

September 30, 1931

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Dear Dr. Walters:

I am sending you under separate cover some reprints which have to do with the subject of lead poisoning, in which I hope you will find some information which interests you.

Unfortunately some of the more important things which we have done are not yet published, and it will be some time before they appear. However, I can briefly give you my own notions as to the manner in which the diagnosis of lead poisoning may sometimes be made — opinions which are based on our experimental work and observations over a period of several years.

In general in order to make a certain diagnosis of lead poisoning, there are three points on which there must be definite information.

(1) There must be a history of significant exposure. By significant exposure I mean one which is known to be capable of producing lead poisoning. That is to say, one must know something of the actual magnitude of the exposure involved.

(2) There must be symptoms and physical signs which are at least compatible with a diagnosis of lead poisoning. Obviously, a variety of symptoms and a variety of physical signs are produced by lead, and I need not discuss these except to point out a few things which are the most significant. In active cases there must be some toxemia, as shown by pallor, muscular weakness, tremors, colic, etc. It is very rare also to find lead intoxication without definite evidences of changes in the blood, of which the earliest sign is basophilic stippling. I, personally, question very much whether an active plumbism can be in existence without the presence of a considerable amount of stippling. I have never seen a case of lead poisoning that did not show stippling, except in a few instances which I have described in a series of cases of tetraethyl lead poisoning where the intoxication came on rapidly and was primarily a central nervous system

affair. So far as my observation goes, one of the very first signs of lead poisoning is this change in the blood. Of course frequently there is an anemia, but this comes later than the microscopic changes in the cells.

(3) There must be evidence of a significant exposure to lead compounds as shown by laboratory tests specific for lead. If exposure has been recent, and by recent I mean not more than a few weeks prior to the examination, the faeces and the urine should show definite evidences of significant quantities of lead. Lead is normally found in both faeces and urine. It is therefore of no value to have qualitative tests for lead. One must know the quantity in order to determine whether the amount which is being excreted is significant of more than the ordinary exposure to lead.

Obviously, if one is attempting to make a diagnosis on a case many weeks or many months after the cessation of exposure this laboratory test will be of no avail, unless exposure has been enormous so that a higher than normal excretion of lead persists for many months. In some instances this is the case. However, as a general thing, even following intense exposure, the excretory level is down to normal in less than six months. In most instances the level is dropped very nearly to normal in one month from the cessation of exposure. It is therefore important to make these examinations early and if possible to study the thing in relation to the source of the exposure.

If one is not in position to study and to arrive at a definite conclusion on these three points, I very much fear that it is not always possible to make a definite diagnosis. In some instances it becomes necessary to rely upon purely clinical information. However, I do not believe that there is a single specific symptom or sign that is absolutely diagnostic of lead poisoning. Many treatises have been written on this matter, but so far as I know there is not a single injury produced by lead which is not occasionally produced by some other agent. It is of the utmost importance therefore, to have accurate information by which one is enabled to estimate the significance of the exposure. In many instances this can be done from the history alone. In others, it is quite necessary either to know the exact conditions of exposure, or to have accurate laboratory information which can measure this factor without knowledge of the exact character of the individual's exposure.

F. R. Walters, M. D #3

I trust that the above information states clearly enough my own point of view, and I hope you may find it useful. If any questions arise in your mind out of my letter I should be pleased to answer more fully any of your questions on which I have information.

Very truly yours,

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