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The association of insulin resistance and mild cognitive impairment in elderly patients with alzheimer's disease

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Abstract

Introduction: Insulin functions as a neuropeptide in the brain, and in the absence of diabetes mellitus (DM), its dysfunction is associated with a higher incidence of neurodegenerative diseases. Dysfunction in insulin secretion could have an adverse effect on the development of Alzheimer's disease (AD).

Objective: The association between insulin resistance (IR) and mild cognitive impairment (MCI) in elderly patients with AD has been studied.

Methods: This cross-sectional study examined 104 elderly patients with AD over 60 years old between February 2023 and September 2023. In addition to anthropometry, grip strength (as measured by a hand-held dynamometer), and past medical history, the Barthel index was used to monitor variations in impairment. The HOMA-IR, American Diabetes Association criteria, and CERAD-NB were used to assess IR, DM, and MCI.

Results: 104 elderly patients with AD (mean age: 72.6±8.2 years [range: 61–82]; 62 [59.6%] women; body mass index [28.6±4.8]) were enrolled. Among the comorbidities, 73 (70.2%) patients with systemic arterial hypertension had mean fasting blood glucose (96.8±22.7mg/dL), fasting insulin levels (12.4±6.9uIU/mL), and HbA1c (6.6±2.5%). Male patients with low education (RR, 5.6; 95% CI: 2.9–9.3, p<0.001), age ≥75 years (RR, 5.1; 95% CI: 2.9–8.5, p<0.001), decreased grip strength (RR, 2.4; 95% CI: 1.3–3.9, p<0.001), and decreased functionality (RR, 1.4; 95% CI: 1.8–3.8, p=0.03) were more likely to have MCI.

Conclusion: A higher prevalence of MCI at high index values with a J-curve was associated with IR. However, the association was influenced by factors such as low education and advanced age.

Keywords:

Insulin resistance; diabetes mellitus; alzheimer's disease; mild cognitive impairment; elderly.

Abbreviations:

Diabetes mellitus (DM); alzheimer's disease (AD); insulin resistance (IR); mild cognitive impairment (MCI).

Funding and Conflicts of interest:

No financial support was received for the study and the authors declare no conflicts of interest.