
THERAPY

Effect of Zinc Supplementation during Chelation Therapy in Plumbism: A Case Report

V.N. Finelli, S. Lerner, C. Hong, and G. Lohiya.
MED LAV 1980 Mar-Apr;71(2):149-56.

Authors' summary: Chelation therapy with EDTA [ethylenediaminetetraacetic acid] for elevated blood lead levels has been shown to be associated with a marked increase in urinary excretion of zinc and a decrease in plasma zinc levels and erythrocyte ALAD [aminolevulinic acid dehydratase] activity. In this study, a worker with elevated blood lead levels was given oral zinc supplementation during EDTA chelation therapy. During this treatment ALAD activity climbed fourfold to a peak on the last day of therapy. Blood lead declined and urinary excretions of zinc and lead increased. Erythrocyte zinc remained unchanged, whereas plasma zinc fell to 60% of its pretreatment value. Although ALAD activity increased during therapy, there was also an unexplained increase of urinary ALA. No clinical side effects due to the treatment were observed in this patient. Oral zinc supplementation, possibly in slightly augmented doses, appears to be a useful adjunct to EDTA therapy, since it elevates ALAD activity and prevents severe depletion of body zinc. These initial findings warrant further studies to assess the beneficial aspects of zinc treatment,

with and without chelation therapy, in saturnism.

Chelatable Lead Body Burden (by Calcium-Disodium EDTA) and Blood Lead Concentration in Man

J.P. Hansen, M. Dossing, and P.E. Paulev. *JOM* 1981 Jan;23(1):39-43.

Authors' abstract: The chelatable part of lead body burden was measured in 32 workers and 7 office workers after an infusion test with CaNa_2EDTA . The workers had been exposed to lead at a lead and zinc processing unit for 1 to 3 years (mean 1 year). There was good correlation ($r = 0.87$) between blood lead and chelatable urinary lead excretion described by the equation $y = 0.07 \cdot 10^{0.46 \cdot x}$. From this equation it can be predicted that the generally accepted limit value for chelatable urinary lead excretion, $0.42 \mu\text{mol}/\text{mmol}$ CaNa_2EDTA administered per 24 hours ($3.1 \mu\text{mol}/24$ hours or $650 \mu\text{g}/24$ hours), corresponds to a blood lead concentration (PbB) of $1.7 \mu\text{mol}/\text{l}$ (or $35 \mu\text{g}/100\text{ml}$), which is lower than the commonly accepted limit value of $2.9 \mu\text{mol}/\text{l}$ (or $60 \mu\text{g}/100\text{ml}$) for occupationally lead-exposed persons. There was a better correlation between the chelatable lead excretion and the urinary ALA [aminolevulinic acid]-excretion ($r = 0.45$; $p < 0.001$) than between PbB and the urinary ALA-excretion ($r = 0.26$; $p > 0.05$).

SELECTED BIBLIOGRAPHY

*Finelli VN, Lerner S, Hong C, Lohiya G: Effect of zinc supplementation during chelation therapy in plumbism: a case report. MED LAV 1980 Mar-Apr;71(2):149-56.

*Hansen JP, Dossing M, Paulev PE: Chelatable lead body burden (by calcium-disodium EDTA) and blood lead concentration in man. JOM 1981 Jan;23(1):39-43.

*Abstracted

28

☆ OPD 1982 - 516-007/4617, Region 4

44Q1 72448224

TEH 0531852

DUP050032348