Comment on: Sørensen et al. Maternal Serum Levels of 25-Hydroxy-Vitamin D During Pregnancy and Risk of Type 1 Diabetes in the Offspring. Diabetes 2012;61: 175–178

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Sørensen et al. (1) report that in Norway, low concentration of 25-hydroxy-vitamin D [25(OH)D] in mothers during pregnancy was associated with an increased risk of type 1 diabetes in the offspring. We would like to point out that one putative confounding factor in their study might have been the intake of n-3 polyunsaturated fatty acids. Childhood n-3 fatty acid intake and status have been linked with the development of pretype 1 diabetes (2), while reasonably powered prospective studies of exposure during pregnancy are lacking. Of pregnant Norwegian women, 59% used cod liver or fish oil during pregnancy during the years 2002–2005 (3). In the study by Sørensen et al. (1), the samples were collected in 1992–1994. Cod liver oil contains both vitamin D and n-3 polyunsaturated fatty acids. Serum levels of 25(OH)D are likely to correlate with the intake of n-3 polyunsaturated fatty acids in a situation where the dietary sources of vitamin D and n-3 fatty acids are—to a large extent—the same.

A recently published Finnish study (4) with the similar nested case-control design did not find an association between maternal 25(OH)D concentration and the risk of type 1 diabetes in the offspring. In the study by Miettinen et al. (4), samples were collected in 1993–2000. Unlike in Norway, less than 2% of Finnish pregnant women consumed cod liver or fish oil supplements, whereas 30% of the women used other vitamin D containing supplements (5).

Another important difference is the much lower mean concentration of 25(OH)D during pregnancy in Finland than in Norway (1,4). About 70% of the Finnish mothers had vitamin D insufficiency or deficiency [25(OH)D <50 nmol/L], which may have lead to difficulties to discern any differences between the groups. Low serum levels of 25(OH)D in Finnish pregnant women reflect the low vitamin D intake. Mean maternal daily intake of vitamin D from diet was 5.1 μg and from supplements was 1.3 μg in Finland during the years 1997–2002 (5), whereas respective intakes were 3.5 μg and 10.1 μg in Norway (3). Possible other explanations for the different findings between the studies (1,4) include the fact that the samples were collected mainly during the last trimester of pregnancy in Norway, and during the first trimester in Finland.

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