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Maternal dietary vitamin D intakes during the first trimester of pregnancy

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Numerous observational studies have reported associations between low vitamin D intake and status in pregnancy and pregnancy complications such as gestational diabetes (GDM), pre-eclampsia (PET), gestational hypertension (GHT), pre-term birth (PTB) and delivery complications[(1)]. However, there is a lack high-quality intervention studies to confirm a causal role for low vitamin D status in these outcomes. Currently, the Irish RDA for vitamin D is 0–10 μg/day for the first half of pregnancy[(2)]. This RDA is the same as that for non-pregnant women aged 18–64 years. The RDA for the second half of pregnancy is 10μg/day.

This observational study estimated maternal dietary vitamin D intakes in the first trimester using a supervised diet history (DH) protocol. Women were recruited at their convenience between January 2014 and January 2016 after sonographic confirmation of a singleton pregnancy in the first trimester. Participants were weighed and measured using the Tanita body composition analyser. Maternal dietary data were collected using a 4-day retrospective DH (including two weekend days) in combination with a food frequency questionnaire (FFQ). Both the DH and the FFQ were completed under the supervision of a research dietitian. During this interview all reported portion sizes were fully quantified and confirmed by the research dietitian using food portion size estimation tools. Nutrient intake analyses including daily energy and vitamin D intakes were carried out using the nutritional software package Nutritics version 3.7 University Edition which includes the most up-to-date nutrient composition data for fortified foods.

Amongst the 481 women recruited, mean BMI was 26·0 (±5·5) kg/m2 and 19·2 % were obese. Mean maternal age was 30·6 (±5·6) years. Application of Black's equation for underreporting[(3)] identified 41·8 % (201/481) as dietary energy under-reporters, and these participants were excluded from further analyses. Of the remaining plausible reporters, median (IQR) vitamin D intake from diet was 2·9μg/d (±2·6μg/d). Amongst the plausible reporters, 81·1 % had median daily vitamin D intakes of less than 5μg, and 97·1 % had daily intakes of less than 10μg.

This study shows that only 3 % of pregnant women in Ireland have optimal vitamin D intakes, and highlights the importance of educating women of childbearing age about suitable sources of vitamin D. These findings may also inform public health policy development in relation to vitamin D supplementation in pregnancy in Ireland.

1. Moon RJ Harvey NC and Cooper C (2015) Eur J Endocrinol **172**, 2.
2. Food Safety Authority of Ireland (1999) Recommended Dietary Allowances for Ireland.
3. Black AE (2000) International Journal of Obesity & Related Metabolic Disorders 24,9.