Prevalence and predictors of overweight and insulin resistance in offspring of mothers with gestational diabetes mellitus.

Abstract:
Gestational diabetes mellitus (GDM) is associated with high birth weight in the offspring. This may lead to overweight and insulin resistance during childhood. The aim of the study was to assess the impact of GDM on overweight risk and insulin resistance in offspring. BMI measurements were collected at age 2, 8, and 11 years from 232 offspring of mothers with GDM (OGDM) and compared with those from 757 offspring of mothers with type 1 diabetes (OT1D) and 431 offspring of nondiabetic mothers (ONDM) born between 1989 and 2000. Insulin resistance (homeostasis model assessment of insulin resistance [HOMA-IR]) was determined at age 8 and 11 years in 751 children (74 OGDM). Overweight was defined as BMI percentile $\geq$ 90; insulin resistance was defined by HOMA-IR. Overweight prevalence was increased in OGDM compared with ONDM throughout childhood (age 11 years 31.1, 15.8, and 15.5%; $P = 0.005$). Maternal obesity was an important predictor of overweight risk in children (age 11 years odds ratio 7.0 [95% CI 1.8-27.7]; $P = 0.006$); birth size and maternal smoking during pregnancy were inconsistently associated with and treatment of GDM during pregnancy did not affect overweight risk. HOMA-IR was increased in OGDM compared with offspring of ONDM mothers ($P = 0.01$, adjusted for sex and age) and was associated with the
child's BMI (P = 0.004). Overweight and insulin resistance in children is increased in OGDM compared with OT1D or ONDM. The finding that overweight risk is associated mainly with maternal obesity suggests that familial predisposition contributes to childhood growth in these offspring.