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Whole Article

A SERIES OF CASES OF AURICULAR FIBRILLATION TREATED
WITH QUINIDINE SULPHATE, WITH SPECIAL REFERENCE TO
THE DURATION OF THE RESTORED NORMAL MECHANISM.*

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FORTY-THREE consecutive cases of auricular fibrillation were treated with quinidine sulphate in this department here during the period 1921-1923. The immediate results, together with the after-histories of those patients in whom normal rhythm was restored are now recorded. A small group of thirteen cases, published by Drury and Iliescu² in 1921, formed the nucleus of the present series.

All the patients were army pensioners attending the cardiac clinic at University College Hospital; the quinidine treatment was always carried out in the wards of the hospital, the patient being subsequently examined at frequent intervals in the out-patient department. The work of following up these cases has previously been in the hands of several other workers in the department, more especially Drs. A. N. Drury, C. C. Iliescu and G. R. Brow.

The dosage and method of administration used has been sufficiently described in Drury and Iliescu's paper. The results of treatment are fully shewn in Tables I, II and III. In 26 out of 43 cases (60·5%), normal rhythm was restored; owing mainly, we believe, to the exclusion of patients suffering from severe degrees of congestive heart failure, no serious accident, embolic or otherwise, occurred during the treatment of this series. The duration of the cardiac symptoms given in the tables is based upon the patient's statement; the known duration of the fibrillation is calculated from the date at which he first attended at the hospital and fibrillation was identified, to the time when the quinidine was given; all were cases of chronic auricular fibrillation. A comparison of the two groups (successful and unsuccessful) is given in Table III; this shews no significant difference in relation to etiology, age, duration of symptoms and clinical condition of the heart and

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TABLE I.

Twenty six cases successfully treated with quinidine.(Subjects 1 to 5 and 7 correspond with *Cases I to V and VII* in Drury and Iliescu's Paper).

Case.	Age.	Hist.*	E. T.†	V. C.‡	Heart enlarged.	Valves.‡	Symptomatic in years.	A. F. in months.¶	Dosage.**	Normal Rhythm lasts (days).
1	46	nil	good	nil	slight	nil	5	9	2 gm. in 2 d.	2564
2	51	nil	poor	nil	slight	nil	5	6	4 gm. in 3 d.	146
3	32	nil	fair	nil	nil	nil	6	13	6.6 gm. in 4 d.	703
4	27	Ch.	fair	nil	moderate	M. S.	6	15	4.4 gm. in 4 d.	223
5	25	nil	fair	nil	great	M. S.	6	1	2.8 gm. in 3 d.	778
6	54	nil	fair	nil	moderate	M. S.	6	21	0.8 gm. in 1 d.	7
7	37	nil	poor	nil	slight	M. S.	4	13	3.6 gm. in 3 d.	14
8	30	nil	poor	nil	slight	M. S.	4	5	2 gm. in 2 d.	10
9	36	nil	poor	sl.	slight	M. S.	1	3	9 gm. in 5 d.	321
10	30	nil	good	nil	slight	nil	3½	5	0.8 gm. in 1 d.	1460§
11	29	nil	poor	nil	nil	M. S.	2½	9	2 gm. in 2 d.	2
12	37	nil	fair	nil	nil	nil	3	15	2 gm. in 2 d.	560
13	39	R. F.	poor	nil	slight	M. S.	4	18	6.4 gm. in 5 d.	32
14	38	nil	poor	nil	nil	nil	2½	4	3.6 gm. in 3 d.	1673§
15	26	nil	fair	nil	great	M. S.	6½	19	3.8 gm. in 3 d.	4
16	41	nil	poor	sl.	slight	M. S.	6	2	2 gm. in 2 d.	317
17	59	nil	poor	sl.	moderate	nil	1	¾	4.8 gm. in 3 d.	17
18	30	nil	poor	nil	slight	M. S.	4½	12	9.2 gm. in 7 d.	1656
19	47	S.	poor	sl.	moderate	M. S.	4½	1	17.2 gm. in 11 d.	655
20	35	nil	poor	nil	moderate	M. S.	4	30	2 gm. in 2 d.	8
21	39	R. F.	poor	nil	moderate	M. S.	5	1	4.8 gm. in 3 d.	3
22	29	S.	poor	nil	slight	M. S.	7	1	9 gm. in 7 d.	317½
23	41	nil	poor	nil	moderate	M. S.	6	1	3.6 gm. in 2 d.	197
24	29	R. F.	poor	nil	moderate	M. S.	7	3	2.4 gm. in 2 d.	333
25	36	nil	fair	nil	slight	nil	5	¾	12.8 gm. in 11 d.	1200
26	40	R. F.	fair	nil	slight	M. S.	6	8	8.4 gm. in 5 d.	24

* R. F. = rheumatic fever; Ch. = chorea; S. = syphilis. † E. T. = exercise tolerance.

‡ V. C. = venous congestion. § M. S. = mitral stenosis. ¶ known duration of fibrillation.

** dosage of quinidine in grammes and days. § still continuing when last seen.

TABLE II.

Seventeen cases unsuccessfully treated with quinidine.(Subjects 1 to 6 correspond with *Cases VIII to XIII* in Drury and Ilescu's paper).

Case.	Age.	Hist. [†]	E. T.†	V. C.†	Heart enlarged.	Valves.‡	Symptoms in years.	A. F. in months. ¶	Dosage.**
1	38	nil	poor	nil	slight	M. S.	5	4½	7.8 gm. in 5 d.
2	28	nil	poor	nil	moderate	M. S.	4½	9	13.5 gm. in 7 d.
3	24	nil	poor	nil	great	M. S.	5½	12	9 gm. in 5 d.
4	47	nil	poor	nil	slight	nil	4½	15	1.6 gm. in 1 d.
5	23	nil	poor	nil	moderate	M. S.	3	10	3.6 gm. in 4 d.
6	41	nil	poor	nil	slight	nil	5	15	15.6 gm. in 11 d.
7	57	nil	fair	nil	moderate	nil	6	2½	4.8 gm. in 4 d.
8	26	nil	poor	nil	nil	M. S.	3	1	10 gm. in 8 d.
9	40	nil	poor	sl.	moderate	M. S.	2	1	7.6 gm. in 6 d.
10	46	nil	poor	nil	slight	M. S.	6½	3½	6.6 gm. in 5 d.
11	42	nil	poor	nil	nil	M. S.	6	23	16.8 gm. in 10 d.
12	41	R. F.	poor	nil	slight	M. S.	6	12	19.2 gm. in 13 d.
13	49	R. F.	poor	nil	moderate	M. S.	7	1	9.4 gm. in 7 d.
14	45	nil	poor	nil	slight	nil	4	25	21.8 gm. in 13 d.
15	54	nil	poor	nil	moderate	nil	5	8	16.4 gm. in 11 d.
16	47	nil	poor	nil	slight	M. S.	4	1½	15.4 gm. in 9 d.
17	53	nil	poor	nil	slight	M. S.	4	1	17.8 gm. in 12 d.

* R. F. = rheumatic fever.

† E. T. = exercise tolerance.

‡ V. C. = venous congestion.

¶ M. S. = mitral stenosis.

¶ known duration of fibrillation.

** dosage of quinidine in

grammes and days.

circulation; no conclusions as to the effect of any of these factors upon the possible success or failure of quinidine therapy can, therefore, be drawn. The total amount of quinidine used for each patient is shown in Tables I and II.

Duration of restored normal rhythm.

The 26 patients, who reacted successfully to quinidine, have been kept under close observation for the purpose of ascertaining how long the heart rhythm would remain normal. These results are shewn as a graph in Fig. 1 for the first two years after treatment. At the end of the first month, auricular fibrillation had reappeared in 9 cases, while in 17 (65.4%) normal

TABLE III.

(Successful and unsuccessful cases compared.)

	Av. age. (yrs)	Etiology.			Exercise tolerance.			Venous Congestion.		Enlargement of heart.				Valves.		Symptoms in years. (av.)	A. F. in months. (av.)
		R.F.	S.	Nil	Poor	Fair	Good	Nil	Sl.	Nil	Sl.	Mod.	Gt.	M.S.	Nil		
26 successes.	27.0	5	2	19	16	8	2	22	4	4	12	8	2	18	8	4.65	8.27
17 failures.	41.2	2	0	15	16	1	0	16	1	2	8	6	1	12	5	4.76	8.5

rhythm persisted. By the end of six months fibrillation had reappeared in 2 more cases, leaving 15 (57.7%) with normal rhythm. At the end of one year fibrillation had reappeared in 16 of the original series, 9 (36.0%)* remained normal and one could not be traced. During the next year, three more reverted, so that at the end of two years, 6 cases were known still to present normal rhythm (24.0% of the 25 traced cases). Of these six patients, four resumed the condition of auricular fibrillation after periods of slightly over 2, 3½, 4½ and 7 years respectively. One has not been heard of since July, 1926. The other is still normal, having been seen last in December, 1927; he had then been normal for four years. The two patients, who have been untraced, the one since 1923 and the other since 1926, were last traced 317 and 1,673 days after quinidine therapy, and they then both presented normal rhythm, (subjects 22 and 14 in Table I). Attention is drawn to the importance of making a series of cases of this nature as complete as possible. The possible errors in calculating percentages for the whole series and resulting from failing to keep in contact with cases is shown in Fig. 1; the main curve of this chart shows the percentage of cases presenting normal rhythm at various intervals of time following the restoration of this normal rhythm; these percentage values are reckoned on the cases actually traced. Towards the right-hand side of the graph two other lines are charted; the upper shows the percentage, assuming that the untraced cases maintained their normal rhythm, and the lower line assuming that they reverted to fibrillation immediately after being last seen.

The present series of 43 cases does not differ materially in its percentage (60.5%) of successes to quinidine treatment from the general consensus. Thus Burwell and Dieuaide,¹ summarising 606 cases reported up to 1923, record successful treatment in 339 (55.9%); Hay⁴ collecting 265 cases from

* The percentage is calculated on the actual number of cases traced to that date, namely 9 normals and 16 cases of fibrillation, and not on the whole series.

various other sources, reports 156 (58.9%) of these as successfully treated; Eismayer³ summarises 1,058 cases up to 1927, of which 618 (58.5%) reacted successfully.

For comparison with the after histories of the present series, I have been able to trace only three reports of series of cases followed for one year or

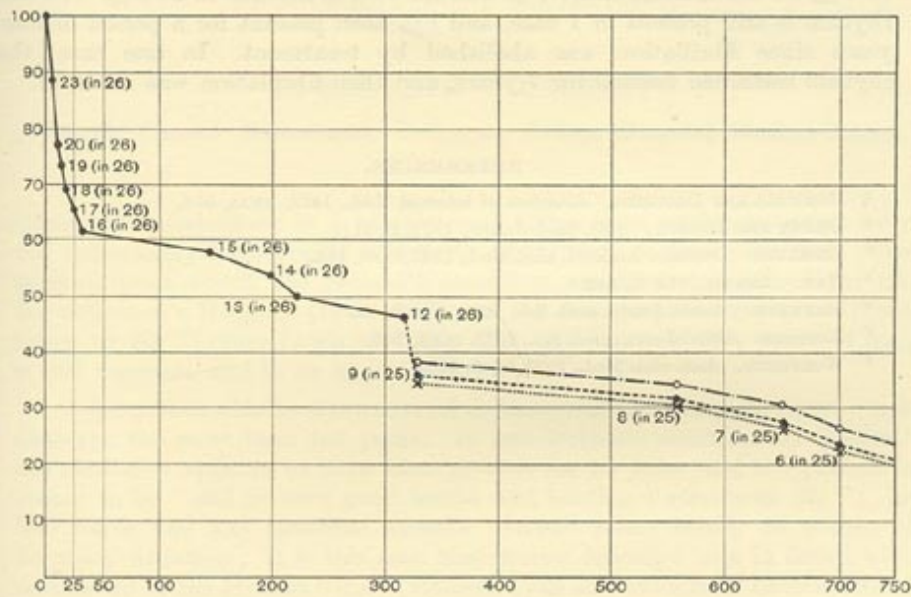


Fig. 1. Showing the percentage of cases maintaining normal rhythm during the first two years after treatment.

Horizontal:—days after restoration of normal rhythm.

Vertical:—percentage of cases.

longer. Riecker⁶ abolished fibrillation in 41 out of 52 cases (79.0%); of these only 6 (14.6%) presented normal rhythm at the end of one year. Maynard⁵ abolished fibrillation in 38 out of 53 cases (71.7%); of these, 11 (28.9%) remained normal for one year, and only 4 (10.5%) for over two years; of those one was still normal after five years. Wolferth⁷ records 12 cases, in which fibrillation was abolished in 7 (58.3%); one of these maintained normal rhythm for over one year. Combining these four groups of cases, the average obtained is 24.3% (27 out of 111) remaining normal at the end of one year, 14.5% (9 out of 62) at the end of two years and 3.2% (2 out of 62) at the end of five years.

SUMMARY.

1. A series of 43 cases of chronic auricular fibrillation treated with quinidine is reported ; in these, fibrillation was abolished and normal rhythm restored in 26 (60.5%).

2. In these 26 cases, the rhythm remained normal for one month in 65.4%, for six months in 57.7%, and for twelve months in 36.0%. Normal rhythm is still present in 1 case, and has been present for a period of four years since fibrillation was abolished by treatment. In one case, the rhythm remained normal for 7 years, and then fibrillation was resumed.

REFERENCES.

- ¹ BURWELL AND DIEUAIDE. *Archives of internal Med.*, 1923, xxxi, 518.
- ² DEBRY AND ILIESCU. *Brit. med. Journ.*, 1921, ii, 511.
- ³ EISMAYER. *Deutsch. Archiv f. klin. Med.*, 1927, clvi, 182.
- ⁴ HAY. *Lancet*, 1924, ii, 543.
- ⁵ MAYNARD. *Amer. Journ. med. Sci.*, 1928, clxxv, 55.
- ⁶ RIECKER. *Amer. Journ. med. Sci.*, 1925, clxx, 205.
- ⁷ WOLFERTH. *Ann. clin. Med.*, 1923-24, ii, 123.

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