SOME RESULTS OF A SECOND INDUCTION OF MALARIA IN GENERAL PARALYSIS OF THE INSANE.

BY J. ERNEST NICOLE, AND JOHN P. STEEL, WARRINGTON.*

INTRODUCTION.

Malarial therapy has been used in this hospital on all suitable cases of general paralysis of the insane for the past three years. During the last eighteen months it has been thought justifiable to induce pyrexia for the second time in those cases where insufficient improvement was evidenced after the first attack, and where the physical condition was satisfactory.

In so far as experience has shown us the slowness with which mental improvement may take place after the first attack of malaria, a renewal of the treatment has not been considered advisable until some considerable time has elapsed after the termination of the first attack, and an accurate assessment of the mental condition has been possible. In fact, the average length of time between the first malaria and any subsequent inoculation has been fourteen and a half months: owing to lack of success in our early endeavours malaria only actually occurred on an average seventeen months after the primary attack.

In all, twenty-five cases have been deemed suitable for further malarial treatment, and on these fifty-two inoculations were performed (see Table). On the first twenty cases our own well-established strain of infected blood was used, but it was effective in only five instances: the remaining fifteen being subjected to inoculation on several occasions without success.¹

Three of these 'resistant' cases were then exposed to mosquito infection; one patient showed a few parasites in the peripheral blood but developed no pyrexia. The other two had true malaria, and one of these acted as donor to other 'resistant' patients.²

Following the introduction of this mosquito strain eleven of these previously 'resistant' patients developed satisfactory rigors. Five others were then re-inoculated for the first time and in all except one the procedure proved successful.

It will be seen, therefore, that twenty patients have had induced malaria for the second time.

*From the County Mental Hospital, Winwick, Warrington.
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Case No. 3.—Died June, 1925.
Case No. 8.—Discharged July 1926.
Case No. 18.—Died May 1926.
Case No. 51.—Died January 1926.
Case No. 54.—Discharged August 1926.
Case No. 63.—Died December 1925.
Case No. 77.—Discharged January 1926.
Case No. 99.—Died June 1926.
Case No. 51.—This patient was treated before admission to this hospital, and details of his pyrexia are unknown, except that he had 10 rigors, and was subsequently discharged.
Case No. 136.—This patient was treated in this hospital and improved sufficiently after his first induced malaria to be discharged in February 1925. He relapsed and was re-admitted as shown in the Table. Prior to re-admission, patient had suffered severe privation, and had over-indulged in alcohol.
MALARIA IN GENERAL PARALYSIS

In all these cases a known strain of benign tertian type has been used, but thirteen instanced pyrexia of the double variety; sixteen had a spontaneous disappearance of the parasites, while two received quinine medication after very few rigors because of intercurrent complications; the remaining two had quinine exhibited in the ordinary way, when it was determined to terminate the attack. In contrast to this, out of a series of over 100 first attacks only five patients did not require quinine to end their fever, some of these being accounted for by the fact that they had had mosquito-acquired malaria in the tropics.

Owing to this frequent spontaneous remission we have not been able to obtain as many rigors per patient as we would have wished: whereas the average number per patient for first malaria has been seven, second attacks give us only five.

Before considering results we would mention that all these cases have been under observation on an average for eight months since their second malaria.

Of the twenty cases under review one patient has since died, and seven have shown no improvement whatsoever; seven have shown some slight improvement, either mental or physical; two have made marked progress, especially mental, and have good prospects of an early discharge, and three have already been sent home.

It may be of interest to give fuller particulars concerning these last five cases.

CLINICAL HISTORIES.

Case 47. Admitted December 1923, age 50, health poor and habits faulty. C.S.F. Lange 5555521000, globulin markedly positive.

Inoculated in April 1924, and had 11 rigors.

He was slightly improved mentally, and his physical condition was better, while his habits were good.

In August 1925 C.S.F. Lange 0133321000, with globulin negative.

Reinoculated in November 1925, and had 7 rigors which terminated spontaneously.

His mental condition is markedly improved, and he is a useful, intelligent and reliable worker, and his initiative and insight are very fair. His bodily health is uniformly good.

In February 1926 C.S.F. Lange 0011110000, with globulin and acetic anhydride tests negative.

His discharge is now being considered.

Case 79. Admitted June 1924, age 32, bed-ridden condition and habits faulty. C.S.F. Lange 5555310000, globulin markedly positive.

Inoculated in August 1924, and had 2 rigors.

He was little, if any, improved mentally, but his physical condition was very much better, and his habits were good.

In October 1925 C.S.F. Lange 0344433000, with globulin negative.

Re-inoculated in February and early December 1925, and successfully in late December of last year. He had 5 rigors which terminated spontaneously.
His mental condition is now very much improved and although very reserved he works usefully and in a consistent manner, with a considerable interest in his late occupation and home affairs. He is rational, pleasent and appears to be stable. His discharge may be considered shortly.

In April 1926 C.S.F. Lange 1233332100, with globulin negative, and acetic anhydride test negative.

Case 8. Admitted January 1923, age 38, health poor but with good habits. C.S.F. Lange 5555554321, globulin markedly positive. Admitted with a history of cerebral seizures.

Inoculated April 1924, and had 11 rigors.

He showed a slight mental improvement, and a marked physical one. His habits however, became slightly faulty and he had occasional repeated seizures.

In August 1925 C.S.F. Lange 4555544300, with weakly positive globulin.

Reinoculated in July 1925, and successfully in December 1925. He had 5 rigors, terminating spontaneously.

He subsequently showed sufficient improvement to be discharged a short time ago.

Case 54. Admitted December 1923, age 33, health fair and with good habits. C.S.F. Lange 5555555410, globulin heavily positive.

Inoculated May 1924, and had 7 rigors, with two relapses subsequently.

He was improved neither mentally nor physically: in fact, his health was slightly impaired.

In August 1925 C.S.F. Lange 0155432000, with negative globulin.

Reinoculated in early and late August 1925, December 1925, and successfully in January 1926. He had 4 rigors, terminating spontaneously.

Physical improvement was noted almost immediately on the termination of pyrexia, while his mental condition steadily cleared up, and he was subsequently discharged.

Case 77. Admitted June 1924, age 46, health poor but habits good. C.S.F. Lange 5555555543, globulin markedly positive.

Inoculated July 1924, and had 8 rigors.

There was little, if any, improvement on the mental side, although his health was a trifle more robust.

In August 1925 C.S.F. Lange 0125543300, with negative globulin.

Reinoculated August 1925, and had 4 rigors, which terminated spontaneously.

His improvement was steady and continuous, and his health became excellent. He was finally discharged and reports have been received that he is doing very well at his ordinary business.

CONCLUSION.

In view of a number of cases where there has been little or no mental improvement subsequent to the first therapeutic malaria, and yet where definite progress followed a second attack, it seems well worth while to renew malarial treatment in suitable patients.

We wish to thank our Medical Superintendent, Dr. F. M. Rodgers, for his kindness in permitting us to quote hospital records.

REFERENCES.

1 Nicole and Steel, Jour. of Trop. Med. and Hyg., Dec. 1925.
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J. Ernest Nicole and John P. Steel

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