

# Quinine Therapy in Malaria.

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## *General Principles Involved.*

**T**HE treatment of malaria is dealt with in this article in general terms with special reference to its aspect as a frequent complicating factor in other diseases, especially those of a chronic or debilitating nature, such as tuberculosis or leprosy. Malaria as a complication is often of a particularly intractable nature and what is emphasised below is particularly applicable, namely that in order to eradicate the malaria infection it is a most necessary adjuvant to combat the co-existing diseases as well. That means to say, as far as leprosy is concerned, the specific treatment for leprosy must go hand in hand with specific antimalarial treatment, and the two must be combined so as to conduce as much as is possible to the well-being of the patient. Fresh food, fresh air, and moderate exercise are almost as necessary as the rational treatment with quinine.

That quinine is a specific for malaria no one will be found

nowadays to question seriously, but all are by no means agreed upon the methods of its practical application, or its dosage. Here I would merely set forth my own beliefs upon the principles and methods of its practical application. What is the generally accepted therapeutic dosage of quinine; how and when it should be applied? How long should the course of quinine be? What are its limitations? These and cognate questions I will endeavour to deal with.

Although quinine has been known to practitioners of medicine over three hundred years, there is by no means as yet that unanimity regarding its dosages, its limitations or uses which one would like to see accorded to such an unrivalled specific. First of all, I would state my belief that as there are three species of malaria parasites producing, as it were, in man three distinct and recognisable fevers, so there are differences in the behaviour of these parasites and their associated fevers to quinine. The same rule of therapeutics is not applicable to all, and I think this is readily admitted by those who have had some experience of this subject. The three parasites are the benign tertian: *Plasmodium vivax*, the subtertian; *Plasmodium falciparum*, and the quartan, *Plasmodium malariae*. I think too, that it may be stated in general terms that, of the three, the subtertian is the most readily amenable to quinine in many of its aspects and the parasite is most readily extirpated by the drug, the quartan is the most resistant, whilst the benign tertian occupies a position midway between the two. By this, I mean to state that though the individual attack is readily cut short by quinine, yet the actual infection is more difficult to eradicate from the body, and relapses readily occur even when quinine is exhibited in relatively large doses over a long period. And then there are very varied opinions regarding the amount of individual dosage of quinine, the total dosage and the methods of its administration. There have been occasions, as for instance, during the War, when really heroic doses of quinine were exhibited often to unwilling subjects with the idea of totally extirpating the parasites from the body through overwhelming them with toxic doses of the drug. Then again, there are practitioners in England who shrink from using that dosage of quinine which is regarded with equanimity by practitioners in tropical countries. At present, however, it is refreshing to note that sane opinions prevail and that we have once more returned to what I might term the Mansonian tradition regarding quinine therapy.

There is another aspect of the subject with which I

would preface my remarks, and that is the generally neglected issue of the bodily resistance to malarial infection. In the tropics, amidst uncongenial and unphysiological surroundings, when the body is enfeebled by continued malarial fevers, notably benign tertian, then it appears to be remarkably resistant to quinine. We are most of us familiar with the acute, intractable and alarming aspect which malaria infections assume in time of war, stress and famines. The rapidity with which malaria spreads and the malignant form it assumed in Russia subsequent to the Revolution, are an example of this. The rapidity with which malaria infections disappear altogether, often without the aid of quinine therapy, when the victim returns to a more salubrious climate, better food and better living conditions, afford an example of what the *vis medicatrix* can do to exterminate the infections.

There are misconceptions too, regarding the longevity of the malaria parasites in the human body subsequent to primary infection. They have not a limitless existence as is sometimes supposed. The life of the benign tertian parasite in a temperate country subsequent to initial infection is one of about three years, that of the subtertian one year or less, whilst that of the quartan is the most prolonged probably five or more years.

There is yet one other point to be considered, and that is my belief that, as in other prolonged infections, the *primary attack* is more amenable to quinine treatment than are subsequent relapses. It is possible, I believe, on these occasions (which I admit are rarely encountered) to extirpate the infection in the human body by energetic, prompt, and timely exhibition of quinine and in fact, nearly every tropical practitioner can point to individual cases of malaria where a *Therapia magna sterilisans* appear to have been obtained by quinine.

(*To be continued.*)