

The influence of low blood lead concentrations on the cognitive and physical development of primary school children in Malaysia.

Abstract

This study aimed to determine the relationship between blood lead (BPb) concentrations and cognitive and physical development in school children. A total of 169 urban children and 100 industrial children of Malay ethnicity, in the age range of 6½ to 8½ years, were selected. BPb was determined using GF atomic absorption spectrophotometer. The mean cognitive score (102.55) of the children from the industrial area was significantly higher than that of the urban children (95.09; $P < .001$). However, no significant differences were found in the BPb levels between the 2 groups (industrial, 3.75 $\mu\text{g/dL}$; urban, 3.56 $\mu\text{g/dL}$). There was significant inverse correlation between BPb and cognitive scores for all children ($P < .05$). The cognitive scores for all children were influenced by BPb after adjustments ($P < .05$). The urban children had significantly better Weight for Height and Left Arm Circumference values than those from industrial area. There was no significant correlation between BPb and the anthropometric measurements. In conclusion, low BPb influenced the cognitive development, whereas physical development was not affected.

Keyword: Low blood lead; Cognitive performance; Physical development; Anthropometric measurements.