

Antimosan-Fastness of *T. congolense*.

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OF paramount importance, before the institution of a chemotherapeutical campaign against trypanosomiasis with a drug, is the determination whether the trypanosomes will or will not develop a resistance to the repeated use of the particular drug. If there be required for the treatment, whether the object be control or sterilisation, a number of injections there is always the danger of non-sterilising doses producing drug-fast parasites which would then interfere considerably with the campaign or even necessitate the use of some other trypanocidal drug. Especially useful would be a drug which did not produce drug-fastness in a campaign, the object of which was to produce not sterilisation but premunition. Thus it was decided to carry out an experiment in guinea pigs, the object of which was to determine whether drug-fast *T. congolense* trypanosomes would or would not be produced in these animals by the use of Antimosan. Antimosan was chosen as the drug for experimentation, because, if any extensive treatment of a trypanosomiasis were to be undertaken it would be in *T. congolense* infection of bovines with Antimosan.

The experiment was arranged to be carried out in two distinct sections. In the first section a regular procedure was followed of treating the infected guinea pig with a non-sterilising dose of Antimosan, and when the parasites reappeared in the blood, a sub-inoculation was made into other guinea pigs to produce the second generation in guinea pigs which were then submitted to the same process of treatment and subinoculation to produce the third generation. The dose in c.c. tabulated is the average obtained in three guinea pigs of the same generation and represents the number of c.c. of a 1 per cent. solution of Antimosan per Kg. of live body-weight. Relapse indicates the average number of days after treatment to the reappearance of the trypanosomes.

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|-------------|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| Generations | ... | ... | ... | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th | 11th |
| Dose | ... | ... | ... | 1.75 | 1.0 | 1.0 | 1.0 | 1.1 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| Relapse | ... | ... | ... | 6.6 | 1 | 4.3 | 2.0 | 2.0 | 4.5 | 0 | 1.5 | 3.0 | 2.5 | 4.0 |
| Generations | ... | ... | ... | 12th | 13th | 14th | 15th | 16th | 17th | 18th | 19th | 20th | 21st | 22nd |
| Dose | ... | ... | ... | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| Relapse | ... | ... | ... | 0.3 | 2.6 | 3.75 | 0 | 3.0 | 2.6 | 3.0 | 3.0 | 2.0 | 3.5 | 2.0 |
| Generations | ... | ... | ... | 23rd | 24th | 25th | 26th | 27th | 28th | 29th | 30th | 31st | 32nd | |
| Dose | ... | ... | ... | 1.25 | 1.25 | 1.25 | 1.5 | 1.5 | 1.5 | 1.25 | 1.25 | 1.25 | 1.25 | |
| Relapse | ... | ... | ... | 3.0 | 2.0 | 0.6 | 1.0 | 3.0 | 2.6 | 2.0 | 4.0 | 3.0 | 2.0 | |

In the second section of the experiment an endeavour was made to keep the number of sub-inoculations into fresh guinea pigs down to the minimum. An infected guinea pig was treated and all subsequent relapses in this guinea pig were similarly treated. Only when it appeared that the guinea pig would die was a sub-inoculation carried out into guinea pigs which, in turn were submitted to the same procedure. The consequence was that the trypanosomes were exposed to action of the drug in each guinea pig a number of times. This arrangement was made for the reason that it approximated more closely to what would likely result if treatment in the field were to be carried out on an extensive scale. From the details submitted below the trypanosome of guinea pig A can be traced through to the termination of the experiment in guinea pig J. After each guinea pig is recorded the number of doses and the quantity in c.c. of the 1 per cent. solution of Antimosan used in each Kg. of live weight.

A (14 doses of 1.4 c.c.): B (11 doses of 1.25 c.c.):
 C (1 dose of 1.25 c.c.): D (11 doses of 2 c.c.):
 E (3 doses of 2 c.c.): F (1 dose of 1.25 c.c.):
 G (3 doses of 1.25 c.c.): H (1 dose of 3 c.c.):
 I (2 doses of 3 c.c.): J (7 doses of 3 c.c.).

There were thus 54 doses varying from 1.25 c.c. to 3 c.c. distributed over 10 guinea pigs.

CONCLUSION.

There were no indications of the production of drug-fastness in the use of Antimosan for the treatment of *T. congolensis* infection in guinea pigs either when each generation was treated once or when the trypanosome was submitted to the largest possible number of treatments in each guinea pig.