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Multigenerational Psychiatric disorders and prenatal exposure to diethylstilbestrol

Marie-Odile Soyer-Gobillard

National Center of Scientific Research (CNRS), France

Prenatal brain develops under the influence of endogenous hormonal milieu (fetal, gonadal, adrenal, placental, maternal) plus exogenous substances with hormonal activity. Somatic effects of synthetic estrogens as diethylstilbestrol (DES) on children exposed in utero have long been recognized. This was not the case for psychiatric disorders although animal studies provide persuasive data. Analyzes from a 1002 prenatally-DES exposed children's group of the national patient Hhorages cohort shown mental disorders including schizophrenia (17, 4%), bipolarity (26, 2%), behavioral disorders (11, 26%), eating disorders (8, 4%) and suicides. The molecular (epigenetic) mechanisms of DES effects on the brain of children exposed in utero and related to the appearance of psychosis have been partly elucidated: a specific modification of methylation at the level of two genes implicated into neurodevelopment. Psychiatric impact of DES was analyzed in an informative family of 11 children whose mother took DES during 3 months after every delivery to stop lactation and followed up all along four generations. In this family providing from the Hhorages cohort, the eldest child used as control was not exposed. Psychiatric disorders were observed in all children exposed in utero of the second generation, together with somatic malformations. Grandchildren (3rd generation) presented also psychiatric disorders as bipolarity or ASD (Asperger syndrom) and a young grandgrandson was suffering ASD and learning disorder (dyspraxia) while the descendants of the eldest were unharmed. Multigenerational effects of DES exposure were also associated with neurodevelopmental disorders in grandchildren (cognitive and learning disorders, hyperactivity) out of 47,540 participants spanning 3 generations, descendants of the "American Nurses' Health O'Reilly cohort", first great epidemiological work on the subject in which an increased number of depressions was described in DES exposed children. Our work confirms the multi or even transgenerational impact of this endocrine disruptor.

Biography

Marie-Odile Soyer-Gobillard is Doctor of Sciences, Director of Research Emeritus at French National Center of Scientific Research (CNRS). She is together a cell biologist internationally recognized scientist and the President-founder of the patient association HHORAGES-France* (Halt to Artificial Hormones for Pregnancies). She is concerned with the synthetic hormones neurodevelopmental impact as a researcher and as a mother via her two children in utero exposed to these endocrine disturbers. She is a founding member of the French Environment-Health Network.