Are pregnant women in Europe at risk of iodine deficiency?

Despite calls to monitor and eliminate iodine deficiency, Europe has had the highest percentage of iodine-deficient school-age children compared with other WHO regions during the past decade, despite its wealth and its high standards of health care. In 2015, in the WHO European region, only 47.9 million (66%) of the region’s 72.1 million school-age children have adequate iodine intakes (1).

Iodine deficiency is especially problematic in pregnant women, who have a higher iodine requirement (250 μg per day) than non-pregnant women (150 μg per day) because they need to synthesize additional thyroid hormone to cover maternal and fetal needs, and pass iodine to the fetus for thyroid hormone production. Iodine deficiency in utero can cause fetal hypothyroidism and irreversibly impair cognitive development, and data from observational studies in Europe suggest that even mild-to-moderate iodine deficiency during pregnancy can have long-term adverse effects on child cognition. The median urinary iodine concentration in school-age children should not be used as proxy to assess iodine nutrition of pregnant women, who should be separately monitored. Adequate iodine nutrition in pregnant women is shown by a median urinary iodine concentration between 150 and 499 μg/L.

Putting iodine deficiency back on the public health agenda

In 2015, only 58% of pregnant women in Europe are covered by national or pooled subnational surveys; the more populous countries that still do not have data are Germany, Uzbekistan, Kazakhstan, Hungary, and Sweden. In ten countries, iodine intakes are adequate during pregnancy, in 21 countries intakes are deficient, and 23 have no data available (see Figure). Of the countries that have assessed iodine nutrition during pregnancy, two thirds have reported inadequate iodine intakes.

So why has iodine deficiency, especially during pregnancy, received such little attention on the European public health agenda? Health officials might still equate iodine deficiency with visible goiter, a disorder that has disappeared in most of Europe, and are unaware of its more subtle adverse effects on cognitive and motor development. A randomized controlled trial in European school-age children has shown moderate iodine deficiency impairs cognition (2). However, no large trials have been done in pregnant women with mild-to-moderate iodine deficiency to assess the effects of iodine repletion on infant development or post-partum maternal outcomes. This paucity of data could contribute to the reluctance of health officials to prioritize iodine nutrition during pregnancy. Until additional physiological data are available to make a better judgment, pregnant women (and women planning a pregnancy) should ensure they are using iodized salt and should consider taking a daily prenatal supplement that contains 150 μg iodine.

Changing the status quo

WHO has repeatedly emphasized that an effective iodized salt program with high household coverage is the best strategy to provide adequate iodine to pregnant women, partly because it ensures thyroidal iodine stores are full in women of reproductive age. In Europe, increasingly less salt is added to foods in the household (e.g., in the UK only 15% of all salt consumed). Thus, for iodized salt programs to be successful, processed foods need to contain iodized salt. Iodine supplementation for pregnant women might be useful when there is insufficient iodized salt, and all prenatal vitamin-mineral supplements should contain iodine. However, because most women become aware they are pregnant towards the end of the first trimester, supplementation often does not cover the first trimester, when the developing fetal brain is especially vulnerable. In most European countries, like in the USA, most prenatal vitamin supplements do not contain iodine. Also, supplements often do not reach poorer, less educated women, making supplementation a less equitable approach than salt fortification. Therefore, use of iodized salt by the food industry should be strongly encouraged.

References