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Contrary to Previous Studies, Low Levels of Perchlorate Exposure Are Safe For Pregnant Women

Oct. 6, 2007, 3:15 p.m. EDT— Despite great concerns that small amounts of ingested perchlorate—a chemical which is ever-present in the environment—decreases thyroid function among individuals, it has no effect on the thyroid function of women in early pregnancy, including those with a low-iodine diet, according to a new study being presented on Saturday, Oct. 6, at the 78th Annual Meeting of the American Thyroid Association (ATA) in New York. Thyroid hormone is critical for the neurodevelopment of a fetus—particularly in the first trimester of pregnancy—and requires the mother to receive an adequate intake of iodine.

These findings are in contrast to last year's report from the Center For Disease Control and Prevention (CDC), which reported that perchlorate exposure, (assessed by the small amount of perchlorate found in the urine in the United States population), slightly decreased thyroid function in women with a low iodine diet, but not in men or in women with a normal iodine diet.

“In a large study of first-trimester pregnant women, which is a potentially vulnerable population, we found *no effect* of environmental perchlorate exposure on thyroid function, even though the amount of perchlorate in the urine was similar to that found in the U.S. population and about seventy percent of the women were mildly iodine deficient,” said Elizabeth N. Pearce, M.D., lead author of the study and assistant professor of medicine at the Boston University School of Medicine in Boston.

Perchlorate is both a naturally occurring and man-made chemical, which is present in very small amounts in a wide variety of foodstuffs and drinking water. Most of the perchlorate manufactured in the United States is used as the primary ingredient of solid rocket propellant.

The chemical has brought concern to communities and physicians, as well as the Environmental Protection Agency (EPA) because in higher amounts, perchlorate decreases the entry of iodine into the thyroid gland. It can disrupt how the thyroid functions because iodine is an essential component of thyroid hormones. Impairment of thyroid function in expectant mothers may affect the fetus and newborn, resulting in behavioral changes, delayed development, and decreased learning capability.

The large cohort study involved 396 women in Europe during their first trimester of pregnancy. The results do not support the findings previously reported in the U.S. that similar levels of perchlorate exposure increase serum TSH and lower serum T4 in women with urine iodine concentrations <100 µg/L.

These findings suggest that the concerns aired by other investigators who have reported thyroid function test alterations associated with perchlorate intake may not be justified.

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