The effect of cigarette smoking on neonatal anthropometric measurements.

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Abstract
OBJECTIVE: To estimate the effect of maternal cigarette smoking on birth weight, crown-heel length, and ten other neonatal anthropometric measurements.

METHODS: Data are from a cohort study on risk factors for fetal growth retardation (FGR) in multiparous women conducted from December 1985 through October 1988. Information on smoking status was collected four times during pregnancy. Data analysis included 1205 singleton infants of women delivering at term. Neonatal anthropometric measurements were obtained within 48 hours of birth, including birth weight, crown-heel length, ponderal index, head and abdominal circumferences, arm length and circumference, femur length and thigh circumference, and triceps, thigh, and subscapular skinfold measurements. Analysis of covariance models were used to assess the independent effect of smoking on each neonatal measurement.

RESULTS: Neonates born to women who reported smoking during the first trimester had a 0.6-1.9% reduction in most neonatal anthropometric measurements, resulting in an overall reduction of birth weight of 130 g (4%). Neonates born to women who continued to smoke throughout pregnancy had an average adjusted reduction in birth weight of 189 g (5.9%), compared with a 55 g (1.7%) reduction
for neonates born to women who stopped smoking after the first trimester. For women who continued to smoke throughout pregnancy, an increased number of cigarettes smoked was associated with increased reductions in birth weight and neonatal chest and abdominal circumferences. For women who stopped smoking after the first trimester, stopping was a better predictor of neonatal anthropometric measurements than the number of cigarettes smoked early in pregnancy.

CONCLUSIONS: Except for the ponderal index, all neonatal anthropometric measurements studied showed some negative effect of maternal cigarette smoking. Head circumference is the measurement least reduced. Smoking cessation is a better predictor of infant size than the number of cigarettes smoked in the first trimester.

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