

ASSOCIATION BETWEEN ORGANOCHLORINE PESTICIDE EXPOSURE AND THYROID HORMONES IN FLORICULTURE WORKERS

Marina Lacasaña, *Andalusian School of Public Health, Granada, Spain ; Spanish Consortium for Research on Epidemiology and Public Health (CIBERESP), Spain.*

Clemente Aguilar-Garduño, *Andalusian School of Public Health, Granada, Spain.*

Miguel Rodríguez-Barranco, *Andalusian School of Public Health, Granada, Spain.*

Inmaculada López-Flores, *Genetic department. Granada University School of sciences, Spain*

Julia Blanco-Muñoz, *National Institute of Public Health, Cuernavaca (Mexico)*

Susana Bassol, *School of Medicine of Torreón, Autonomous University of Coahuila, Mexico*

Mariano E. Cebrian, *Center for Advanced Studies and Research of the National Polytechnic Institute, Mexico DF, Mexico.*

Background and Aims: Different studies have shown that p,p' -DDE (a stable metabolite of DDT) alter thyroid hormone levels in animals and humans, although results across studies are inconsistent. The aim of this study was to assess the association between exposure to DDT and serum levels of thyroid hormones in floriculture workers.

Methods: A longitudinal study was conducted on 136 male subjects from the State of Mexico and Morelos, Mexico, which were occupationally exposed to non persistent pesticides, during agricultural periods of high (rainy season) and low (dry season) levels of pesticide application. Using a structured questionnaire, a survey was carried out on sociodemographic characteristics, anthropometry, clinical history, alcohol and tobacco consumption, residential chemical exposure, and occupational history. Blood and urine samples were taken to determine serum levels of TSH, total T_3 , total T_4 , and p,p' -DDE, and metabolites of non-persistent pesticides, respectively. The analysis of the association between p,p' -DDE levels and thyroid hormonal profile was carried out using multivariate generalized estimating equation (GEE) models.

Results: Our results showed an increase in both T_3 and T_4 hormones in serum associated with a increase in total p,p' -DDE levels in serum (p -trend<0.05), independently of the levels of organophosphate pesticides and other potential confounding factors.

Conclusions: These results suggest that exposure to organochlorine pesticides may be responsible of increasing T_3 and T_4 serum hormone levels, therefore supporting the hypothesis that persistent organochlorine pesticides alter thyroid function in humans.