Overweight and obesity in pregnancy linked to greater risk of infant death

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This is an image of a weight scale. Credit: CDC/Debora Cartagena

Overweight and obesity in early pregnancy are associated with increased risks of infant mortality, with the greatest risks seen among severely obese mothers, finds a study published in The *BMJ* this week.

An accompanying editorial says babies do best when mothers have a normal body weight before and during pregnancy.

Women of childbearing age have a high prevalence of overweight and obesity. Previous analyses suggest that maternal obesity (body mass index (BMI) of 30 or over) is associated with increased risk of infant mortality, but results have not been consistent.

So a team of researchers based in Sweden and the USA decided to test the theory that maternal overweight and obesity are associated with infant mortality by analysing over 1.8 million singleton births recorded in the Swedish Medical Birth Register from 1992 to 2010.

Maternal BMI in early pregnancy was recorded as underweight (18.4 or less), normal weight (18.5 to 24.9), overweight (25-29.9), obesity grade 1 (30-34.9), obesity grade 2 (35-39.9), or obesity grade 3 (40 or over).

Causes of death included congenital anomalies, birth asphyxia, infections and sudden infant death syndrome (SIDS) and results were adjusted for factors, such as maternal age, height, smoking, education, country of birth, and year of delivery.

There were a total of 5,428 infant deaths during the study (overall infant mortality rate 2.9 per 1,000). Two thirds of these occurred during the neonatal period (withinthe first 28 days of life).

Infant mortality rates increased with increasing maternal BMI in early pregnancy, from 2.4 per 1,000 among normal weight women to 5.8 per 1,000 among women with obesity grade 3.

Compared with infants of normal weight mothers, infant mortality risks were modestly increased in overweight and mildly obese mothers, while obesity grade 2 or grade 3 was associated with more than doubled risks of infant mortality.

The association between maternal BMI and infant mortality was

primarily confined to term births (at least 37 weeks' gestation) in the neonatal period (within 28 days of birth). Only obesity grade 2-3 was associated with infant mortality in very preterm and moderately preterm births.

Eighty one per cent of infant deaths in term infants were due to congenital anomalies, birth asphyxia, other neonatal morbidities, SIDS or infections.

Risk of infant deaths due to birth asphyxia and other neonatal conditions increased with maternal overweight and obesity. Compared with infants of normal weight mothers, infants of mothers with obesity grade 2-3 had increased mortality risks due to congenital anomalies and SIDS.

Provided that associations are causal, the researchers estimate that 458 (11%) of infant deaths in the study were due to maternal overweight and obesity.

Although more work is needed to explore these associations further, the authors argue that there is enough evidence for public health officials "to act against the obesity epidemic to promote infant health."

While this study provides observational evidence that even maternal overweight is associated with an increased risk of infant death, the relationship between maternal body mass index and infant mortality has not yet been fully explored,writes Katrine Mari Owe from Oslo University Hospital, Norway in an accompanying editorial.

Given the high prevalence of overweight and obesity worldwide and the gravity of the risks to the infant, "further studies are needed to explore the risks to the infant associated with increased maternal BMI, along with large trials of interventions designed to reduce those risks," she concludes.

More information: Paper: www.bmj.com/cgi/doi/10.1136/bmj.g6572

Editorial: www.bmj.com/cgi/doi/10.1136/bmj.g6850