CHLOROQUINE FOR REACTIONS IN LEPROSY

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An interesting observation was made in a large leprosy colony in Nigeria in 1958. Five hundred patients were kept on pyrimethamine prophylaxis for malaria for one year, and during this period the incidence of lepra reaction among these cases was found to be reduced [Bruce-Chwatt and Horn (1)]. This observation raised the possibility that antimalarials might be effective in the treatment of reactions in leprosy. Based on this observation it was decided to investigate the effect of chloroquine on patients showing reactions.

MATERIAL AND METHOD

For the experiment we selected 14 cases, one-half of which were advanced lepromatous, 4 with secondary polyneuritic changes, and the remaining half were tuberculoid, 1 of them with polyneuritic changes. All were attending the outpatient clinic. Of the 7 lepromatous cases, 5 had shown recurrence of lepra reaction on several occasions, and had received calcium gluconate and potassium antimony tartrate (Ca-PAT) therapy for each exacerbation. The remaining 2 cases were in the stage of reaction for the first time. All of these cases were strongly positive (4+) bacteriologically, by the scraped-incision method, before and during the stage of reaction. All of the tuberculoid cases were experiencing reaction for the first time, excepting one who had previously received Ca-PAT therapy for reactions. Bacteriologically, 5 of them were positive (1+ or 2+), while 2 gave negative findings. A total of 9 out of the 14 cases (7 lepromatous, 2 tuberculoid) had been under sulfone therapy for varying periods before the occurrence of reaction.

The drugs used were chloroquine sulfate (Nivaquine, M & B) in 200 mgm. tablets, equivalent to 150 mgm. of chloroquine base; or chloroquine phosfate (Avlochlor, ICI) in 250 mgm. tablets, equivalent to 150 mgm. of chloroquine base.

The variation in dosage and the length of therapy in our cases was considerable. In general, a patient in reaction received 150 mgm. of cholorquine base 3 times daily for 7 days, then twice daily for 14 days. After that the dose was further reduced to 150 mgm. of base once daily for another fortnight or two. The treatment was stopped as soon as clinical subsidence of the reaction condition was observed. The period of treatment varied from 25 to 72 days, and the total dosage varied from 8.55 gm. to a maximum of 27.6 gm. per patient.

The patients under observation were examined carefully and frequently, and record was made of their progress regarding resolution of fever, different skin lesions, swelling of extremities, neuralgia and arthralgia, degree of bacteriologic positivity, and improvement or relapse.

RESULTS

The patients were relieved of their joint pains and neuralgia to a considerable extent, and in the lepromatous cases fever subsided within a few days in 2 out of 5 cases. Clinical subsidence of skin lesions, with flattening and scaling, was observed in four of the lepromatous cases

and in all of the tuberculoid cases excepting two in whom the clinical improvement was partial and temporary in nature. As the clinical condition of these cases was found to be aggravated in spite of the chloroquine therapy, they were put under Ca-PAT treatment later on. Edema of the extremities was reduced in 4. No improvement in bacteriologic findings was observed in lepromatous cases, but the degree of positivity was found to be reduced in tuberculoid cases. Relapse occurred in 4 lepromatous and 1 tuberculoid cases after withdrawal of the drug.

Complications: All the patients, excepting two, complained of loss of appetite, nausea, loss of body weight, general weakness, and insomnia, when the drug was continued for a prolonged period.

Details of each of the cases treated, with the results, are given in Table 1. Data on the symptoms of the reactions, and of conditions regarded as side effects of the treatment, appear in Tables 2 and 3.

DISCUSSION

Much work has been done to study the nature of lepra reaction, but up to the present there is no clear understanding of this disease process and its pathogenesis. Consequently, the treatment of a not-too-well understood condition can only be empirical. The beneficial effect of chloroquine base in the treatment of lepra reaction was observed by Ramu ([4]), and by Job ([3]); it gave good symptomatic relief. Dharmendra ([2]) reported favorable effect in 12 out of 18 patients, but that it was ineffective in cases in which reactions occurred frequently and repeatedly.

In our study series it was observed that neuralgic and arthralgic pains, and edema of extremities, were well controlled. Response of the skin lesions to the drug was less impressive in lepromatous cases than in those of the tuberculoid variety (see Table 2). Furthermore, there were cases in which chloroquine failed but PAT was effective, and recurrence of reaction could not be prevented with chloroquine.

Another noticeable feature was that tuberculoid cases tolerated the drug well with greater total dosage than lepromatous cases, and that the therapy could be prolonged with less side effects in the tuberculoid cases than in the lepromatous cases. A special advantage of chloroquine is that its administration is easy, by the oral route, whereas calcium gluconate and potassium antimony tartrate have to be given intravenously.

CONCLUSION

Considering the side effects induced as well as clinical response as observed by us, it may be concluded that chloroquine is not a good therapeutic agent for controlling the reaction in leprosy, although partial symptomatic relief was observed in some of the cases under investigation.

TABLE 1.—*Leprosy cases treated with chloroquine for reactions.*

Case No.	Name, sex, age (yrs).	Advancement Bacteriology	Clinical condition before chloroquine treatment (and previous treatment)	Days treated Dosage[a]	Clinical condition after chloroquine treatment	Side effects	Improvement
			Lepromatous cases				
1.	D.A. M/41	L2P2 3+	Chronic lepra reaction. E+R+, lesions multiple; neuralgic pain. (Ca-PAT previously.)	46 days 75 tablets (11.25 gm.)	Lesions somewhat flattened; neuralgic pain much relieved.	Anorexia, general weakness.	Slight and temporary; relapsed later on.
2.	I.D. F/47	L2P2 3+	Chronic lepra reaction. E+R+, lesions multiple; fever, body ache, neuralgic joint pain. (Ca-PAT previously.)	39 days 68 tablets (10.2 gm.)	Lesions slightly flattened; joint and neuralgic pains subsided consiedrably.	Nil	Fair; relapsed later on.
3.	S.S. F/47	L2P1-2 3+	Diffuse infiltration. E+R+, lesions multiple, with fever, neuralgic pain, edema feet and legs. (Ca-PAT previously.)	35 days 77 tablets (11.65 gm.)	No appreciable improvement of skin lesions; but fever, edema, neuralgic pain subsided markedly.	Anorexia, weakness.	Temporary; relapsed later on.
4.	A.S. F/36	L2 3+	Chronic lepra reaction. E+R+, lesions multiple over face, back, hands, legs; neuralgic pain. (Ca-PAT previously.)	28 days 57 tablets (8.55 gm.)	No appreciable effect of treatment except partial relief of neuralgic pain.	Insomnia, indigestion	Nil
5.	J.B. M/52	L2P2 3+	E+R+, lesions multiple; fever, neuralgic pain. (Ca-PAT previously.)	30 days 75 tablets (11.25 gm.)	Lesions and neuralgic pain subsided somewhat, fever markedly.	Insomnia, weakness.	Temporary; relapsed later on.
6.	N.B. M/50	L2-3 2+	E+R+, multiple new lesions; fever, joint pains, edema feet and legs.	28 days 57 tablets (8.55 gm.)	Lesions partially subsided, joint pains and edema markedly.	Palpitation, vertigo, insomnia, anorexia, weakness.	Partial

7.	C.P.	L2	E+R+, multiple lesions; fever, neuralgic pain, edema feet and legs.	42 days 71 tablets (10.65 gm.)	No appreciable improvement of skin lesions; edema subsided partially, neuralgic pain relieved.	Palpitation, insomnia, anorexia.	Slight
			Tuberculoid cases				
1.	R.B. F/24	T2 2+[b]	Frequent, scattered E+R+ lesions with sulfones. (Ca-PAT previously.)	42 days 135 tablets (22.25 gm.)	Lesions somewhat subsided, but condition relapsed after withdrawal of the drug.	Anorexia.	Not satisfactory.
2.	B.P. M/60	T2P2 2+[c]	E+R+ lesions all over body; some edema of hands and feet.	45 days 76 tablets (11.4 gm.)	Lesions, and edema, subsided considerably.	Anorexia, indigestion.	Fair
3.	S.M. M/18	T2 2+[b]	E+R+ lesions multiple; neuralgic pains.	54 days 184 tablets (27.6 gm.)	Lesions subsided considerably, neuralgic pains markedly.	Nil	Fair
4.	S.P. M/18	T2 2+[b]	E+R+ lesions all over body.	50 days 155 tablets (23.25 gm.)	Lesions subsided, becoming flat.	Insomnia, anorexia, nausea, weakness.	Good
5.	D.D. M/22	T2 1+[b]	E+R+ lesions multiple; neuralgic pain.	25 days 100 tablets (15 gm.)	Lesions subsided somewhat, but later the condition became worse. (Ca-PAT started.)	Vomiting, anorexia, insomnia.	None; condition aggravated; responded to Ca-PAT.
6.	D.S. M/44	T2 Neg.	E+R+, multiple scaly lesions; neuralgic pain.	72 days 170 tablets (25.5 gm.)	Lesions subsided and flattened; neuralgic pain much relieved.	Weakness, slight insomnia.	Fair
7.	T.A. /27	T2 1+[c]	E+R+ lesions multiple, neuralgic pain.	48 days 70 tablets (10.8 gm.)	Lesions subsided slightly, temporarily; condition aggravated after some days. (Ca-PAT started.)	Anorexia.	None; condition aggravated; responded to Ca-PAT.

[a]Number of tablets, and (in parentheses) amount of chloroquine base.
[b]Nasal mucosa negative.
[c]Includes positive nasal mucosa.

TABLE 2.—*Degree of response to chloroquine of different signs and symptoms.*

Symptom	No. of cases improved				
	Total	Markedly		Slightly	
		L	T	L	T
Neuralgic pain (10 cases)	8	4	2	2	0
Joint pain (2 cases)	2	2	0	0	0
Edema, extremities (4 cases)	4	2	1	1	0
Fever (5 cases)	2	2	0	0	0
Skin lesions (14 cases)	14	2	5	5	2

TABLE 3.—*Side effects of chloroquine treatment.*

Effect	Cases affected		
	Total	Lepromatous	Tuberculoid
Loss of appetite	9	4	5
Nausea & vomiting	2	0	2
Indigestion	2	1	1
General weakness with loss of weight	6	4	2
Insomnia	7	4	3

CONCLUSIÓN

Considerando los efectos colaterales inducidos así como la respuesta clínica observada por los AA., cabe concluir que la cloroquina no es un buen agente terapéutico para dominar la reacción en la lepra, aunque se observó alivio sintomático parcial en algunos de los casos bajo investigación.

RESUMÉ

Considérant les effets secondaires qu'elle entraîne, ainsi que la réponse clinique telle que nous l'avons observée, on peut conclure que la chloroquine n'est pas un bon agent thérapeutique dans la réaction lépreuse, encore que dans quelques uns des cas étudiés un certain soulagement symptomatique ait été noté.

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