

WATER CONSUMPTION HABITS AND LEVELS OF NITRATE AND TRACE METALS IN MUNICIPAL WATER OF SPAIN. MULTI CASE CONTROL STUDY MCC- SPAIN

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Background and Aims: Several health effects including cancer have been linked to nitrate and metals in drinking water, although the evidence is not conclusive for many associations. Information about the type of water consumed in Spain and levels of these contaminants in drinking water is limited. The aim of this study is to describe levels of nitrate and metals in municipal water and drinking water habits among the controls of a multicase-control population-based study of cancer in Spain (MCC-Spain).

Methods: Study areas include Asturias, Barcelona, Cantabria, Guipúzcoa, Granada, Huelva, León, Madrid, Murcia, Navarra and Valencia. Individual information about water consumption in all residences since 18 years old was obtained in personal interviews. Here we describe water consumption in the current residence among controls (N=2340). Tap water samples were collected between March and June 2010 in 207 sampling points. Nitrate, arsenic, nickel, chromium, cadmium, lead, selenium and zinc were measured at Laboratory of Public Health in Guipúzcoa.

Results: Overall, 71%, 25% and 3% of subjects consumed, respectively, municipal, bottled and private well water in the current residence. Municipal water consumption was highest in Madrid (94%) and lowest in Murcia (65%). Correspondingly, bottled water consumption was highest in Murcia (65%) and lowest in Madrid (5%). Proportion of private well water consumption was highest in León (36%). Mean levels of nitrate ranged from 2.7 mg/l (Guipuzkoa) to 9.8 mg/l (Barcelona). Trace metals were mostly below the detection limit (on average, 94% of samples). Arsenic was detected in Barcelona, León and Madrid (maximum levels were 1.0, 3 and 4.0µg/l, respectively).

Conclusions: Considerable differences in water consumption are observed between regions. Levels of nitrate and metals were below the regulated limits in municipal water. It is necessary to assess these contaminants in bottled and private well water, given their high consumption in some areas.

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