

TAP WATER CONSUMPTION, EXPOSURE TO TRIHALOMETHANES DURING PREGNANCY AND WEIGHT GAIN IN THE FIRST SIX MONTHS OF LIFE

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Background and Aims: There is some evidence that *in utero* exposure to trihalomethanes (THMs) – the most prevalent disinfection-by-product – is negatively associated with birthweight. How postnatal growth could be modified had not been studied in human. In rats, impaired postnatal growth was reported in offspring of dams exposed to chloroform. We studied the relationship between tap water consumption and exposure to THMs during pregnancy with weight gain between birth and six months in the INMA (Spain) and RHEA (Greece) mother-child cohorts.

Methods: INMA in Gipuzkoa (N=449), Sabadell (N=533) and Valencia (N=645) and RHEA in Crete (N=939) included 2,566 mother-child pairs. Weight gain was calculated as the weight difference between birth and six months. THMs levels were evaluated through *ad hoc* sampling campaigns and regulatory data, modelled and combined with personal water uses to estimate personal exposure during pregnancy. Regression models took into account confounders such as gender, birthweight, parity, maternal weight, smoking, education.

Results: Median [Interquartile Range] THMs levels (microg/l) were 16 [12-20] in Gipuzkoa, 117 [102-127] in Sabadell, 5 [4-69] in Valencia and 1.0 [0.3-4.1] in Crete. Respectively, 90%, 20%, 32% and 17% of the mothers consumed tap water during pregnancy. Six months weight gain ranged from 4.15kg in girls from Gipuzkoa to 4.90kg in boys from Crete. In a pooled analysis, infants of mothers who declared to consume tap water during pregnancy tended to have a lower weight gain (-69g; $p=0.06$), particularly in Sabadell (-160g, $p=0.03$), but no dose-response relationship with amount of consumed tap water was observed. No significant relationship was found in any cohort with chloroform or brominated THMs through ingestion, bathing or showering.

Conclusions: Characteristics were heterogeneous between the cohorts, for both outcomes and exposures. Overall, results do not suggest that tap water and more specifically THMs exposures are associated with early postnatal weight growth.