Is there a gender-specific association between asthma and carotid intima media thickness in Swiss adolescents?

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Respiratory diseases are associated with increased cardiovascular risk in adults, but little is known on the early impact on the vasculature in youth. The SAPALDIA Youth study, the offspring study of the Swiss Study on Air Pollution and Lung and Heart Disease In Adults (SAPALDIA), investigated the association between physician-diagnosed asthma status and common carotid artery intima media thickness (CIMT). Offspring underwent standardized clinical protocols and provided information on early life factors, health, and lifestyle. The association between per subject averages of CIMT and asthma was estimated using mixed linear regression analyses adjusting for main confounders, testing for interaction with gender and age. Of 257 offspring (mean age 15ăyears, 53% female), 11.5% reported doctor-diagnosed asthma (male 17%, female 7%). Mean CIMT was significantly different by gender (male 0.53ămm (ś 0.045), female 0.50ămm (ś 0.048); $p < 0.001$). Interaction was highly significant by gender ($p = 0.001$) with significantly increased CIMT in asthmatic vs. non-asthmatics boys (difference 0.023ămm, 95% CI 0.003; 0.043), as compared to girls.; Our study suggests an increased risk for early vascular change in adolescent asthmatic boys. Whereas the small number of girls limits the interpretation, the result necessitates further research into sex-specific atherosclerotic burden related to respiratory health in adolescence. What is Known: •Evidence points to a significant impact of adult respiratory disease on cardiovascular health indicators as well as on endpoints. •Inflammation is a key pathway in vascular change across the life course. What is New: •We observe an adverse association between physician-diagnosed asthma and carotid intima media thickness in adolescent boys. •Albeit a limited number of asthmatic girls, we hypothesize the gender typical timing of asthma or a higher male cardiovascular vulnerability as possible explanations for the gender-specific results.
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