



The association between AST/ALT ratio and modified HOMA-IR in participants of the 1993 Pelotas (Brazil) birth cohort

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INTRODUCTION

Nonalcoholic fatty liver disease (NAFLD) is a prevalent disease associated with insulin resistance and type 2 diabetes. NAFLD is usually marked by low aspartate aminotransferase (AST) and elevated alanine aminotransferase (ALT).

OBJECTIVE

To assess the association between AST/ALT ratio and modified homeostasis model assessment of insulin resistance (HOMA-IR) in young adults.

METHODS

Cross-sectional study based on the 22-year follow-up of the 1993 Pelotas (Brazil) birth cohort. AST and ALT were evaluated using kinetic UV IFCC LIQUIFORM kits. Modified HOMA-IR was calculated using $\text{insulin (microU/mL)} \times \text{glucose (mmol/L)} / 22.5$ and log-transformed. The analyses were adjusted for fasting period. The other co-variables taken into consideration were sex, body mass index, systolic blood pressure, diastolic blood pressure, cholesterol, serum urate, and excessive alcohol consumption (>8 points in AUDIT). Adjusted linear regressions have been performed using Stata 15.

RESULTS

The sample was composed of 1660 (47.7%) men and 1822 (52.3%) women aged 22.6 (± 0.34) years old. Median [25-75 IQR] modified HOMA-IR was 4.3 (2.2-8.8). Mean (\pm SD) AST/ALT ratio was 1.1 (± 0.2). The linear regression coefficient (95% CI) between modified HOMA-IR and AST/ALT ratio was -0.24 (-0.31; -0.17), $p < 0.001$. A significant linear tendency of modified HOMA-IR decreasing according to the tertiles of AST/ALT ratio was also observed.

CONCLUSION

AST/ALT ratio was negatively associated with modified HOMA-IR, even after adjusting for potential confounders. This finding reinforces that insulin resistance can be involved in the development of NAFLD since early adulthood.

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