

Maternal waist to hip ratio a risk factor for macrosomia

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Avon Longitudinal Study of Parents and Children; hip; macrosomia; obesity; sensitivity; specificity; waist

Objective Fetal growth during pregnancy may be affected by the metabolic activity and distribution of fat stores in women. This study investigates the association between waist to hip ratio (WHR) as a measure of the distribution of adiposity in primiparous mothers living in Avon, England, and macrosomia in their offspring.

Design Prospective historical cohort study.

Setting The Avon Longitudinal Study of Parents and Children (ALSPAC) prospective cohort study in Avon, UK.

Population A cohort of 3083 primiparous women with a term singleton delivery with expected dates of delivery from 1 April 1991 to 31 December 1992.

Methods The distribution of WHR was categorised into quartiles. We compared the second, third and fourth quartiles against the first (reference) quartile with respect to whether the mother delivered a macrosomic newborn. We controlled for maternal age, gestational age, body mass index (BMI), marital status and racial group using multivariate logistic regression.

Main outcome measures Macrosomia defined in three ways: birthweight ≥ 4000 g; birthweight ≥ 4500 g; large for gestational age (LGA: ≥ 95 th percentile of birth weight adjusted for sex and gestational age).

Results Waist to hip ratios in the third and fourth quartiles were associated with a higher odds of delivering a macrosomic infant, defined as a birthweight ≥ 4000 g (third quartile, OR 1.59, 95% CI 1.12–2.26; fourth quartile, OR 1.69, 95% CI 1.18–2.42) or as LGA (≥ 95 th percentile of the cohort; third quartile, OR 1.77, 95% CI 1.10–2.85; fourth quartile, OR 1.78, 95% CI 1.09–2.91). When defined as a birthweight ≥ 4500 g, the fourth quartile was associated with increased odds of macrosomia (OR 2.74, 95% CI 1.05–7.16). Odds ratios after adjustment for confounding factors followed a similar pattern.

Conclusion Independent of confounding factors, women with increased WHRs were significantly more likely to give birth to macrosomic newborns.