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December 14, 1949

Robert A. Kahoe, M. D.,
Kettering Laboratory of Applied Physiology,
College of Medicine
University of Cincinnati,
Cincinnati, Ohio.

Dear Doctor Kahoe:

Recently the problem of lead absorption as indicated by the urinary excretion of lead, has arisen among a group of workers in one of our affiliated companies. It appears that the urinary lead values which have been obtained are accurate since a control group of supervisory personnel exhibited values which fell within the expected normal limits and duplicate samples of the same man taken within one or two days of each other have given comparable results to within 0.01 mg. per liter. The urinary values of the group in whom increased lead absorption has been suspected, after correction to a standard specific gravity of 1.024, have fallen into the range of 0.12 to 0.24 mg. per liter.

It is contemplated to follow up these urinary lead findings with medical examinations of the exposed workers and with indicated further laboratory investigations. In this regard I am writing to you for your opinion on the relative merits of the basophilic stippling test using Wright's stain, versus the basophilic aggregation test developed by McCord and co-workers, and outlined by R.H. Markwith, M.D., in a bulletin prepared by the Ohio Department of Health in December, 1940.

In reviewing the literature of the relative merits of these two tests, it appears to me that some workers seem to prefer the basophilic stippling test and others the basophilic aggregation test. I would be very much interested to learn for which one of these two tests you have a preference, if any, recognizing of course the limitations of any hematological examination of this nature. In your section on Industrial Lead Poisoning in Volume II of Patty's Industrial Hygiene and Toxicology, you seem to leave the choice between the two tests somewhat open.

I should also be very much interested in your ideas on the possible effects of lead on the central nervous system, with particular reference to emotional syndromes such as emotional instability and anxiety-like states. One of the workers of the group referred to above in whom the urinary lead excretion was only 0.06 mg., exhibited a syndrome which the examining physician believed was emotional in origin and yet on questioning the supervisors of this worker, it was not felt that he had previously demonstrated any of the manifestations of emotional disease. I realize of course that you cannot express an opinion on this case with

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the limited information provided you in this letter, and this is not my intention - nor do I have any intention of using any information you may send me from a medico-legal standpoint. Rather I am interested in a general expression of the possibilities of lead absorption leading to the appearance of an emotional disturbance.

Naturally it is understood that severe lead absorption may result in lead encephalopathy which presumably indicates that lead can effect the central nervous system. In such cases of true lead encephalopathy the cerebro-spinal fluid pressure and/ or protein and cells are elevated. If lead can cause central nervous system manifestations of degrees less than true encephalopathy, such as emotional instability or anxiety states, do you have any information as to whether or not any changes in the pressure, cells or protein of the cerebro-spinal fluid result?

I should be most grateful to you for any information which you can send me in regard to the two topics discussed above, and I again wish to assure you that this information will not be used in any medico-legal sense but will only be used in assisting us to establish an adequate system of medical examinations for the men in whom we are suspecting increased lead absorption and for the interpretation of the findings of these examinations.

Yours very truly,

R. E. Eckardt

R. E. ECKARDT, M. D.

REE:fbp

cc: Dr. J. P. Holt

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