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According to a study conducted by the UGR, 100 per cent of pregnant women have at least one kind of pesticide in their placenta

04.09.2006

nächste Meldung

Human beings are directly responsible for more than 110,000 chemical substances which have been generated since the Industrial Revolution. Every year, we “invent” more than 2,000 new substances, most of them contaminants, which are emitted into the environment and which are consequently present in food, air, soil and water.

Nonetheless, human beings are also victims of these emissions, and involuntarily (what is known in this scientific field as “inadvertent exposure”), every day humans ingest many of these substances which cannot be assimilated by our body, and are accumulated in the fatty parts of our tissues.

This is especially worrying for pregnant women. During the gestation period, all the contaminants accumulated in the organism have direct access to the microenvironment where the embryo/foetus develops. The doctoral thesis “Maternal-child exposure via the placenta to environmental chemical substances with hormonal activity”, written by María José López Espinosa, from the Department of Radiology and Physical Medicine of the University of Granada [http://www.ugr.es], analyzes the presence of organochlorine pesticides –normally used as pesticides- in the organisms of pregnant women.

The analysis was developed at San Cecilio University Hospital , in Granada, with 308 women who had given birth to healthy children between 2000 and 2002. The results are alarming: 100% of these pregnant women had at least one pesticide in their placenta, but the average rate amounts to eight different kinds of chemical substances.

Fifteen different pesticides in the organisms of pregnant women

In her study, through the analysis of the placentas, López studied the presence of 17 endocrine disruptive organochlorine pesticides (i.e., pesticides which interfere with the proper performance of the hormonal system). The results showed that the most frequent pesticides present in the placenta tissue are DDE (92.7%), lindane (74.8%), endosulfan diol (62.1%) y endosulfan-I (54.2%). Among these, the most prevalent was endosulfan-diol, with an average concentration of 4.15 nanograms per gram of placenta (156.73 ng/g lipid). Surprisingly, the UGR [http://www.ugr.es] researcher discovered that some patients’ placentas contained 15 of the 17 pesticides analyzed.

A total of 668 samples from pregnant women were used in this study, which was approved by the Ethical Commission of the San Cecilio University Hospital. Mothers were informed of the study’s goals before giving their express consent.

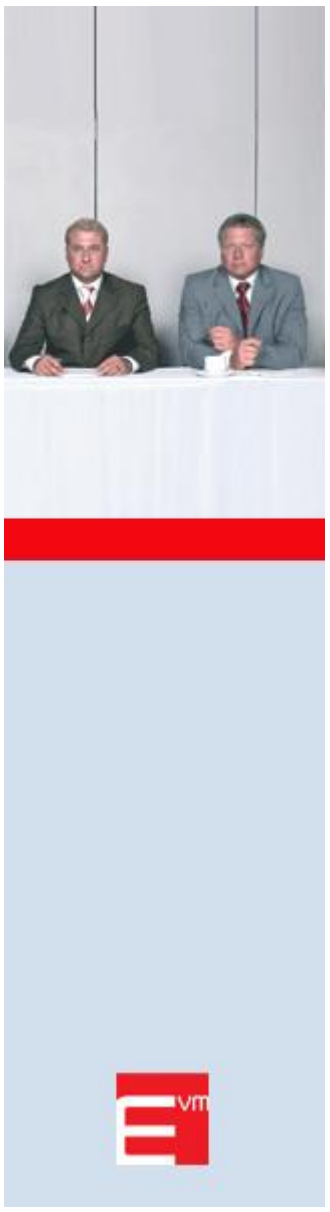
Thanks to the gynaecologists, the nurses and the midwives who participated in the study, biological samples were extracted from the blood, the umbilical cord and the placenta during childbirth. The following day, an epidemiological survey was carried out by trained survey statisticians. The survey contained questions on the general data of the parents, their places of residence, profession, medical history, anthropometric information, age, tobacco habits, lifestyle and diet during pregnancy, among other factors.

The study made at the UGR has facilitated research into the association of the characteristics of parents, newborn babies and childbirth with exposure to pesticides found in the mothers’ placenta. Among the aspects associated with a higher presence of pesticides we find an older age, higher body mass index, less weight gained during pregnancy, lower educational level, higher workplace exposure, first-time motherhood and lower weight in babies.

“Serious effects on the baby”

According to María José López, “we do not really know the consequences of exposure to disruptive pesticides in children, but we can predict that they may have serious effects, since this placenta exposure occurs at key moments of the embryo’s development”. The research group to which María José López belongs, directed by Prof. Nicolás Olea Serrano, has conducted several studies which associate exposure to pesticides with neonatal malformations if the genito-urinary system, such as cryptorchidism (undropped testicles) and hypospadias (total fusion of the urethral folds).

The UGR researcher underlines the fact that, in spite of “inadvertent exposure”, “it is possible to control pesticide ingestion by means of a proper diet, which should be



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presence of pesticides in our organisms.

The UGR researcher's work is framed within the objectives established in the research project "Increasing incidence of human male reproductive health disorders in relation to environmental effects on growth-and sex steroid-induced alterations in programmed development" (Environmental Reproductive Health), directed and carried out by a multidisciplinary group of clinicians, basic researchers and epidemiologists at several institutions from countries such as Denmark, Finland or England and financed by the European Union (QLK4-1999-01422).

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