Results of 24 hour electrocardiography and monitoring with Cardiomemo in 20 patients with symptoms suggestive of arrhythmia

Case No	Symptoms	Frequency*	Results with:	
			Ambulatory electrocardiography	Cardiomemo
Patients with arrhythmias shown by ambulatory electrocardiography				
1 3 4 7 9 12 20	Palpitation Palpitation Dizziness Palpitation Dizziness, syncope Dizziness, syncope Dizziness, syncope	+ + + + + + + + + + + + + + + +	Ventricular extrasystoles, sinus tachycardia, sinus bradycardia Ventricular tachycardia Sinus bradycardia Atrial fibrillation Supraventricular tachycardia Sinus bradycardia	No transmission No transmission Sinus bradycardia Atrial fibrillation No transmission No transmission Sinus bradycardia
Patients with extrasystoles shown by ambulatory electrocardiography				
2 8 13 15 16 17	Palpitation Palpitation Palpitation Palpitation Palpitation Palpitation	+ + + + + + + + + + + + + + +	Atrial extrasystoles (frequent) Ventricular extrasystoles (frequent) Ventricular extrasystoles, sinus tachycardia, sinus bradycardia Ventricular bigemini Ventricular astrasystoles (infrequent) Ventricular and atrial extrasystoles (frequent)	Sinus rhythm Ventricular bigemini Sinus tachycardia, sinus arrhythmia No transmission Single ventricular extrasystole Ventricular and atrial extrasystoles (frequent)
Patients normal according to ambulatory electrocardiography				
5 6 10 11 14 18 19	Palpitation Dizziness Palpitation Palpitation Palpitation Palpitation Palpitation	+ + + + + + + + + + + + + + + + + + +	Normal Normal Normal Normal Normal Normal Normal	No transmission No transmission No transmission Sinus tachycardia No transmission Sinus tachycardia Sinus tachycardia

* + = more than once a month; + + = more than once a week; + + + = daily.

seven patients with a normal ambulatory electrocardiogram, none had appreciable arrhythmia shown by the Cardiomemo; three, however, confirmed sinus rhythm during a symptom; and four failed to transmit.

Discussion

Our findings show that the Cardiomemo does not offer any important advantage over ambulatory electrocardiography in the diagnosis of symptomatic arrhythmias in unselected patients; this is in contrast with a previous report.⁴ The theoretical advantage of the Cardiomemo is the documentation of infrequent or sporadic episodes directly related to symptoms. The Cardiomemo proved useful in this respect in three patients, in whom the symptoms repeatedly occurred in sinus rhythm. In general, however, the Cardiomemo was less useful in documenting arrhythmia in patients with rare symptoms than ambulatory electrocardiography.

Several problems arose with the use of the Cardiomemo, resulting in eight patients making no transmissions despite symptomatic arrhythmias having been documented by ambulatory electrocardiography. Despite its apparently simple operation some patients found the device difficult to use. In other cases it was not immediately to hand when the symptoms occurred. Another major limitation of the Cardiomemo was the small number of patients one device could benefit; in our study the device was kept by patients for an average of 21 days. Thus only 17 patients could benefit from each device during one year. In the study of infrequent symptoms even fewer patients could be evaluated. Although the Cardiomemo and decoder device are substantially cheaper than the equipment required for ambulatory electrocardiography, a large number of Cardiomemos would be required to achieve an adequate patient workload. In these times of austerity, however, the Cardiomemo might in smaller units be a suitable alternative to a full scale ambulatory monitoring service, which may be prohibitively expensive and consequently denied.

Unlike ambulatory electrocardiography the Cardiomemo cannot easily detect arrhythmias either associated with syncope or unrelated to symptoms, yet these may have important prognostic implications. This disadvantage can be partly overcome if the patient has a partner to apply the Cardiomemo during syncope and also makes routine transmissions once or twice a day.

In conclusion, the usefulness of the Cardiomemo seems to be restricted to those few patients with a 24 hour electrocardiogram that is normal or at variance with the clinical diagnosis and possibly to those units that do not have sufficient financial resources. The results of this study show, however, that the Cardiomemo can be useful in confirming the absence of arrhythmia during symptoms; this may be reassuring for anxious patients.

References

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¹ Soter NA, Wasserman SI, Austen KF. Cold urticaria: release into the circulation of histamine and eosinophil chemotactic factor of anaphylaxis during cold challenge. N Engl J Med 1976;294:687-90.

² Osler AG. Complement: mechanisms and functions. Englewood Cliffs: Prentice-Hall, 1976.

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