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Does lactating ptu deteriorate thyroid- Brain development in newborns?

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Propylthiouracil (PTU), an anti-thyroid agent, was administered to postpartum female rats in drinking water (0.1% w/v) from birth to lactation day (LD) 30. A hypothyroid state was recorded at LDs 20 & 30 in both dams and their offspring where a marked depression ($P<0.001$) was observed in sera thyroxine (T4), triiodothyronine (T3) and growth hormone (GH) levels while a reverse pattern ($P<0.001$) was noticed in sera thyrotropin (TSH), anti-thyroglobulin (Tg-Ab) and anti-thyroid peroxidase (TPO-Ab) levels as compared to control group. In neonatal cerebellum, the state of hypothyroidism at postnatal days 20 & 30 produced inhibitory effects on 5'-monodeiodinase (5'-DI), cholinergic enzymes [butyrylcholinesterase (BuchE) and acetylcholinesterase (AchE)] in crude extract and on antioxidants markers (total thiol, glutathione, Mn-SOD and Cu/Zn-SOD) in postmitochondrial supernatants (PMS) although a stimulatory action was observed on oxidative markers (protein carbonyls, advanced oxidation protein product and lipid peroxidation) in PMS. This state caused severe growth retardation in Purkinje cells and marked histopathological changes in the cerebellar cortex. All tested parameters in control group followed a synchronized course of development and their progress may depend, largely, on thyroid state. Overall, PTU may act as neuroendocrine disruptor causing hypothyroidism and impairment the development (dyshormonogenesis and cerebellum dysgenesis).

Biography

R. G. Ahmed completed his Ph.D. at the age 28 years from Beni-Suef University, Egypt and postdoctoral studies from K.U.-Leuven, Belgium. He gained a remarkable experience in the analysis of vertebrate brain morphology. He published 20 papers in reputed journals, 2 chapters and 3 complete international books. He is a member and reviewer in several international societies, organizations and journals. He also have a strong background in endocrinology and a more specific expertise in thyroidology. Also, he worked in South Korea (School of Life Science and Biotechnology, Korea University, Seoul) and China (Lab of Brain Research, Chinese Academy of Science) during his Ph.D.

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