

INPLASY

Obesity and lung function in children with asthma – a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - N/A.

INPLASY registration number: INPLASY2023100079

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 October 2023 and was last updated on 23 October 2023.

INTRODUCTION

Review question / Objective The aim of this study was to observe the difference in lung function indicators between obese and non-obese asthmatic children, so as to verify the association between obesity and lung function in asthmatic children, and we selected a cross-sectional study with observational studies.

Condition being studied Obesity has become a true epidemic and a major public health problem. The World Health Organization notes that since 1975, global obesity rates have almost tripled. Asthma is the most common chronic disease in children. The role of environmental factors, comorbid atopy, genomic and biome influences, and social determinant of health all influence the incidence, prevalence, morbidity, and mortality of asthma.

In recent years, obesity has been recognized as a major risk factor for asthma and an independent risk factor for severe asthma.

Till now, there has been no consensus on the relationship between being overweight or obese and lung function in children with asthma.

METHODS

Participant or population The study is mainly staffed by two master's students and one doctoral supervisor.

Intervention We used obesity as an intervention indicator.

Comparator Overweight or obese children with asthma versus normal-weight group.

Study designs to be included Cross-sectional studies.

Eligibility criteria Inclusion criteria were: 1) observational studies in children with asthma assessing obesity and lung function; 2) Studies containing baseline data on obesity and lung function. Exclusion criteria were: 1) including research on diseases other than asthma and physiological obesity; 2) including studies of diseases or therapies that affect the subject's lung function; 3) included studies that only studied adults; 4) included studies that did not specify age; 5) Studies excluding asthma obesity and asthma non-obesity groups.

Information sources We searched PubMed, Cochrane Library, Embase, and Web of Science from 1968 to 2022 with no restrictions on language or publication status.

Main outcome(s) Pulmonary function indicators such as FEV₁, FVC, FEV₁/FVC, PEF and FEF₂₅₋₇₅.

Quality assessment / Risk of bias analysis The quality of each cross-sectional study was assessed by the Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis We use STATA v17 (StataCorp, College Station, TX) software for data processing. The dichotomous variables used relative risk (RR) and their 95% confidence interval (CI) as the effect size; Continuous variables are expressed as mean difference (MD) and their 95% CI. Heterogeneity between included studies was analyzed using χ^2 testing, and the size of heterogeneity was quantitatively judged according to I². If I² ≤ 50% and P ≥ 0.10, indicating low heterogeneity between studies, a fixed-effect model was used for meta-analysis; Instead, a random-effects model was used for analysis.

Subgroup analysis If heterogeneity is shown in our analyses, we will analyse them in subgroups, by sex; Age; Subgroup analyses were carried out for nationality, etc.

Sensitivity analysis Where there was significant heterogeneity in the analyses, we used the method of excluding individual documents one by one to perform sensitivity analyses for study outcomes.

Country(ies) involved China.

Keywords Obesity; Childhood; Lung function; Asthma; Meta-analysis.

Contributions of each author

Author 1 - Bo Sun: conceptualization, data curation, formal analysis, software, visualization, writing - original draft, writing - review & editing.

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