

Maternal lipid profile in pregnancy and embryonic growth: a population-based prospective cohort study.

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Abstract

Objective To investigate the association between the maternal lipid profile in early pregnancy and embryonic growth. **Design** Prospective population-based cohort study. **Setting** Rotterdam, the Netherlands. **Population** We included 1474 women from the Generation R(otterdam) Study. **Methods** The maternal lipid profile was defined as total cholesterol, triglycerides (TG), high-density lipoprotein cholesterol (HDL-c), low-density lipoprotein cholesterol (LDL-c), remnant cholesterol, non-high-density (non-HDL-c) lipoprotein cholesterol concentrations and the triglycerides/high-density lipoprotein (TG/HDL-c) ratio. Additionally, maternal glucose concentrations were assessed. Associations were studied with linear regression models, adjusted for confounding factors: maternal age, pre-pregnancy BMI, parity, educational level, ethnicity, smoking and folic acid supplement use **Main Outcome Measures** Crown-rump length (CRL). **Results** Triglycerides and remnant cholesterol concentrations are positively associated with embryonic growth (fully adjusted models, 0.17 SDS: 95% CI 0.03 ; 0.30, and 0.17 SDS: 95% CI 0.04 ; 0.31, respectively). These associations were not present in women with normal weight (triglycerides and remnant cholesterol: fully adjusted model, 0.44 SDS: 95% CI 0.15 ; 0.72). Associations between maternal lipid concentrations and embryonic growth were not attenuated after adjustment for glucose concentrations. Total cholesterol, HDL-c, LDL-c, non-HDL-c concentrations and the TG/HDL-c ratio were not associated with embryonic growth. **Conclusions** Higher triglycerides and remnant cholesterol concentrations in early pregnancy are associated with increased embryonic growth, most notably in overweight women. **Keywords** Pregnancy, Cholesterol, Low-density lipoprotein (LDL-c), High-density lipoprotein (HDL-c), Triglycerides, Intrauterine development, Fetal growth, Early pregnancy **Tweetable abstract** The maternal lipid profile in pregnancy is associated with embryonic growth.

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