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Caesareans and obesity

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Association between cesarean birth and risk of obesity in offspring in childhood, adolescence, and early adulthood

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In 2013 the film Microbirthdrew attention to the growing research on caesarean birth and obesity. Now a study published in July 2016 in the Journal of the American Medical Association Pediatrics provides more evidence to support this association. Researchers used data from the Growing Up Today Study, a prospective cohort study conducted from 1996-2012. The study included 22068 children born to 15271 women.,Information was collected from the women via questionnaire when children were aged 9–14 through ages 20–28. The study used a larger sample size than similar previous studies in Germany and Canada which failed to demonstrate a statistical significance in the increased risk of obesity after caesarean birth.

This study was designed to account for potential confounders which had not been included in previous studies on this subject, particularly maternal pregnancy BMI, but also pre-pregnancy smoking and duration of breastfeeding. The study did not investigate lifestyle and behaviour factors for obesity because none precede both exposure (in this case birth by caesarean) and outcome (risk of obesity). Importantly, the study data lacked details of the specific reasons for caesareans, whether women laboured at all, what other interventions were used during labour and birth, such as artificial rupture of membranes, and antibiotic use during pregnancy or labour and delivery. It is also difficult to apply the findings of the study to the general population as the mothers were all nurses participating in a long-term health study (Nurses' Health Study II) and the authors noted that minorities were underrepresented.

The study found that individuals born by caesarean were 15% more likely to become obese during follow-up than those born vaginally. This association was stronger (30% increased risk) among individuals without known risk factors for caesarean section (risk factors included maternal pre-pregnancy raised BMI, gestational diabetes, hypertensive disorders, smoking, advanced maternal age, gestational age at birth, and birth weight). Vaginal birth after caesarean birth was associated with a 31% lower risk of individuals being obese compared with those born via repeat caesarean delivery. The within-family

analysis showed that those born via caesarean had 64% higher odds of obesity compared with their siblings born vaginally.

This study was limited to examining the association between caesarean birth and obesity, however it did point to the growing evidence that higher risk of obesity associated with caesarean birth may be a consequence of differences in gastro-intestinal microbiota established at birth. Whether differences in microbiota in individuals are sustained long-term remains to be evaluated.

Additional research is still necessary to address whether increased rates of obesity translate to increased risk of adverse cardio-metabolic outcomes such as diabetes, heart disease or stroke among individuals born by caesarean.