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ATEBRIN AND MALARIA.

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During the last few years atebrin has been fairly extensively employed in the treatment of all varieties of malaria infection with, on the whole, very encouraging results. A recent report on the successful use of this drug in a series of cases of benign tertian malaria, with the usual five days' course giving 0.3 grammes daily, has been published by P. E. McNabb and S. C. Schwartz [1], and equally favourable results have been recorded by E. M. Tareev, A. Bolotina, A. Gontaeva, A. Raskin and E. Epstein [2]. S. P. James [3] has demonstrated the changes taking place in the parasite following a single dose of 0.6 grammes of atebrin showing the disappearance of the pigment and breaking up of the cytoplasm of benign tertian and quartan malaria parasites.

The drug has generally been used alone in daily doses of 0.3 grammes for a period of five days, but occasionally prolonged up to ten days without untoward results beyond the appearance of a yellowish skin discoloration which, after the more prolonged course, may persist for several weeks.

In resistant cases of malaria atebrin has been employed also in combination with or followed by plasmochin in the hope of obtaining better results. Theoretically, the combination would appear to be sound as the atebrin exerts its maximum effect on the asexual forms while plasmochin quickly eradicates the gametocytes.

A recent report by Chopra and Chaudhuri [4], however, indicates that the combination of atebrin and plasmochin simultaneously is not free from risk as the atebrin appears to increase the toxicity of the plasmochin. They report in detail a number of cases of poisoning with various combinations of these drugs. Chalam [5] also describes untoward results in a large percentage of cases where atebrin and plasmochin were used in combination and he considers it safer to use the drugs separately, giving atebrin for the first five days followed by plasmochin for the next five days.

This tendency to combine the use of atebrin and plasmochin in the treatment of malaria suggests that the former drug alone has not always produced satisfactory results. I have had recently under my care a small group of consecutive cases of relapsing benign tertian malaria in which the results of the exhibition of atebrin alone appear to support the above view. This group of four cases was treated with atebrin 0.3 grammes daily for five days, none of these having had this drug before, followed by a course of iron in large doses to combat the anaemia, with the following results:

(1) Signalman A. had benign tertian malaria in Peshawar. Treated
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in hospital from November 1 to 17, 1931, with the usual course of plasmochin and quinine. He returned home in 1934 and was admitted under my care on June 25, 1934, suffering from benign tertian malaria; parasites present, spleen not palpable. He was given 0.3 gramme atebrin daily for five days, followed by oral iron for his anaemia, and was discharged on July 9 afebrile, and no parasites were seen in smear. Readmitted August 18 with relapse; benign tertian parasites present; febrile.

(2) Lance-Corporal L.: Malaria in India with three admissions to hospital for this disease, treated with plasmochin and quinine. He came home towards the end of 1933 and was admitted to hospital January 3, 1934, benign tertian rings and gametocytes being demonstrated. He was given the same treatment as Case 1 and discharged hospital on January 10 afebrile, and free from parasites. Readmitted April 30 with fever; parasites again present in large numbers.

(3) Signalman F.: Malaria in Quetta, treated in hospital October 14 to November 9, 1933: benign tertian infection. Admitted Aldershot June 13, 1934, with fever; benign tertian parasites present, treated as above. Readmitted July 16 with fever, parasites again present.

(4) Lance-Corporal C.: Served in Hong Kong. Stated he had no malaria there. Home April, 1934. Admitted to hospital Aldershot July 27, 1934, with fever, benign tertian parasites present. Atebrin treatment as above. Discharged free from parasites, and afebrile. Readmitted October 30, 1934, with fever which he stated had recurred within five weeks of leaving hospital. Spleen enlarged; benign tertian parasites, schizonts and gametocytes, present.

The poor result obtained in the above four cases of benign tertian malaria contrast with the response to the same atebrin course obtained in the treatment of malignant tertian malaria in an officer recently returned from a blackwater fever district of Africa. He had developed an irregular fever on board ship on his way home, but no parasites were found and he was considered to be a case of pneumonia. He proceeded to his home where treatment for pneumonia was continued until the presence of an empyema at the left base was suspected, when he was admitted into hospital for treatment. On admission he was found to be very markedly anaemic; spleen easily palpable and tender; very numerous malignant tertian parasites were seen in a thin smear.

It was considered safer to avoid quinine, lest blackwater fever should be precipitated, and the usual short course of atebrin was given followed by iron to combat the anaemia. His recovery was uninterrupted; he was seen four months later and had up to that time had no further symptoms and felt extremely well.

Summary.

(1) A small consecutive series of chronic benign tertian malaria is recorded in which the usual course of atebrin, 0.3 gramme daily for five days, failed in each case to bring about a cure.
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(2) Reports are quoted indicating that the simultaneous administration of atebrin and plasmochin, which theoretically would appear to be therapeutically sound, is not free from risk, the atebrin apparently increasing the toxicity of the plasmochin.

REFERENCES.


DISPOSAL OF WASTE WATER.

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Under field conditions various methods have been recommended for the disposal of waste water from kitchens, ablution places, bath houses and laundries, but their success is much affected by local conditions and the quantity of water to be disposed of.

Unless a perfectly clear effluent, free from soap and grease, is obtained, the sides and bottom of a soakage pit will rapidly become impermeable and a nuisance result. Again, in a clay soil or other places where a soakage pit cannot be used, the effluent has to be discharged into a stream or ditch. In such circumstances it is still more important to produce a clear effluent.

A trap can only be expected to keep back the grosser particles in suspension and a certain amount of grease. Treatment by chemical precipitants is therefore the only solution possible.

Bleaching powder and lime have been recommended in the past [1] and experiments were carried out using these two chemicals. Such a large quantity had to be used, however, and the results were so poor that it was decided that other methods and precipitants must be tried if a perfectly clear effluent was to be obtained.

As the question of the pH value [2] does not appear to have been considered in connexion with the disposal of waste water in the field, tests were made with various precipitants and the pH value of the waste water adjusted, after the addition of the precipitant.

Alumino-ferric, ferric sulphate, and ferrous sulphate all gave good results, provided the pH value was adjusted by the addition of sodium hydroxide. After many experiments, it was decided that ferrous sulphate was the most suitable chemical to use. It produced a very heavy floc, which settled down in a few minutes, leaving the supernatant water perfectly clear. It also had the advantage of being cheap and an article of supply.