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89 - PLASMA CONCENTRATIONS OF ACYLCARNITINES AND RISK OF MULTIMORBIDITY IN OLDER ADULTS: A CASE-CONTROL STUDY

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Resumen

Background/Objectives: Several studies have compared plasma acylcarnitines and the risk of developing specific chronic diseases, but the relationship between different types of acylcarnitines and multimorbidity is uncertain. The aim of this study was to assess the association between acylcarnitine profiling and 5-year risk of incident multimorbidity in older adults.

Methods: This age-sex matched case-control study uses data nested in the Seniors-ENRICA II Spanish cohort, which comprises community-dwelling individuals aged 65 and older. A total of 26 acylcarnitine species were measured by liquid chromatography coupled to tandem mass spectrometry (LC-MS/MS). A global score in short-, medium-, and long-chain acylcarnitines was created. A total of 168 cases of incident multimorbidity were identified between 2017 and 2022, defined as having two or more of nine chronic diseases. For the controls, 168 participants without multimorbidity were selected, matched by sex and age. Conditional logistic regression models were used to assess the association between baseline acylcarnitine score and 5-year incidence of multimorbidity, after adjusting for socioeconomic characteristics and lifestyle covariates.

Results: The mean age of the participants was 72.2 years [standard deviation (SD) = 4.0], and 50.6% were women. Higher levels of acylcarnitine species were found among cases vs. controls for C3:0 ($p = 0.011$), C4:0 ($p < 0.001$), C5:0 ($p = 0.011$), C5-M-DC ($p = 0.04$) and C6:0 ($p = 0.006$). In the fully adjusted models, a significant association was observed between short-chain acylcarnitines and a higher risk of multimorbidity [odds ratio per 1-SD increase (95% confidence interval) = 1.32 (1.03, 1.69), $p = 0.030$]. No significant associations were observed for medium- and long-chain acylcarnitines.

Conclusions/Recommendations: Higher plasma concentrations of short-chain acylcarnitines were associated with higher risk of multimorbidity. This study highlights the importance of plasma acylcarnitines as potential biomarkers of multimorbidity in older adults.

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