



## Screening for childhood lead poisoning in the industrial region of Fez, Morocco

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## Résumé en anglais

The study objectives were to estimate lead poisoning prevalence among children living next to an industrial area, to compare it to that in a control population, and to establish clinical and biological follow-up of the poisoned children. This is a descriptive cross-sectional study including 150 children (exposed and unexposed) performed between January 2012 and April 2013. It was meant to determine blood lead levels (BLLs) in children considered to be an exposed population (EP N 90), living in the industrial area Ain Nokb Fez compared with BLLs of children of other areas belonging to the same city supposed to be unexposed [UP (N = 60)]. A sociodemographic questionnaire was obtained, and a blood lead analysis was performed. Clinical and biological follow-up has been performed of poisoned children. The sample consisted of 90 EP children with an average age of  $6.82 \pm 3.32$  years and male-to-female sex ratio (SR) of 1.5 and 60 UP children with an average age of  $6.45 \pm 3.29$  years and an SR of 1.2. Among the 150 children recruited, the average of BLLs was  $58.21 \pm 36$   $\mu\text{g/L}$  ( $18\text{-}202.3$   $\mu\text{g/L}$ ). The average of BLLs in EP children ( $71 \pm 40$   $\mu\text{g/L}$ ) was statistically greater ( $p < 0.0001$ ) than that registered in UP children ( $38 \pm 13$   $\mu\text{g/L}$ ). All poisoned children belonged to the EP group at a prevalence of 21.1 %. The clinical and biological examinations of poisoned children showed a few perturbations such as anemia, hypocalcaemia, and deficiencies in magnesium and iron. No renal disease or objective neurological disorders were observed. In the follow-up of the children with  $\text{BLL} \geq 100$   $\mu\text{g/L}$  (19 cases). BLL monitoring showed a significant decrease in average of blood concentration ranging from  $136.75 \pm 32.59$  to  $104.58 \pm 32.73$   $\mu\text{g/L}$  ( $p < 0.0001$ ) and in lead poisoning prevalence ( $p < 0.001$ ), which decreased to 7.8 % from 21.1. Our study showed a high prevalence of lead poisoning (21.1 %) in EP children. The relocation of the industrial site associated with corrective and preventive measures has contributed to a decrease of exposure and lead poisoning prevalence in the aforementioned population.

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