SIX YEARS OF LEPROSY WORK IN BRITISH GUIANA *

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INTRODUCTION

In leprosy, with its often prolonged incubation period and long and variable course, it is necessary to be very cautious in estimating the results of treatment. Nevertheless, so striking have been the results of treatment since hydnocarpus oil was first extensively used in the Mahaica Leprosy Hospital, in 1926, that some degree of optimism seems justifiable.

COMPARISON OF VARIOUS DRUGS

In 1926 and 1927 various drugs were tried on unselected groups. Pure hydnocarpus oil, the ethyl esters of that oil, sodium hydnocarpate, sodium morrhuate, and thymol were thus tried. After 18 months the results with hydnocarpus oil and its salts (shown in Table 1) were so superior that it would have been grossly unfair to withhold them from the whole population.

Table 1.—*Comparing the results of preliminary trials of different drugs, showing (a) improvement of all cases treated, and (b) the bacteriologically positive cases that became negative.*

Drug	Total cases improving			Cases becoming negative		
	Number cases treated	Improved		Number cases treated	Negative	
		Number	Per cent		Number	Per cent
Hydnocreol	10	8	80	8	1	12.5
Hydnocarpus ethyl esters	95	88	92.6	55	23	41.8
Sodium hydnocarpate	10	7	70	5	1	20.0
Sodium morrhuate	50	20	40	14	....	....
Thymol	10	5	20	7	....	....

Extensive trial was made of alepol in 1927-28, its use being continued over a year because of the rapidity of results frequently ob-

* This is a condensation of an article which appeared in the *British Guiana Medical Annual for 1932*, Georgetown, 1933, pp. 35-44.—Editor.

tained. However, these were not maintained. Eye lesions in particular showed no signs of retrogression, and the only patients who have become blind since 1926 are three treated exclusively with alepol for over a year. The patients became so convinced that alepol caused blindness that it would have been necessary to limit its use, though there was no evidence that alepol played an active part in the production of eye lesions. Owing to its painlessness when given intravenously, and its rapidity of effect, it is very useful in gaining the confidence of patients, especially children. However, the results do not appear to be maintained, and its use has been limited to the first few months of treatment.

METHODS OF TREATMENT ADOPTED

GENERAL TREATMENT

In mixed or pure cutaneous cases a preliminary course of alepol is given. In neural cases oil or esters are used from the outset.

The alepol is given in 3 per cent solution in 30 per cent pure cane sugar, this having proved as effective as glucose. After fractional sterilization the solution is exposed in Petri dishes to ultra-violet radiation from a mercury vapor lamp at a distance of 1 foot for 1 hour on the day of use. This solution can be given up to 5 to 10 cc. biweekly.

With some patients each injection is followed by fever and ague; in this case a change is made at once to pure hydnocarpus oil. This is done in any case when a dose of 5 to 10 cc. of alepol solution is reached. If after the change there be no increase of weight in a few weeks, a change is made to the esters.

The oil and esters are also submitted to ultra-violet irradiation. The oil is injected intramuscularly once a week, the esters intramuscularly or intradermally, or by both methods in suitable cases. When a dose of 15 cc. is reached (in children, 10 cc.), the injections are given once in 2 weeks until 6 consecutive monthly examinations have proved negative, when the patient is put before the Leprosy Board for parole. After this, 10 cc. of oil or esters are given monthly for an indefinite period, monthly bacteriological examinations being also made.

The weight is an invaluable guide to dosage. The dose is increased by 1 cc. each time, to the maximum of 10 or 15 cc., as long as the weight increases. If it remains the same or decreases by less than two pounds, the same dose is repeated. If there is a loss of

two pounds or more, the dose is reduced by 1 cc. By this method one avoids almost entirely those severe and sometimes fatal reactions which so often impede treatment.

LOCAL TREATMENT

This consists of the application of trichloracetic acid, and solid carbon dioxide. The disfiguring whitening of the skin that sometimes results is relieved by surgery and electrical methods.

Surgery.—Minor operations, such as the excision of nodules, trimming of ear-lobes, peri-arterial sympathectomy, tendon lengthening, etc., have a distinct sphere of usefulness.

Electrical methods.—Ionization, faradization, high frequency and diathermy currents and ultra-violet radiation are in general use in commencing contractions, nasal lesions, treatment of nodules, etc.

RESULTS OF TREATMENT

McLeod (1) is reported to have said recently that:

"So far as his experience has gone, there had been no definite cure, and even though there had been arrests lasting for two, three, and in one case, four years, recurrence had invariably taken place."

He then compared the hydnocarpus oil treatment with the use of cod-liver oil in tuberculosis.

However diffident one may feel, it would be unfair to those suffering from leprosy to allow so pessimistic a pronouncement to go unchallenged. In fifteen years' experience in the treatment of tuberculosis the writer has never seen from the administration of cod-liver oil any of the dramatic results seen so frequently in the treatment of leprosy with hydnocarpus oil.

Because of persistent propaganda, changes in the law and the institution of out-patient treatment, practically all the cases now seen for the first time are early cases, most of them within a year of onset. Every such case shows marked improvement within a few months, and sometimes all symptoms are lost. The results obtained in early cutaneous and neural cases are shown in Table 2.[1] Included in these numbers are some cases which have been under treatment only a few months. All these cases, though often showing wide dissipation of

[1] Difficulties in the interpretation of results from different institutions have arisen in the past through the want of a universal system of classification. In this paper the terminology used is that recommended by the Leonard Wood Memorial Conference, at Manila.

nodules, had little or no deformity. It is clear that in such cases rapid recovery is practically the rule.

TABLE 2.—*Results of treatment of early cases, showing (a) changes of all cases treated, and (b) the bacteriologically positive cases that became negative.*

Type of case	Total number treated	Change of condition				Positive to negative	
		Improved	Stationary	Worse	Died	Number positive	Became negative
C-1.....	33	30 (91 per cent)	—	—	3	33	26 (79 per cent)
C-1, N-1.....	17	14 (82 per cent)	—	—	3	17	9 (53 per cent)
C-1, N-2.....	5	3 (60 per cent)	1	1	—	5	3 (60 per cent)
N-1.....	48	45 (94 per cent)	2	—	1	4	3 (75 per cent)
N-2.....	91	(84 per cent)	2	2	11	4	3 (75 per cent)
Totals.....	194	168 (87 per cent)	5 (2.6 per cent)	3 (1.5 per cent)	18 (9.3 per cent)	63	44 (70 per cent)

However, recovery is not limited to the early cases. After longer treatment even the advanced nodular ones show appreciable improvement. Of 297 treated in six years, 193 or 65 per cent have shown improvement, 64 patients having become arrested and 59 quiescent. Of 192 which were originally bacteriologically positive 61, or 32 per cent, have become negative.

Relapses.—Experience with relapses has not been unfortunate, though only two cases were lost sight of after discharge. Interruptions in quiescent cases occur from time to time, but only 14 of 128 arrested cases have relapsed within the last four years. Of these, only six (4.7 per cent) have failed to recover up to the time of writing.

Follow-up.—This is particularly complete. Each paroled case is examined monthly at one of the out-patient centers. The attendance is fairly regular, and the results are therefore highly accurate.

EFFECT ON THE INCIDENCE OF LEPROSY

It remains to enquire what effect this work has had, if any, on the incidence of leprosy in the Colony. As was to be expected, in

1932, when the new leprosy ordinance and the new out-patient centers began to function, there was a significant increase in notifications, due to the alacrity with which patients now come forward in the early stages, when segregation is not necessary. Some are seen so early that diagnosis is difficult.

The notifications from 1917 to 1931, as annual averages over five-yearly periods, are given in Table 3. There seems to be no doubt that the measures taken during the past years have materially reduced the incidence, the average figure for the 1927-1931 period being only 56.2 as compared with 66.8 ten years before. Further, the average daily inmate figure for the hospital has dropped from 288.8 in 1926 to 260.7 in 1931.

TABLE 3.—*Notifications of leprosy from 1917 to 1931.*

Years	Average annual notifications
1917-1921	66.8
1922-1926	61.6
1927-1931	56.2

The type of discharged patient has now completely changed. Whereas previously the few cases discharged were spontaneously arrested neural cases, generally mutilated and deformed, the great majority of those now discharged have none of the stigmata of the disease. This was the fact with over 68 per cent of the 81 cases discharged in 1931, and all but three were able to earn their living without help from poor law funds.

It remains to be added that in spite of the large number of cases now being treated, and the additional measures instituted, the cost of upkeep of the leprosy hospital has decreased from $41,626.85 in 1926 to $31,136.09 in 1931.

SUMMARY

1. Extended trial of certain drugs in the treatment of leprosy in British Guiana during the past six years has demonstrated the superiority of hydnocarpus oil and its products.

2. The standard method of treatment is now alepol given intravenously, followed by hydnocarpus oil or esters, together with supplementary aids.

3. The weight chart is used as the guide to dosage.

4. Of 194 early cases treated, 168 (86.6 per cent) have improved. Among them were 63 open cases, of whom 44 (69.8 per cent) became closed.

5. Of 297 advanced cases 65 per cent have improved, and 64 patients have become arrested and 59 quiescent. Of 192 advanced cases originally open, 31.8 per cent have become closed.

6. The proportion of relapses has been 4.7 per cent.

7. There is a tendency to a decrease in the incidence of leprosy.

8. Nearly all the cases now being discharged leave without stigmata.

9. In spite of increased activity the cost of operation of the leprosy hospital has decreased.