PRESENT STATUS OF NEOSALVARSAN IN THE TREATMENT OF PARASYPHILIS OF THE NERVOUS SYSTEM¹

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The results of the studies and work of Ehrlich established that "606" was an effective remedy against the *Spirochæta pallida* and in all acute syphilitic processes produced rapid disappearance of local evidence of the disease.

It was early used, however, in chronic stages of syphilis but did not at first receive the support of Ehrlich himself. The reasons for its non-use were primarily that the later manifestations of syphilis were not directly due to the spirochætæ, which were supposed to have disappeared and were only active in the toxins, and, secondarily, that the arsenic might have a deleterious effect on nerve structure and especially on the optic nerve. Since those early days wider experience in the use of the remedy has been had in regard to dosage and the method of administration; also careful observations by trustworthy clinicians have been made and many of the extravagant claims of its efficiency have been laid to rest, while an assured place of great value in the treatment of the diseases due to syphilis has been established.

Its use, however, has not displaced the older methods of treatment by mercury and potassium iodide, but has found its greatest efficiency in combination with them.

The purpose of this paper, however, is not to discuss that question, but rather the basis of the use, established as it now is, on entirely new laboratory discoveries by Noguchi, Moore, and others, of the spirochætæ in parasyphilitic diseases so-called, *i. e.*, general paresis and tabes. Their presence indicates or proves that cerebrospinal syphilis and parasyphilis as represented by various diseases of the nervous system, as gummatous tumors, cerebral syphilis, tabes, general paresis, etc., are all syphilis, directly due probably to the active effect of the spirochætæ. It is rational,

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therefore, to treat all the stages of syphilis persistently and thoroughly until all evidence of syphilis as shown by the reactions in the blood and cerebrospinal fluid by the Wassermann test disappear.

We have thus a gage to go by, indicating when to cease treatment, and on a reëxamination of the blood and spinal fluid when to resume the use of the special treatment.

This approach to almost certainty in the treatment of syphilis seems to me the greatest of the successes of modern medicine and is due to the bringing together of the laboratory and clinical methods of study. They are both dependent one on the other, rarely is or can a laboratory man be a trained or careful clinician and vice versa, but both should have at least a passing or superficial knowledge of the principles and methods of the other. Clinical knowledge is based on anatomy, physiology, pathology, and clinical observations of many years; the last can never be fully understood by the laboratory worker, nor again his studies fully comprehended by the clinician; time does not permit the pursuit of both. The specialist in syphilis is apt to become over-enthusiastic as new methods of treatment arise and is often dogmatic in his claims of cures of what have been considered organic diseases, with definite and well established pathological changes of structure, causing permanent loss of function of the nervous system.

It must not be forgotten that when destruction of the nerve elements has taken place no regeneration can take place, and that therefore there can be no restoration of function. If my last statement is accepted, why should we regard this new treatment as so important? This brings us to the crux of the situation, the great importance of early treatment of syphilis before these losses of nerve structure have taken place, and the importance of confidence in the belief that in this remedy we have the means of destroying the agent which is producing them. Another element for consideration is that probably, not positively, we may at least at all times prevent further advance of the pathological process.

As I have said, in our earlier knowledge of parasyphilitic disease we have distinguished or differentiated it from syphilis of the nervous system by the absence of spirochætæ in the former, thus establishing distinct pathological conditions for each, and consequently distinct clinical entities. While in the

light of our present information this view is no longer tenable, clinically we still have the same classes of disease with which to deal; the first class, as cerebrospinal syphilis, amenable to treatment and often to cure; the latter, incurable, although more amenable to improvement or control.

Possibly early treatment of syphilis by this new remedy may prevent these later manifestations, but certainty in regard to this must await years, ten or twenty, before a decision can be obtained. Our experience with the old mercury and potassium iodide treatment demonstrates this positively, as experience has shown under it an apparent disappearance of all clinical signs of disease, with its reappearance in ten or twenty years in the later forms of disease of the nervous system, as tabes or general paresis.

No matter how thorough or continuous the early treatment then has been, no positive assurance is possible that later manifestation may not occur. All who have had twenty-five years of practical experience in medicine in this department recall many such cases.

In the early years of "606" I opposed its use or was at least skeptical of its efficiency in parasyphilis. In the past year I have used it or "914" in many instances, and, now, with the known presence of the spirochætæ in these conditions, believe it is the only treatment in combination with the older method.

I do not look for cure of the later stage of syphilis, but have found relief of many clinical manifestations and seen a stay in the further progress of the disease.