

SERVICIO NACIONAL DE SALUD
DIRECCION GENERAL

E. Mac-Iver 541 - Casilla 3979

SANTIAGO

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Box 3979, Santiago, Chile
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Professor Robert A. Kehoe
Director of the Institute of Industrial Health
University of Cincinnati
Cincinnati 21, Ohio, U.S.A.

Dear Professor Kehoe:

I had opportunity to meet you during my trip of the W.H.O.'s fellowship on March last year. In our interview I promised you to send the details about a group of children intoxicated by lead, whose families lived in a soil that contains 10% of metallic lead. Unfortunately this work is managed by pediatricians and epidemiologists who will present pretty soon the results to our medical societies. Only in the moment I will be able to have sent to you the paper because we only advise them on 10 assays.

The purpose of this letter is to ask your advice in the following subject. During a survey in a mine and foundry of the South of Chile we found an enormous pollution with lead oxides on the air and the soil of the plant and also in the soil of the environs of the plant. The children of the mineral camp use to play in the hills close to the plant that are covered with lead dust and where exist some wild fruits that they are fond of eating. The intake of lead is more likely to occur through the oral way in the children, while the inhalation way is most important in the worker. The concentrations of the lead oxides in the work place were in the range from 3.8 to 1500 mg / m³ air (almost pure clouds of dust in dust chambers). In the camp where the population lives was impossible to detect the concentration because the wind blows from the housing camp to the plant, that it is situated in one end of the place.

During your stay, besides the frequent acute cases on lead intoxications among the workers, we observed a case in a child, male, 5 years old, who presented a convulsive picture in unconsciousness. The lumbar puncture gave a clear liquid at high pressure. The child died after 36 hours of the onset of the convulsive picture that changed from one limb to another and involved too the cranial nervs. Coproporphyrins were ~~+++~~ to the qualitative test. We suspected a lead encephalitis and we performed the autopsy (the family did not approved to open the skull). The results by the dithizone test made in our Industrial Hygiene Laboratory were in mgrs % (weight in organs)

Blood	0.214 mgrs %	Liver	5.1 mgrs %
Flat bone (rib)	0.213 mgrs %	Kidney	1.02 mgrs %

We had read the paper of Korlog and Møller of three cases of acute lead poisoning in women dead after ingestion of lead monoxide in attempts to produce abortions (Acta pharmacol. et toxicol. 15:3, 1958). The results by polarographic determination are similar are similar to our observation: high concentration of lead in the liver and kidney and low in the bone. They state "This accords with the results of animal experiments, which show that the concentration in liver and kidneys is the highest during the first few weeks after the ingestion of lead. After a longer interval the concentration of lead in the bones is much the highest"

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I have tried to find in the literature these references, in order to avoid an experimental trial that we have planned. We intend to see in white mice if the lead content in bones increases on the lung run and decreases in the liver and kidneys after a total amount of lead acetate injected by intraperitoneal via in 3 or 4 shots. We have succeeded to keep survivor mice of 150 grs with a total dosis of 400 mgrs Kg/weight

The work of R. Remy and H. Buckup in white mice (Zentralb. für Arbeits-med. and -schutz, 7:233, 1957) gives information only on the bone content that increases with the time. I don't know any other publication on the subject.

In these circumstances, I will appreciate very much if you can answer me on the problem, specially if there is information of the experimental trials in animals made by you or other authors in order to avoid an useless work.

With my best regards to your staff, very truly yours.


Dr. H. Ojanguen

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