

The changes produced in the appearance of a patient by this treatment are certainly remarkable. The disease is temporarily deprived of all those symptoms which we are accustomed to see in typhoid fever; and when the treatment is begun sufficiently early they fail to make their appearance. The low muttering delirium is gone, the hot dry skin, which we are accustomed to see is bathed in a profuse perspiration; the frequent and feeble pulse of 120 or 130 drops to 75 or 80 per minute, is full and soft; the tongue moistens with each remission, meteorism fails to appear, or rapidly subsides under the influence of the bath or the quinia. The latter seldom fails to move the bowels several times each day subsequent to its administration, and large quantities of fecal matter and flatus, which ought to be, are expelled, and the unabsorbed portion of the quinia thoroughly disinfects these discharges and contributes something towards preventing the spread of the disease.

Patients treated upon this plan *retain their consciousness* throughout the disease. They take an interest in surrounding events. They can describe all their subjective symptoms. They soon recognise the unpleasant effects of high temperature from their own sensations. They ask frequently for a repetition of the bath before the physician deems it advisable to use it. They beg for the administration of the quinia every day instead of each alternate day.

It will readily be seen what an immense advantage in the struggle for life a patient in this condition will have over his fellow whose intellect is muddled and rendered obtuse by the typhoid condition, and how much easier it is for the physician to detect and counteract the dangers of secondary lesions and intercurrent affections which are so fatal in this disease.

The application of the cold water simply abstracts the heat and does not interfere with the rapid oxidation of the tissues which produces the hyperpyrexia; the remission is of course much shorter than that produced by the quinia, which acts chemically and to a certain extent prevents oxidation, if only by its mere presence. Its power for good may be abused, and if continued too long become an element of danger. It lowers temperature by arresting molecular changes in the blood and tissues of the body, thus seriously interfering with the processes of nutrition and assimilation. The profound impression which it makes should not be continued too long nor

repeated too often, for if continued from day to day it is not altogether free from danger. The full benefit to be derived from it is obtained by the remission which it produces—allowing the organism to cool off and thus preventing serious organic lesions; consequently it is not advisable to administer this medicine, as a rule, oftener than each alternate day, and frequently during the latter part of this disease it will not be required oftener than each third or fourth day with an occasional bath in the afternoon.

It is best to begin the administration of quinia with a 25 or 30 gr. dose. If this does not produce a satisfactory remission it should be increased until the maximum is reached for the particular case under treatment. This quantity, whatever it proves to be, can be materially reduced in the latter stages of the disease.

When this treatment is begun early, no other treatment is usually required. I am in a habit of presaging it with two or three cathartic doses of calomel; this is an efficient cathartic and clears the alimentary canal thoroughly of any accumulations of feculent matter—is a parasiticide and prevents the absorption of any further infectious material from that source, and is supposed to exert a favorable influence upon the subsequent course of the disease. It should not be administered *after* the typhoid condition is thoroughly developed for reasons which are sufficiently obvious without any explanation. Occasionally a case will occur where the baths and quinia do not produce satisfactory remissions. In these cases the administration of the quinia should be preceded by digitalis or veratria for a period of twenty-four or thirty-six hours. I have met but two cases of this kind out of sixty-three, in both of which a full dose of 45 grs. quinia following the digitalis was entirely satisfactory. Neither digitalis nor veratria should be given in the latter stages of this disease, for whatever may be said of the action of digitalis as a heart tonic in other diseases, it is certainly not a safe remedy in the latter weeks of typhoid fever.

To Dr. James Currie, of Liverpool, is due the credit of first using cold water scientifically for the abstraction of heat in hyperpyretic conditions. To him is due the invention of the curved axillary thermometer, one of which has been preserved in the British Museum. His method was adopted largely throughout the British Isles and on the Continent, in the English army and navy. His