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Government of Madras.

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GOVERNMENT OF MADRAS.
PUBLIC DEPARTMENT.

27th April 1880, No. 610.

Cinchona Febrifuge.

Read the following paper :—

No. 83. *From G. SMITH, M.D., Surgeon-General, Indian Medical Department, to the Chief Secretary to Government, dated Fort St. George, 31st March 1880, No. 142.*

In obedience to G.O., No. 83, of 22nd January 1879, I have now the honor to submit to His Grace the Governor in Council the first report on the experimental

Sulphate of Cinchonidine.
 „ of Cinchonine.
 Sikkim Cinchona Febrifuge.

Alkaloids in the treatment of malarious fevers. The report embraces the period from the beginning of the inquiry till the 31st December 1879.

2. *Sulphate of Cinchonidine*.—The cases in which this preparation was used were as follows :—

Type of Fever,	No. Treated.
Quotidian	768
Tertian	47
Quartan	143
Remittent	12
Total Treated ..	<hr/> 970

Of these the drug cured 849 and failed in 121 cases. The average dose given was 6.24 grains, and the average entire quantity administered in each case was 87.93 grains. The average period each case was under treatment was 5.86 days. In some instances the drug induced nausea or vomiting, effects which sometimes follow the use of even quinine.

3. *Sulphate of Cinchonine*.—The cases treated by this preparation were as follows :—

Type of Fever.	No. of Cases.
Quotidian	776
Tertian	80
Quartan	47
Remittent	14
Total Treated ..	<u>917</u>

Of these 805 were cured, 109 were not cured, and 3 died. The average dose given was 9.52, and the average total quantity of the drug administered in each case was 109.57 grains. In some instances nausea, vomiting, purging, or headache ensued. The average time required to check the fever was 6.55 days.

4. *Sikkim Febrifuge*.—The cases treated by this combination of alkaloids were as follows:—

Type of Fever.							No. of Cases.
Quotidian	..	..	..	..	..	..	2,235
Tertian	..	..	..	..	..	..	389
Quartan	..	..	..	..	..	..	572
Remittent	..	..	..	..	..	..	2
Total Treated							3,198

Of the treated, 2,915 were cured, while 270 were not cured, and 13 died. The average dose of the febrifuge given was 7.66 grains, and the average total quantity administered in each case 80.78 grains. The administration of a dose was often followed by giddiness and the signs of gastric disturbance, such as nausea, vomiting, or purging, were much more common and more severe than in the case of either Cinchonidine or Cinchonine. On an average it took 5.46 days to check an attack of fever with this remedy.

5. The results of the trials are given and contrasted in the following table, but the comparison is not quite a fair one, as there were so many more cases of fever treated by Sikkim febrifuge than by either of the two other remedies:—

Cinchona Preparations.	Average Dose given.	Average Total quantity of drug given in each case.	Average Number of Days each case was under treatment.	Total Number of Cases treated.	Cured.	Not Cured.	Died.
Sulphate of Cinchonidine.	GRS. 6.24	GRS. 87.93	5.86	970	849	121	..
Do. of Cinchonine ..	9.52	109.57	6.55	917	805	109	3
Sikkim Febrifuge ..	7.66	80.78	5.46	3,198	2,915	270	13

6. Referring to Table 5 it appears that a less quantity of the Sikkim febrifuge was required than of either Cinchonidine or Cinchonine to cure an attack of fever. The actual average quantity used of each febrifuge was as follows:—

							Grains.
Sikkim Febrifuge	..	..	..	..	..	..	80.78
Sulphate of Cinchonidine	..	..	..	..	..	..	87.93
Do. Cinchonine	..	..	..	..	..	..	109.57

From these figures it appears that the Sikkim drug is the most active of the three, Sulphate of Cinchonidine the next active, and Sulphate of Cinchonine the least active as a febrifuge.

7. The Sikkim febrifuge had also the advantage as regards the time required to effect the cure of a paroxysm of fever—a point of great importance as regards the soldier and also as regards some of the laboring classes. The following are the figures:—

							Days.
Sikkim Febrifuge	..	..	..	..	..	..	5.46
Sulphate of Cinchonidine	..	..	..	..	..	..	5.86
Do. of Cinchonine	..	..	..	..	..	..	6.55

In this respect also, therefore, the three preparations hold the same relative positions.

8. The relative curative merits of the three drugs as shown by the figures given above in paragraph 5 may be illustrated as follows:—

Preparations.	RATE PER CENT. OF		
	Cured to Treated.	Not Cured to Treated.	Deaths to Treated.
Sikkim Febrifuge	91.15	8.44	.40
Sulphate of Cinchonine	87.78	11.88	.32
Do. of Cinchonidine	87.52	12.47	..

This places the Sikkim febrifuge first on the list as a febrifuge, Cinchonine next, and Cinchonidine lowest. These results are somewhat unexpected, and must not be regarded as final. Further experiments are in progress, and in due course the available data will be sufficiently numerous to indicate authoritatively the respective merits of the three preparations. The unpleasant effects caused by the Sikkim preparation were marked, and still form the chief obstacle to its more extended use.

ENCLOSURE No. 1.
Results of Treatment of Paroxysmal Fever by Sulphate of Cinchonidine.

Station and Medical Officer.	TYPE OF FEVER.				Average Dose of Febrifuge administered.	Average Total Quantity of Febrifuge administered.	Average Number of Days under treatment.	Results.		
	Quotidian.	Tertian.	Quartan.	Remittent.				Cured.	Died.	Discharged otherwise.
Pámban—Assistant Apothecary E. Ailsworth	53	7	..	4	4.65	33.11	3.37	62	..	2
Cochin—Surgeon-Major W. H. Morgan	32	1	..	1	6	62.70	3.70	33	..	1
Coonor—Surgeon-Majors C. A. Andrews and L. C. Nanney.	43	9	..	..	4.48	85.62	4.69	48	..	10
Kótágní—Apothecary J. Norman	87	..	6	..	6.67	18.52	1.38	93	..	..
Yercaud—Apothecary S. T. Browne	176	9	9	..	4.30	30.52	3.19	118	..	76
Central and Temporary Jail and Police, Vellore—Surgeon-Major C. R. G. Parker.	32	..	..	5	5	109.45	7.21	37	..	..
Madanapalle—Apothecary T. Ward	137	5	101	2	4.19	38.82	3.06	238	..	7
Rangoon, 24th Regiment, Madras N. I.—Surgeon G. F. Bevan.	6	2	..	..	5	235	18.75	2	..	6
Bangalore—Surgeon-Major W. Pearl..	22	..	..	..	4.77	47.50	4.90	22	..	..
Mercara—Surgeon C. A. Harvey	33	4	21	..	6.12	120.86	4.72	43	..	15
Kimedi—Apothecary J. Reardon	3	..	..	..	5	90	9	3	..	..
Secunderabad, 38th Regiment, N. I.—Surgeon-Major A. McClurg.	20	1	..	..	9.28	43.33	6	20	..	1
Madras—Surgeon-Major D. R. Thompson, M.D.	10	..	..	..	11.50	100.1	7.1	10	..	..
Salem—Surgeon-Major R. E. Pearse	10	1	..	..	4.59	54.36	4.45	11	..	..
Cantonment Hospital, Secunderabad—Surgeon S. C. Sarkies and Surgeon-Major A. Sanderson.	26	2	..	..	7.32	68.07	5.50	26	..	2
Triplicane, 4th District—Surgeon A. Porter, M.D.	22	6	..	..	11.32	276.96	9.85	27	..	1
Masulipatam—Surgeon-Major C. R. G. Parker	56	..	..	..	6	29.89	2.87	56	..	..
Total ..	768	47	143	12	..	..	..	849	..	121
Average ..	..	..	..	..	6.24	87.93	5.86	..	..	..

ENCLOSURE No. 2.
Results of Treatment of Paroxysmal Fever by Sulphate of Cinchonine.

Station and Medical Officer.	TYPE OF FEVER.				Average Dose of Febrifuge administered.	Average Total Quantity of Febrifuge administered.	Average Number of Days under treatment.	Results.		
	Quotidian.	Tertian.	Quartan.	Remittent.				Cured.	Died.	Otherwise treated.
Cochin—Surgeon-Major W. R. Morgan	19	10	..	..	5	53.94	3.84	19	..	..
Coonor—Surgeon-Major C. A. Andrews and L. C. Nanney.	45	11	..	..	5.82	86.49	4.59	43	..	12
Station, Nellore—Surgeon-Major A. E. M. Ross	28	..	..	..	10	114.61	3.82	39	..	..
Chidambaram—Assistant Surgeon Parasurama Naiker	60	..	..	..	4.73	29.91	2.03	24	..	36
Police, Cuddapah—Native Surgeon M. Iyasawmy Pillay	15	7	28	..	5	87	5.80	50	..	..
Madanapalle—Apothecary T. Ward	314	1	..	1	3.68	31.09	2.49	273	..	43
Vayitri—Apothecary A. N. Wray	2	..	..	..	5	120	12	2	..	1
Cumbum—First-class Hospital Assistant Syed Niza Moodeen.	15	13	15	..	4.60	99.76	6.79	43	..	..
Secunderabad, 1st Regiment, N. I.—Surgeon L. Beech	55	6	..	..	10	36.55	5.42	61	..	..
Rangoon, 24th Regiment, N. I.—Surgeon G. F. Bevan	6	2	..	..	5	266.25	17.50	4	..	..
Vellore Jail—Surgeon H. D. Cook, M.B.	35	..	..	5	8.62	187	5.67	32	..	8
Chittoor Dispensary—Surgeon M. E. Reporter	39	29	..	7	9.08	162.97	6.64	75	..	..
Coimbatore Jail—Surgeon-Major G. S. W. Ogg, M.B.	48	..	..	..	10	87.50	4.37	46	..	2
Kimedi—Apothecary J. Reardon	5	..	..	..	6	64.40	6.80	5	..	..
French Rocks, Right Wing, 40th Regiment, Madras N. I. Apothecary E. A. Morris.	12	..	..	..	3	69.75	10	12	..	..
Madras—Surgeon-Major D. R. Thompson, M.D.	32	..	..	..	13.68	135.18	10.12	32	..	..
Salem—Surgeon-Major R. E. Pearse	7	..	..	..	3	43.71	4.85	6	1	..
Triplicane, 4th District—Surgeon A. Porter, M.D.	30	1	2	..	55.86	355.72	7.17	27	..	3
Mercara, 40th Regiment, Madras N. I.—Surgeon-Major C. A. Harvey.	9	..	..	..	12	50	4.66	12	..	..
Total ..	776	80	47	14	..	..	..	805	3	109
Average ..	..	..	..	..	9.52	109.57	6.55	..	..	..

ENCLOSURE No. 3.
RESULTS of Treatment of Paroxysmal Fever by Sikkim Cinchona Febrifuge..

Station and Medical Officer.	TYPE OF FEVER.				Average Dose of Febrifuge administered.	Average Total Quantity of Febrifuge administered.	Average Number of Days under treatment.	RESULTS.		
	Quotidian.	Tertian.	Quartan.	Remittent.				Cured.	Died.	Discharged otherwise.
Pámban—Assistant Apothecary Ailsworth	40	4	..	2	4.65	27.13	2.76	36	..	10
Kótagiri—Apothecary J. Norman	113	4	..	..	7.56	23.90	1.67	117	..	..
Police, Chittoor—Surgeon M. E. Reporter	34	63	..	..	5	104	10.62	102	..	..
Yercaud—Apothecary S. T. Browne	111	6	12	..	5.92	45.75	2.65	87	..	42
Station, Nellore—Surgeon-Major A. E. M. Ross	82	40	..	..	8.15	115	4.58	121	1	..
Jail, Nellore—Surgeon-Major A. E. M. Ross	8	4	..	..	5	52.50	3.50	12	..	..
Chidambaram—Assistant Surgeon M. Parasurama Naiker	95	..	..	..	6.52	42.41	2.64	53	..	42
Guntúr—Surgeon S. M. Tyrell	191	44	..	..	5	48.65	3.16	173	2	60
Civil Dispensary, Cuddapah—Native Surgeon M. Iyasawmy Pillay. ..	330	44	304	..	4.58	32	2.38	675	..	3
District Jail, Cuddapah—Native Surgeon M. Iyasawmy Pillay. ..	31	..	..	..	5	111.32	7.51	31	..	..
Police, Cuddapah—Native Surgeon M. Iyasawmy Pillay	15	4	13	..	5	71.25	4.75	32	..	..
Madanapalle—Apothecary T. Ward	114	6	64	..	4.60	33.85	2.40	181	..	3
Secunderabad, 28th Regiment, N. I.—Surgeon-Major J. McDonnelly. ..	42	..	..	..	6	69.52	5.59	42	..	..
Secunderabad, 1st Regiment, N. I.—Surgeon L. Beech	141	3	..	..	9.96	47.77	4.90	144	..	..
Rangoon, 24th Regiment, N. I.—Surgeon G. F. Bevan	10	2	..	..	6	187.71	10	4	..	10
Calicut—Surgeon-Major W. H. Roberts, M.D.	4	..	..	..	10	15.75	6	4	..	..
Civil Dispensary, Palmanér—Assistant Apothecary M. Devanboo. ..	18	5	148	..	4.87	34.42	3.36	97	10	64
Thayetmyo, 32nd Regiment, N. I.—Surgeon-Major H. J. Hozlett. ..	22	..	..	..	13.86	61.59	4.27	21	..	1
Civil Dispensary, Chittoor—Surgeon M. E. Reporter	64	67	28	..	5.75	77.30	4.63	159	..	..
Jail, Coimbatore—Surgeon-Major G. W. Whitton, M.D.	10	..	..	..	12.20	65.20	4.30	10	..	..
Kimedi—Apothecary J. Reardon	3	..	..	..	6	64	5.33	3	..	..
Secunderabad, 38th Regiment, N. I.—Surgeon-Major A. McClogh. ..	56	18	..	..	9.40	41.55	5.33	73	..	1

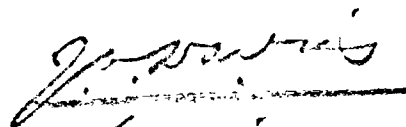
French Rocks—Apothecary E. A. Morris	21	..	..	..	5	37.76	7	20	..	1
Madras—Surgeon-Major D. R. Thompson, M.D.	13	4	..	..	14.58	109.41	9.05	17	..	..
Salem—Surgeon-Major R. E. Pearse	6	1	..	..	6.71	67.42	3.28	7	..	..
Civil Dispensary, Secunderabad—Surgeon-Major A. Sanderson, M.A. and M.D. ..	420	21	1	..	23.71	26.61	2.51	442	..	..
Masulipatam Police—Surgeon H. D. Cook, M.B.	20	12	..	..	6	146.81	6.40	21	..	11
Masulipatam Dispensary—Surgeon H. D. Cook, M.B.	19	12	..	..	6	49.35	4.19	26	..	5
Mercara, 40th Regiment, N. I.—Surgeon-Major G. A. Harvey. ..	22	5	..	..	11.55	56.51	5.77	27	..	..
Triplacane, 4th District—Surgeon A. Porter, M.D.	19	7	..	..	10.38	235.11	7.37	20	..	6
Left Wing, 39th Regiment, N. I.	..	..	..	..	..	..	..	..	..	..
Vizianagrum—Honorary Surgeon T. Quin and Surgeon E. W. Damlá. ..	37	5	..	..	8.58	157.78	7.28	36	..	6
Vayitri—Civil Apothecary Wray	..	..	..	..	..	None treated.	..	..	..	..
District Jail, Guntúr	15	..	..	..	5	56	1.86	15	..	..
Police Hospital, Bellary—Surgeon-Major A. L. Hackett	59	..	..	..	6	91.83	8.13	59	..	..
Civil Dispensary, Bellary—Surgeon-Major A. L. Hackett	32	1	..	..	6	75.57	6.03	29	..	4
Rangoon, 22nd Regiment, N. I.—Surgeon H. Allison, M.D. ..	18	2	..	..	7.70	354.7	19.90	19	..	1
Total	2,235	389	572	2	..	..	..	2,915	13	270
Average	..	..	..	..	7.66	80.78	5.46	..	..	..

No. 84.

ORDER THEREON, 27th April 1880, No. 610.

Ordered that a copy of this report be forwarded to the Government of India, for information, in continuation of letter, No. 153, dated 4th February 1879, and that copies be furnished to the Revenue and Military Departments.

(True Extract.)


for Chief Secretary.

To the Surgeon-General, Civil Medical Department.
„ Revenue Department.
„ Military Department.

Exd. T. O'Connor.

J. e. s.

Ms. 4089/52

Memorandum of 1880
1891

Govt. of 1880
PUBLIC.

THE SURGEON-GENERAL,
CIVIL MEDICAL DEPT.,
AC, AC, AC.

Dated April 27th.

Island

Reel. May 11th

G.O., 27th April 1880, No. 610.

APRIL.
Nos. 83-64.

1891

Cholera Febrilis—Copy of the report on the experimental trial of *Cholera Alkaloids* in treatment of malarious fever, forwarded to the Government of India.

White Order

Communicate to the Board
of Revenue and the Commissioner
of Madras.

File 1896

3 To the Board of Revenue
1. To the Commissioner of Madras
1891/78