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Title: Maternal obesity and inhaled corticosteroid use in childhood

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Body: Background: It has been proposed that maternal obesity during pregnancy may increase the risk that the child develops asthma and allergic disease, although the mechanisms underpinning this relationship are currently unclear. Methods: The study population comprised a Swedish national cohort of term children born between 1992 and 2008 to native Swedish parents. Maternal BMI was measured at 8-10 weeks gestation. Unconditional logistic regression models were used to determine if maternal obesity was associated with increased risk of inhaled corticosteroid (ICS) in 431,718 first-born children, while adjusting for potential confounders. An age-matched discordant sib-pair analysis was performed for 38,296 children, taking into account shared genetic and environmental risk factors. Results: Maternal over-weight and obesity were associated with increased risk that the child would require ICS (for BMI >35kg/m², aOR=1.30, 95%CI=1.10-1.52 compared with normal weight mothers) in children aged 6-12 years. Similar effects were seen in younger children, but in children aged 13-16 years, maternal obesity (BMI>30) was related to increased risk of ICS use in girls (aOR= 1.28, 95%CI=1.07-1.53) but not boys (OR=1.05, 95%CI=0.87-1.26). The sib-pair analysis failed to find any evidence that increasing maternal weight was related to increased risk of ICS use in children older than six years Conclusion: Maternal obesity is associated with increased risk of childhood ICS use up to approximately 12 years of age, but only in girls after this age. These effects could not be confirmed in a sib pair analysis, suggesting the effects of maternal BMI may be due to shared genetic or environmental risk factors.