

COMMITTEE ON CARCINOGENICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT

Krysiak-Baltyn et al (2009). Country-specific chemical signatures of persistent environmental compounds in breast milk. *Internat J of Andrology* 32, 1-9.

The incidence of testicular cancer has been increasing gradually in many countries since the 1960s, with little explanation available for the increase. A review by the COC in 2006 identified no clear chemical aetiology. The incidence varies widely around the world and varies with ethnicity. The attached paper reports that there is a three to fourfold higher incidence of testicular cancer in Denmark in comparison with Finland and postulates that endocrine disrupting chemicals (EDCs) may be responsible for the increase in testicular cancer and that exposure to EDCs may be higher in Denmark than in Finland. The paper describes an ecological study to compare levels of EDC pollutants in human milk samples taken from Danish women and Finnish women. Human milk was chosen because concentrations of pollutants in milk fat are considered to represent maternal exposures and are a proxy for exposure of the foetus.

The original dataset comprised 130 milk samples from mothers of newborn children. Sixty-eight of the newborns (36 Danish and 32 Finnish) were healthy and without signs of congenital anomalies and 62 were born cryptorchid. The authors state "as breast milk from women who delivered a boy with cryptorchidism may be a major confounder in an analysis of the general exposure levels to EDCs in a population, we only included breast milk of the 68 mothers who gave birth to healthy boys". 121 chemicals were analysed; 12 chemicals with non-detectable levels in all samples were excluded from the final statistical analysis.

After correcting for multiple testing, 6 chemicals exhibited significant differences between the two countries (1,2,3,4,7,8-HCDD; PCBs 156, 157 and 209; dieldrin; and hexachlorobenzene) and all were higher in Danes than in Finns (Table 1 and Fig 1 of attached paper). Without statistical correction for multiple testing, higher concentrations in Danish samples were observed for 54 out of 58 chemicals that exhibited a difference between Danes and Finns (Table 2A). The remaining 6 chemicals, for which higher concentrations were found in Finns than in Danes, are given in Table 2B.

The authors conclude that the study revealed conspicuous differences between the levels of chemicals in Danish and Finnish human milk samples and that specific chemical signatures were found in the two countries. Would Members agree with this conclusion and what comments do they have on the study?

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