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LETTER TO THE EDITOR

Liver enzyme levels in adolescents with obesity and insulin resistance: a commentary

Niveles de enzimas hepáticas en adolescentes con obesidad y resistencia a la insulina: comentario

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Dear Editor,

We read with great interest the article "Liver enzyme levels in adolescents with obesity and insulin resistance (IR): a propensity score matching analysis[1]."

This study effectively addresses obesity in adolescents, a significant concern in modern healthcare. With 365 participants aged 10-18 years, including 229 with IR, the research provides a robust sample size for meaningful analysis. This focused approach enables a deeper understanding of metabolic processes in this vulnerable population.

The study's comprehensive analysis of physical parameters, serum insulin, lipids, and liver enzymes-specifically aspartate aminotransferase (AST), alanine aminotransferase (ALT), and γ-glutamyl transferase-offers a holistic view of these adolescents' metabolic profiles. This multi-faceted approach is essential for understanding the complex interplay between obesity, IR, and liver function during adolescent development.

A key strength of this research lies in comparing liver enzyme levels between obese adolescents with and without IR. This comparative analysis helps isolate IR's specific effects on liver function, independent of obesity. Notably, the use of propensity score matching to eliminate body mass index impact on liver enzyme levels enhances the study's validity by controlling for a major confounding factor, thereby enabling a more precise assessment of the relationship between IR and liver enzyme levels.

The study's most significant finding reveals higher AST levels in the insulin-resistant group compared to the non-insulin-resistant group among obese adolescents. This suggests that AST might serve as a risk factor for IR, potentially offering new opportunities for early detection and intervention in pediatric metabolic disorders. The elevated serum ALT and AST levels observed in obese adolescents with IR further support this hypothesis, indicating that AST alterations may constitute a potential risk factor for IR development.

While AST levels could potentially serve as a biomarker for IR in obese adolescents, several limitations warrant consideration. The cross-sectional design demonstrates only an association between IR and liver enzyme levels, rather than establishing causality. Consequently, the study cannot definitively determine whether elevated transaminases cause IR or vice versa.

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In addition, the absence of non-alcoholic fatty liver disease (NAFLD) assessment in study participants represents a significant limitation. NAFLD is closely associated with both IR and elevated liver enzyme levels, particularly in obese populations. This omission creates uncertainty in interpreting the observed liver enzyme elevations, as increased AST and ALT levels might indicate underlying NAFLD rather than direct associations with IR. Future studies should incorporate NAFLD screening to better elucidate these relationships.

Reference

1. Villasis-Keever MA, Zurita-Cruz JN, Nava-Sanchez KD, Barradas-Vázquez AS, López-Beltran AL, Espíritu-Díaz ME, et al. Liver enzyme levels in adolescents with obesity and insulin resistance: a propensity score matching analysis. Bol Med Hosp Infant Mex. 2024; 81:225-31.