The Presence and Duration of Overweight Are Associated with Low-Grade Inflammation in Prepubertal Chilean Children

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Resumen

Background: Overweight is associated with low-grade inflammation, but it is under debate whether the effect of fat mass accumulation is acute or chronic. We aimed to study the association of overweight duration with low-grade inflammation in children in whom overweight initiation can be established.

Methods: Observational longitudinal study, including a subsample of 250 Chilean children from the Growth and Obesity Cohort Study followed-up yearly since preschool age (n = 1195). At 4 years, 324 children provided blood. From those, 272 participants were evaluated at 7 years. The current analysis includes 250 children with a blood sample at 4 and 7 years of age and C-reactive protein (CRP) <5mg/L. Anthropometric data (0-4 years) were obtained from health records and measured thereafter; sex-and age-specific body mass index Z-scores (BAZ) were computed. Among overweight (BAZ >= 1) participants at 7 years, the duration of overweight (time since diagnosis) was computed and categorized according to tertiles: <36, 36-<72, or >= 72 months. The independent association between overweight (diagnosis and duration) and low-grade inflammation (CRP >= 1mg/L) was studied (logistic regression models).

Results: Overweight was associated with CRP >= 1 mg/L at 7 years [odds ratio (OR) = 2.93 confidence interval (95% CI = 1.60-5.38)], but not at 4 years [OR = 1.26 (95% CI = 0.71-2.26)]. An overweight duration < 36m was independently associated with CRP >= 1 mg/L [OR = 3.53 (95% CI = 1.21-10.28)] (reference = normal weight), whereas longer overweight durations (36-<72 or >= 72 m) were not associated with CRP >= 1 mg/L [OR = 1.35 (95% CI = 0.41-4.40) and OR= 1.21 (95% CI = 0.35-4.18), respectively].

Conclusions: Overweight at 7 years of age was associated with low-grade inflammation only in the

case of recent onset. Inflammatory disturbances may be associated with the early phases of excess weight.

Palabras clave

Palabras clave de autor:C-reactive protein; inflammation; overweight; children
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