NEW INSIGHTS INTO THE ASSOCIATION BETWEEN CARDIOMETABOLIC INDEX WITH METABOLIC PROFILE, NUTRITIONAL STATUS, AND INFLAMMAGING IN OLDER ADULTS

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INTRODUÇÃO

Population aging is rapidly increasing worldwide, with adults over 60 projected to reach 2.1 billion by 2050, yet greater longevity does not necessarily translate into better health due to the rising burden of chronic non-communicable diseases. Aging is closely linked to inflammaging, a chronic low-grade inflammatory state driven by pro-inflammatory cytokines and exacerbated by visceral adiposity and obesity-related metaflammation, which together increase cardiometabolic risk. The Cardiometabolic Index (CMI), combining triglycerides, HDL-cholesterol, and waist-to-height ratio, has been proposed as a predictor of cardiovascular and metabolic disease, but its relationship with systemic inflammation in older adults remains unclear. Therefore, this study investigated the association between CMI and the triad of metabolic profile, BMI, and inflammaging in older adults with and without obesity.

RESULTADOS E DISCUSSÃO

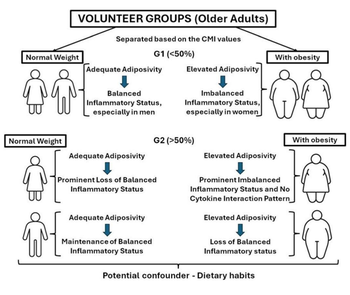
Initially, the volunteers were separated according to the CMI values into two groups: G1 (<50% of the mean CMI value) and G2 (>50% of the mean CMI value). Volunteers in the G2 group, regardless of gender, presented not only lower HDL-c values but also higher weight, BMI, levels of total cholesterol, LDL-c, triglycerides, and the triglycerides to HDL ratio (TG/HDL) than the G1 group. The correlation analysis and linear multivariate regression, with CMI-adjustment, showed a significant positive association with BMI, as well as with pro-inflammatory cytokines, both in the G1 and G2 groups, regardless of gender. After that, the volunteers were separated according to BMI into normal weight and those with obesity. In general, the G2 subgroups with obesity showed higher levels of pro-inflammatory cytokines IL-1β, IL-6, IFN-γ, and TNF-α than the respective G1 subgroups, and also an association of CMI in favor of a pro-inflammatory systemic status, particularly in the older women group.

METODOLOGIA

This retrospective cross-sectional study included 132 adults aged 60–90 years with fasting serum and clinical data collected in 2019 at the Universidade Federal de Alfenas (Brazil), with ethical approval. Participants were stratified by Cardiometabolic Index (CMI), and anthropometric and self-reported clinical data were obtained. Serum glucose, lipid profile, triglycerides, total proteins, and cytokines (IL-1β, IL-6, IL-10, IFN-γ, TNF-α) were analyzed using colorimetric assays and multiplex flow cytometry. Statistical analyses included group comparisons, correlations, multivariate and backward regression (CMI as the dependent variable), principal component analysis to derive a Pro-inflammatory Gradient Score, ROC curves, and interaction models ($p \leq 0.05$).

CONCLUSÃO

In this cross-sectional study, our findings not only reinforce the potential role of CMI in cardiovascular risk assessment but also may putatively suggest that this index has an interesting association with systemic pro-inflammatory status in older adults, preferentially with obesity.



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