TREATMENT OF LEAD POISONING WITH SODIUM CITRATE

Report of Four Cases

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THE PROPER management of lead poisoning continues to be debated. The long-standing question of whether or not the patient should be "de-leaded" is not satisfactorily settled. It is generally conceded that the "de-leading" should not be done in any case until after the manifestations of acute plumbism have passed. The effects of the various forms of therapy remain under discussion, except for the certain benefit of calcium in relieving symptoms of acute lead poisoning. Whether various drugs cause lead storage or increased excretion of the lead is still being debated.

Aub, Fairhall, Minot and Reznikoff,[1] in 1926, reported a slight increase in lead excretion when sodium citrate was administered. The increase was not nearly as great as that produced by the use of ammonium chloride and similar medications, which resulted in a reduction of serum p_H. They attributed the increased lead excretion produced by sodium bicarbonate and by sodium citrate to the alkalinizing effect of these salts and to the fact that the solubility of tri-lead phosphate is increased in both alkaline and acid mediums.

Kety and Letonoff [2] have been vigorous in advocating the use of sodium citrate in the treatment of plumbism. They have recommended that 4.0 to 5.0 Gm. of sodium citrate be administered four times daily; in severe cases, they advise that 50 cc. of a 2.5 per cent solution of sodium citrate be injected intravenously. Their rationale for this treatment was based on the concept that lead formed a more soluble, diffusible complex with the citrate ion. Thus more lead was made available for renal excretion and in a less toxic form. They also postulated that the citrate

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1. Aub, J. C.; Fairhall, L. T.; Minot, A. S., and Reznikoff, P.; Lead Poisoning, with a Chapter on the Prevalence of Industrial Lead Poisoning in the United States by Alice Hamilton, Medicine Monographs, Baltimore, Williams & Wilkins Company, 1926, vol. 7, 265 pp.

2. Kety, S. S., and Letonoff, T. V.: Treatment of Lead Poisoning by Sodium Citrate, Am. J. M. Sc. **205**:406-414, 1943.