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Category: Midwifery

Study type: Cohort study

Bazian's declarative title: Higher coffee intake in pregnancy linked to prolonged gestation, and higher caffeine intake linked with babies being small for gestational age

Citation: Sengpiel V, Elind E, Bacelis J, *et al*. Maternal caffeine intake during pregnancy is associated with birth weight but not with gestational length: results from a large prospective observational cohort study. *BMC Med* 2013;**11**:42

Commentary

Implications for practice and research

- The findings support that maternal coffee consumption is associated with marginally increased gestational length, decreased birth weight, but not preterm delivery.
- More research is required to confirm cause and effects.

Context

The WHO recommends a maternal caffeine intake of below 300mg/day[1] and the American College of Obstetricians and Gynecologists recommends less than 200mg/day.[2] A maternal diet should include the essential nutrients to optimise foetal development and an avoidance of contaminants. Caffeine is contained in coffee, tea, cocoa, energy drinks and many soft drinks and crosses the placental barrier to enter the foetus which lacks the appropriate enzymes to deactivate it.[3] Consequently, caffeine metabolites accumulate in the foetal brain[4] and in so doing may incur foetal and neonatal outcomes. Sengpiel and colleagues examined the relationship between maternal caffeine intake from different sources and gestational length, the risk of spontaneous preterm delivery and birth weight.

Methods

This cohort study invited Norwegian women with uncomplicated pregnancies to detail their caffeine intake from various sources at 3 time points during pregnancy (17, 22 and 30 weeks gestation) via postal questionnaires. The study excluded women with

complications and those who did not adequately complete all the required information. Data from a total of 59 123 participants were entered for analysis.

Findings

The results of the study identified that coffee, black tea, soft drinks and chocolate accounted for 98% of daily caffeine intake, with coffee being the main source of caffeine. The findings support that coffee consumption is associated with a marginal increase in gestational length, decreased birth weight, but not preterm delivery. Caffeine intake at all time points was significantly associated with decreased birth weight. Caffeine from coffee and soft drinks intake at 17 weeks had the strongest impact. This may be rationalised by Lawson's hypothesis, which maintains that the placenta is smaller in a young foetus.[5,6]

Commentary

Fundamentally, the present study identified that consuming 100mg/day of coffee is associated with a marginal increase in gestational length by 5 to 8 hours. In relation to such a small increase in length of pregnancy, no major advantage or disadvantage can be derived, unless there is an already compromised foetus. The findings unveil no reason for the statistical association, which in essence invites further research to isolate specific variables of cause and effect. It could be that other substances in coffee sources are potential influencers of the specified outcomes. Also, although the recruitment was high, issues of accuracy concerning self-report scales are relevant to the method of data collection employed by Sengpiel and colleagues. For example, honesty and image management, introspective ability, understanding of questions and the accuracy of estimated caffeine consumed over each day may have skewed results. Outside of these methodological reservations, interesting and informative data was generated.

The more salient result is the reduction in birth weight, which for a healthy neonate presents minimal challenge. However, where pre-existing compromise exists, for example, a malfunctioning placenta accompanied by an already small for gestational age foetus or neonate, pre-existing pathology may be augmented; an aspect also worthy of further research. The topic studied is about women's choices about whether to drink caffeinated coffee during pregnancy or otherwise. To help women make this informed choice, midwives must provide evidence-based information about potential consequences.

In essence, this study hypothesises the potential relationships between maternal coffee/caffeine intake and specified outcomes, suggesting that randomised controlled trials are needed to isolate cause and effect.. There is a clear dearth of rigorous research on the topic of caffeine intake during pregnancy in its variety of forms. Other areas worthy of exploration include measuring the effects of maternal caffeine intake in relation to neonatal withdrawal, temperament, sleep patterns, irritability and feeding styles.

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Competing interests

None