

Relationship of Maternal Birth weight on Maternal and Neonatal Outcomes: a Multicenter Study in Beijing

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Background: Birthweight is an important indicator for childhood and adulthood diseases, published studies lack information on the relative contribution of women's own birthweight to the course of her pregnancy, not only for maternal but especially to neonatal outcome. **Objective:** The aim of the study was to evaluate the relationship of maternal birthweight on maternal and perinatal complications during pregnancy. **Study Design:** Medical and obstetrical data were collected from 5,479 women at 15 hospitals in Beijing, by a systemic cluster sampling survey conducted from June 20th to November 30th, 2013. These women were categorized into five groups, according to their own birthweight: low birth weight (≤ 2500 g, n=275), sub-optimal birth weight (2500-2999g, n=1079), optimal birth weight (3000-3499g, n=2590; 3500-3999g, n=1085) and high birth weight (≥ 4000 g, n=450). The occurrence of maternal and neonatal complications was recorded and compared among the groups. Statistical analysis was performed by SPSS 20.0 and values of $p < 0.05$ were considered to be statistically significant. **Results:** Low maternal birthweight was associated with higher rates of gestational diabetes mellitus ($\chi^2=21.268$, $p=0.006$) and hypertensive disorders ($\chi^2=10.844$, $p=0.028$). The latter association was strongest in women with a pre-pregnancy body mass index (BMI) above 25kg/m^2 . Low maternal birthweight was also associated with an apparently higher incidence of preterm labor ($\chi^2=18.27$, $p=0.001$) and hypertriglyceridemia ($\chi^2=2.739$, $p=0.027$) in pregnancy. An association between women with low birthweight and a significantly higher rate of small-for-gestational-age infants ($\chi^2=93.507$, $p=0.001$) and low birthweight ($\chi^2=36.256$, $p=0.001$) was detected. High maternal birthweight was associated with an increased risk of pre-pregnancy overweight and obesity ($p=0.001$), as well as for large-for-gestational-age infants ($\chi^2=93.507$, $p=0.001$) and macrosomia ($\chi^2=72.594$, $p=0.001$). **Conclusions:** In our study, high or low maternal birthweight was strongly associated with maternal and perinatal adverse pregnancy outcomes. This suggests that by controlling the birthweight of female infants among the normal range, adverse outcomes may be decreased in the future and for following generations.