INPLASY

C-Reactive Protein as a Marker of Inflammation in Children and Adolescents with Metabolic Syndrome

INPLASY2023100032
doi: 10.37766/inplasy2023.10.0032
Received: 07 October 2023
Published: 08 October 2023

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ADMINISTRATIVE INFORMATION

Support - University of Medicine and Pharmacy of Craiova.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2023100032

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 October 2023 and was last updated on 08 October 2023.

INTRODUCTION

Review question / Objective The goal is to synthesize the data published on this topic and draw a conclusion regarding the usage of CRP or hsCRP in identifying and monitoring low-grade inflammation in children with Metabolic syndrome (MetS).

Condition being studied Metabolic syndrome (MetS) is a risk factor for type 2 Diabetes Mellitus (T2DM), and cardiovascular diseases (CVD). According to some recent data it is strongly associated with Non-Alcoholic Fatty Liver Disease. CRP is a protein synthesized by the liver its levels rise with inflammation. It has been intensely studied in the adult population, however, since the global epidemic of obesity is affecting children.

METHODS

Participant or population The types of the participants include children with metabolic syndrome.

Intervention No intervention was evaluated in our review.

Comparator We compared hsCRP and CRP between children with MetS and healthy children or obese children.

Study designs to be included We excluded case-report articles, review articles, meta-analyses, abstracts without accessible full-text articles.s or letters.

Eligibility criteria We included fulfilling the following criteria: (1) studies on children and/or adolescents with MetS; (2) studies having both a MetS group and a control group with healthy or obese subjects; (3) hsCRP or CRP was measured for both the MetS and the control group; (4) the MetS group was diagnosed using an internationally accepted definition. Exclusion criteria included (1) case-report article, review article, meta-analyses, abstracts, opinions or letters, (2) incomplete data or lack of measuring hsCRP or CRP for all the MetS or control subjects, (3) only abstract (without accessible full-text article), (4) studies that examined patients with other chronic or acute pathologies, (5) studies that involved only animals and/or ex vivo samples, (6) studies of low methodological quality, (7) studies with insufficient data, and (8) studies in languages other than English.

Information sources We systematically searched PubMed, SCOPUS, MEDLINE, Cochrane Central Register of Controlled Trials and the ISI Web of Science, for studies in children and adolescents with MetS, where hsCRP or CRP were measured.

Main outcome(s) The main outcomes were hsCRP and CRP measured for children with MetS.

Quality assessment / Risk of bias analysis The quality assessment of included studies was performed using the Newcastle–Ottawa Quality Assessment Scale (NOS) for observational studies (cross-sectional, case–control, or cohort), scoring them from 1 to 9. The risk of bias was assessed with the rank correlation test Begg's and Egger's Regression tests, and the funnel plots.

Strategy of data synthesis Statistical analysis was carried out by pooled mean differences (MD) and associated 95% CI. The Z test was used for determining the significance of pooled MD, visually displayed with forest-plots. The amount of heterogeneity was estimated using tau^2, the Q-test, and the I^2 statistic.

Subgroup analysis Sub-groups analysis was conducted only if necessary.

Sensitivity analysis Sensitivity analysis was conducted only if necessary.

Language restriction Only studies in English language were included.

Country(ies) involved Romania.

Keywords Metabolic syndrome; C reactive protein; inflammation; children; adolescents.

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