Environmental pollutants and placental apoptotic indices in pregnancies complicated with intrauterine growth retardation

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Abstract:

Objective: The current study investigates the possible effect of lead, cadmium, arsenic and aflatoxin B1 toxicity as risk factors of IUGR. The study also aimed to determine the possible role of increased apoptosis in the pathogenesis of the above effect. Design: a case-control study Materials and Methods: The study was conducted in tertiary university affiliated hospital in Assiut, Egypt. Sixty pregnant women diagnosed to have asymmetrical IUGR and planned for immediate delivery were recruited at the time of delivery. An age and parity matched control group of (40) normal pregnancies were randomly selected as a control group. Maternal blood samples were obtained for measuring lead and cadmium level by plasma-optical emission spectrophotometer. Midstream urine samples were obtained for the assay of urinary cadmium, arsenic and aflatoxin B1 by layer chromatography. Neonatal scalp hair sample were analyzed for arsenic content. Quantitative determination of human placental Bcl-2 and caspase-3 using a monoclonal antibody-based enzyme-linked immunosorbent assay (ELISA) kits were performed. Results: There was significantly higher levels of lead, cadmium, arsenic and caspase-3 and lower levels of placental Bcl-2 in the IUGR group as compared with those of normal pregnancy (p

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