

# THE USE OF QUINIDINE FOR AURICULAR FIBRILLATION IN HYPERTHYROIDISM

A. CARLTON ERNSTENE, M.D. and R. S. DINSMORE, M.D.

Auricular fibrillation occurs, either in its continuous form or in paroxysms of long or short duration, in about 10 per cent of all patients with hyperthyroidism. The preoperative treatment of these patients consists of the usual measures plus the administration of digitalis in sufficient amounts to reduce the heart rate to approximately 90 beats per minute. During the period of preparation for operation, no attempt is made to re-establish the normal heart rhythm. In approximately one-half of all patients with hyperthyroidism and auricular fibrillation, the heart rhythm spontaneously becomes regular during the first week or ten days after subtotal thyroidectomy, and normal rhythm can be restored in nearly one-half of the remaining patients by the use of quinidine sulfate.

## CASE REPORT

The following case report illustrates the successful use of quinidine sulfate in the treatment of auricular fibrillation which persisted after thyroidectomy.

The patient, a white man fifty-four years of age, was admitted to the hospital on October 23, 1939 because of nervousness, palpitation, and loss of weight. The loss of weight had begun about six months earlier and had amounted in all to about thirty pounds. About three months previous to admission he began to get extremely nervous. Along with this, there was loss of strength, trembling of the hands, and profuse perspiration. The basal metabolic rate was plus 19 per cent in July, 1939. A diagnosis of hyperthyroidism was made at that time. The patient was placed on a two weeks' course of Lugol's solution, followed by Iodosin from that time on. In addition to this he had been given digitalis and during August and September he also had received eight weekly treatments with roentgen therapy. He felt that he had received some benefit from these treatments.

The past medical history was negative except for the usual childhood diseases and an appendectomy in 1931.

Physical examination revealed a thin, nervous individual sixty-five inches tall, weighing ninety-five pounds and with a flushed, moist skin. The thyroid gland was firm and only slightly increased in size. The heart was not enlarged and no murmurs could be heard. Auricular fibrillation was present with an apex rate of 88 and a radial rate of 76. The blood pressure was 120 mm. systolic and 82 mm. diastolic.

A diagnosis of diffuse goiter with hyperthyroidism and auricular fibrillation was made.

An electrocardiogram showed auricular fibrillation with a ventricular rate of 92 per minute. The Q.R.S. complexes were normal and the electric axis likewise was normal. There was slight depression of the S-T intervals in Leads II, III and IV F.

Roentgenograms of the chest showed nothing abnormal. Urinalyses and blood counts gave normal findings.

The patient was placed on the usual routine of Lugol's solution, high caloric diet, sedatives, and digitalis. On the morning after admission to the hospital the basal metabolic rate was plus 38 per cent. Eight days later the rate had dropped

A. CARLTON ERNSTENE AND R. S. DINSMORE

CLEVELAND CLINIC HOSPITAL

CLEVELAND CLINIC

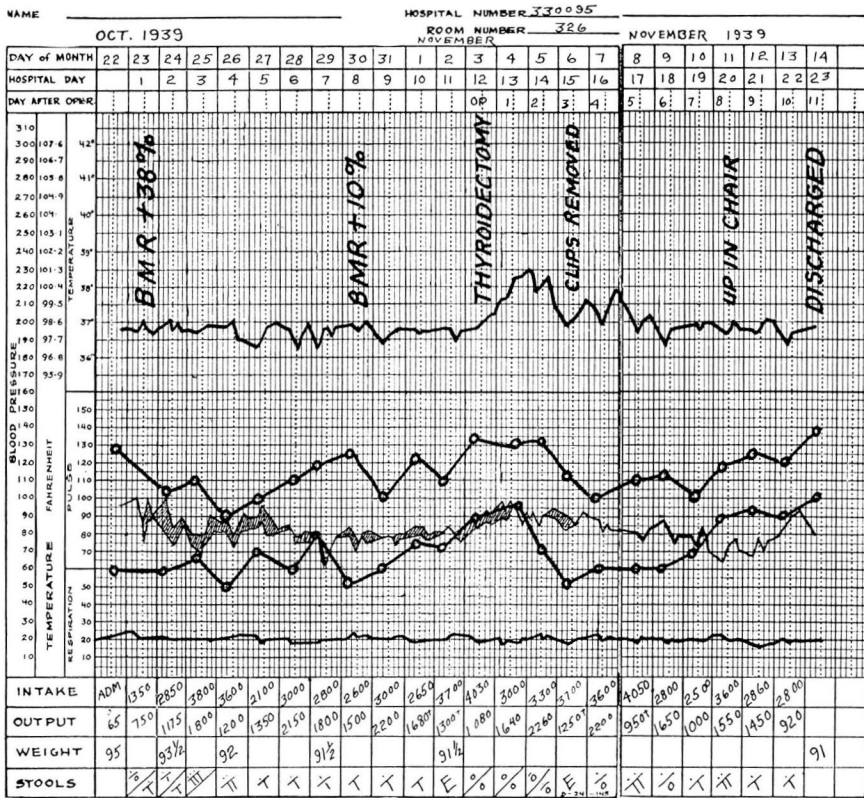


FIGURE 1: Clinical chart.

to plus 10 per cent, and on the twelfth day a subtotal thyroidectomy was done. The gland was only slightly larger than normal and the portion removed weighed 17 grams. On section the gland was homogeneous throughout, finely lobulated, and contained very little colloid. No adenomas were seen. The microscopic diagnosis was moderate hyperplasia.

Postoperatively, the patient had very little reaction, although the temperature on the second night was 101.3. The heart rate did not rise above 100 beats per minute. Digitalis was continued in daily maintenance amounts. Auricular fibrillation persisted, and on the eighth postoperative day the patient was given quinidine sulfate, 3 grains, followed by a second dose of the same size two hours later. The heart rhythm became regular one hour after the second dose. An electrocardiogram taken shortly afterward showed sinus rhythm with a rate of 80 per minute. Except for rather marked depression of the S-T intervals in Leads II, III and IV F, the tracing was normal in all respects.

DISCUSSION

During the period of preparation for operation, the administration of quinidine sulfate for auricular fibrillation serves no useful purpose, because even though normal rhythm is restored, the arrhythmia almost

## QUINIDINE FOR AURICULAR FIBRILLATION IN HYPERTHYROIDISM

always recurs promptly. In those patients, however, in whom auricular fibrillation persists for more than a week after subtotal thyroidectomy, an attempt should be made to re-establish normal rhythm unless some contraindication for the use of quinidine sulfate is present. The principal contraindications for employment of the drug are the presence of a considerably enlarged heart, the presence of valvular heart disease, particularly mitral stenosis, a history of earlier embolic accidents and a history of sensitiveness or idiosyncrasy to quinine or quinidine. When these restrictions are observed, the drug can be given with safety. From three to five doses are given each day at intervals of two hours, and the size of the individual dose is gradually increased until a total daily dosage of 30 grains is reached. In the successful cases, normal rhythm usually is re-established within the first three days of treatment, but when auricular fibrillation persists, the drug is continued for one week before admitting failure.

In this schedule of treatment the administration of quinidine is begun if auricular fibrillation persists for more than one week after subtotal thyroidectomy. It is true, of course, that in a certain number of patients normal rhythm would be re-established spontaneously if a longer interval were allowed. The time for beginning the use of quinidine has been chosen arbitrarily in order not to prolong the period of hospitalization. Quinidine should not be given to ambulatory patients, and while the use of the drug within such a short time of the operation results in its being given to more patients than would otherwise be necessary, it has the advantage of avoiding a later period of hospitalization for quinidine therapy for a larger number of individuals.

After normal cardiac rhythm has been re-established, subsequent reversion to auricular fibrillation occurs in only a rare patient. In individuals beyond the age of forty-five years, however, it appears advisable to continue quinidine in doses of 3 grains twice a day for two to four weeks on the assumption that reversion to the arrhythmia is most liable to occur during this time.