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Chronic Lead Poisoning Prevention In Children With Calcium Supplementation

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Abstract: Lead poisoning is one of the environmental problems around the world affecting human health, especially in children. Chronic lead exposure can cause behavioural disorders, reduce the level of IQ, and cause impaired growth.

The aim of this study is to determine the effects of calcium supplementation in decreasing blood lead levels of children who are at high risk for chronic lead poisoning. Fiftysixschool children aged 9-12 years who live in areas with highest traffic density in Medan (around Terminal Amplas) had chosen included in this quasi-experimental study which thenrandomly divided into two groups. One as control group (n=26) and another group (n=30) received calcium with a dose of 400 mg twice daily orally for three months. Samples for blood lead levels were collected before and after 3 months. Potential trends in whole blood lead, and haemoglobin were assessed using paired t-tests; comparison between two treatments was assessed by unpaired t-tests. Statistical significance was defined as $P < 0.05$.

After calcium suplementation there was a significant reduction (2.855 ± 0.4976 μg/dL; 93.6%; $P<0.001$) of blood lead level, while there was no significant difference in blood lead levels in control group after 3 months period. There was a trend of elevated levels of hemoglobin in calcium suplementation group.

The present study suggests that calcium suplementation with a dose of 400 mg twice daily orally for three months to children who are at high risk for chronic lead poisoning can reduce blood lead levels significantly.

Keywords:children, blood lead levels, chronic lead poisoning, calcium supplementation.

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