27th Conference of the International Society for Environmental Epidemiology

"Addressing Environmental Health Inequalities"

August 30th to September 3rd
Centro de Convenções Rebouças | São Paulo | Brazil

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Program - Poster Session

02/09/2015 - 12:45 - 14:00
Po-003

4478 - EVALUATION OF THYROID HORMONES (TSH AND T4) IN PREGNANT WOMEN EXPOSED TO FLUORIDE (F-) IN DRINKING WATER

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Recent research mentioned that exposure during pregnancy can damage the brain of the offspring (Basha P, et al., 2011). It is well know the role of the thyroid hormones in the normal development of the Central Nervous System (CNS) during the pregnancy (Nandi-Munshi and Taplin, 2015). Some evidence indicates that F- can suppress thyroid activity (Peckham S, et al., 2015). The aim of this study is to evaluate thyroid disorders to F- exposure during the pregnancy in humans. A follow-up study was conducted during 2013 and 2014 in two states of Mexico with a history of water contamination with F-. Pregnant women were evaluated in a three monthly period over their whole pregnancies. F- in water (FW) was quantified with an ion selective electrode according the NIOSH. TSH and Total T4 (TT4) levels were determinate by immunoassay with Immulite 1000 equipment. In order to eliminate external factors during all pregnancies, an initial questionnaire and follow-up questionnaires were applied. Reference ranges from the guideline of America Thyroid Association (ATA) were used. Statistical analysis was carried on using the software SPSS 19. 65 pregnant women were evaluated in the first trimester, 53 and 29 pregnant women continued in the study respectively in the second and third trimester. The levels of TSH in each trimester were 1.5 ± 0.9 mIU/L, 1.9 ± 1.0 mIU/L and 1.9± 1.0 mIU/L respectively. 13.7%, 22.6% and 20.7% of pregnant women present abnormal levels of TSH in each trimester respectively. The levels of FW in the first and second trimester were higher in the group of women with abnormal levels of TSH (5.1 ± 5.2 mg/L vs 2.7± 5.1 mg/L; p=0.006 and 6.5 ± 5.3 mg/L vs 3.3 ± 1.9 mg/L; p=0.005). A correlation was found between TSH and FW in the first trimester (0.32; p<0.01). TT4 levels were normal in all trimester. This study is the first approach to demonstrate the action mechanism of F- toxicity on CNS during human pregnancy.

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