

EFFECTS OF LOW-LEVEL ENVIRONMENTAL LEAD EXPOSURE ON THE BEHAVIOURAL FUNCTIONS OF CHILDREN IN AL-MINYA, EGYPT

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Background: Lead (Pb) is a confirmed neurotoxin. Clear adverse effects of blood Pb level (BLL) ≥ 10 $\mu\text{g}/\text{dl}$ have been documented in children, but questions remain about Pb-associated behavioural disorders at these BLL and whether lower exposures are associated with greater disorders.

Objectives: To study the behavioural disorders associated with environmental low-level Pb exposure in children living in the villages of the east coast of the River Nile located nearby Al-Minya industrial area.

Subjects: Study was conducted at Al-Minya University Hospital for Obstetric, Gynaecology and Pediatrics (1st of July, 2007 - 30th of June, 2009). It included 120 children aged 7-9 years from the nearest 2 villages to Al-Minya industrial city (60 children each), namely, El-Newayrat and Al-Shorafaa, and 60 children from Talla, a village located to the west of Al-Minya city, as a control group.

Methods: BLL had been measured, and all studied children were subjected to Conners' test.

Results: Children BLL from El-Newayrat and Al-Shorafaa were significantly increased when compared to that of Talla children with higher affection reported with El-Newayrat. Conners' test revealed higher affection in children from EL-Newayrat and Al-Shorafaa when compared to Talla. There was a strong negative correlation to BLL (5-10 $\mu\text{g}/\text{dl}$). The most pronounced deficits were in the areas of ADHD, psychosomatic and learning disorders.

Conclusions: Low-level Pb exposure in children was accompanied with behavioral disorders. It is advised to perform a national study to evaluate how big the problem is and to put Pb-toxicity in the list of the national health problems.