (0.8), $p = 0.3$).

Adiponectin multimerization (HMW/total adiponectin ratios)



In a multivariate model adjusted for age, sex and BMI, the diagnosis of AD was no longer significantly associated with higher HMW/total adiponectin ratios ($\beta = 0.05$ (0.03), $p = 0.13$).

Adiponectin transport across the blood-brain barrier (CSF/plasma total adiponectin ratios)



Correlations between adiponectin and CSF amyloid and tau biomarkers in total population

No correlations were found.

Although adiponectin levels were elevated in biomarker-confirmed AD, this association was largely driven by age, sex, and BMI. Overall, adiponectin appears to reflect systemic metabolic and nutritional status rather than AD-specific pathophysiology.

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