

Maternal smoking during pregnancy and fetal biometry The INMA mother and child cohort study

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Abstrak

In utero tobacco exposure has been associated with fetal growth restriction, but uncertainty remains about critical windows of exposure and specific effects on body segments. In the present study, we aimed to examine the association of maternal smoking with fetal biometry in different stages of pregnancy. The study population comprised 2,478 fetuses from a Spanish birth cohort study that was established between 2003 and 2008. Biparietal diameter, femur length, abdominal circumference, and estimated fetal weight were evaluated at 12, 20, and 34 weeks of gestation. Fetal size and growth were assessed by standard deviation scores adjusted by maternal and fetal characteristics. Maternal smoking was assessed using questionnaire and a sample of urinary cotinine at week 32 of gestation. Associations were estimated using multiple regression analysis. Smokers at week 12 of gestation showed decreased fetal growth as reflected by all growth parameters at 20–34 weeks, leading to a reduced fetal size at week 34. The reduction was greatest in femur length, at -9.4% (95% confidence interval -13.4, -5.4) and least in abdominal circumference, at -4.4% (95% CI: -8.7, -0.1). Fetuses of smokers who quit smoking before week 12 showed reduced growth only in femur length (-5.5; 95% CI: -10.1, -0.9). Dose–response curves for smoking versus fetal growth parameters (abscissa: log₂ cotinine) were linear for biparietal diameter and femur length.