



Mother and childhood cardiovascular outcomes of maternal obesity

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The prevalence of overweight and obesity among women of reproductive age is increasing. It is well known that obesity in pregnancy increases the risk for both adverse maternal and neonatal outcomes. Obesity has been associated with emergency caesarean section, large size for gestational age at birth, neonatal hypoglycaemia and childhood obesity. Maternal obesity seems also to be associated with increased risks of hypertensive disorders. A study among 24,241 nulliparous women observed an increased risk of gestational hypertension and pre-eclampsia for the morbidly obese category, defined as a prepregnancy body mass index of more than 35 kg/m², as compared to normal weight women. Furthermore, it has been suggested that maternal weight gain might be associated with the risks of gestational hypertension and pre-eclampsia. It is not known whether similar associations with gestational hypertensive disorders are present in the lower ranges of body mass index. Also, few studies have examined the effects of maternal overweight and obesity on blood pressure levels during different periods of pregnancy. The influence of higher body mass index on blood pressure levels might partly explain the observed associations between obesity and the risk of hypertensive disorders during pregnancy.

Maternal obesity during pregnancy is associated with an adverse cardio-metabolic risk profile in childhood and adulthood. The mechanisms underlying these associations might involve increased placental transfer of nutrients during fetal development, which may cause permanent adaptations in appetite, energy metabolism, and neuroendocrine function in offspring, which predispose individuals to a greater risk of cardio-metabolic disease in later life. However, these associations might also reflect shared family-based, lifestyle-related characteristics or genetic factors. Comparing the strength of associations of prepregnancy body mass index from both mother and father with childhood outcomes could help in disentangling underlying mechanisms. Stronger associations for maternal body mass index suggest direct intrauterine mechanisms, whereas similar or stronger associations for paternal body mass index suggest a role for shared family-based, lifestyle-related characteristics or genetic factors. To date, studies comparing associations of maternal and paternal body mass index with childhood body mass index have shown conflicting results. Also, most previous studies did not explore associations of parental body mass index with detailed childhood body and abdominal fat dis-



tribution and cardio-metabolic outcomes. It further remains unclear whether differences in magnitude of associations of parental body mass index with childhood outcomes are present across the full range of body mass index or confined to parental obesity only.