excluded by pulmonary angiography. Within 12 hours he had fully recovered.

(2) A 39-year-old man with Wolff-Parkinson-White syndrome presented in rapid atrial fibrillation. After disopyramide 300 mg by mouth he developed severe hypotension, cyanosis, raised JVP, and severe epigastric pain. Mesenteric embolus and infarction were diagnosed and an emergency laparotomy was performed. While anaesthetised he developed asystole and could not be resuscitated. No intra-abdominal lesion was found at necropsy.

Comment

Initially we gave 400 mg disopyramide by mouth to revert supraventricular tachycardia with good results.[2] After our first two cases of collapse we reduced the initial loading dose of disopyramide to 300 mg. We used loading doses because they have been recommended for disopyramide (after acute myocardial infarction)[3] and other antiarrhythmic drugs in order to achieve therapeutic blood concentrations rapidly. Recommended daily maintenance doses of disopyramide vary between 300 and 800 mg.[4] Doses ranging from 250 to 400 mg six hourly have been used for ventricular tachycardia.

In our five cases symptoms appeared when maximum serum concentrations would be expected. The serum disopyramide concentration was measured only in the fifth patient: at 6 mg/l it was only slightly above the usually accepted therapeutic range. The adverse effects may have resulted from using standard doses of disopyramide in the presence of myocardial dysfunction or beta adrenoreceptor antagonists, or both. The abdominal pain in four patients was unusual. It was severe and usually epigastric, and in one patient suggested mesenteric embolus and infarction. Its cause remains unexplained. Acute hepatic congestion from cardiac failure was considered but it was found only in one of two patients who had necropsies, and in neither was any other intra-abdominal lesion found. Two patients had ventricular tachycardia. In one it was probably secondary to the use of sympathomimetic agents but in the other it was noted at the time of collapse without any record of abdominal pain. In both it responded to antiarrhythmic therapy, although respiratory depression and impairment of consciousness followed. The sequence of events is similar to that described in cases of fatal overdosage of disopyramide.[5] Atypical ventricular tachycardia or self-terminating episodes of ventricular fibrillation during disopyramide administration have been reported and we have also seen this on two other occasions.

All our patients had enlargement of the heart with or without overt cardiac failure, two had myocardial ischaemia, and three were also taking beta-adrenoreceptor blocking drugs. Disopyramide should therefore be used with great care in patients who have myocardial dysfunction or who are taking other negative inotropic drugs. At present we recommend that they should not be given loading doses of 300-400 mg.

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Clinical details in five cases of collapse after taking oral disopyramide

Case No	Age (years) and sex	Weight (kg)	Diagnosis	Arrhythmia	Chest radiograph before collapse		Disopyramide dose (mg)	Time from last dose to collapse (min)	Abdominal pain	Outcome
					Cardiomegaly	pulm congestion				
1	67 M	76	Myocardial ischaemia	Atrial flutter	Yes	Yes	400 (single dose)	90	Yes	Recovery
2	66 M	63	Myocardial ischaemia	Atrial flutter	Yes	No	400 (single dose)*	90	No	Recovery
3	39 M	107	WPW syndrome	Atrial fibrillation	Yes	Yes	300 (single dose)†	60	Yes	Death
4	54 F	51	Aortic valve replacement	Atrial fibrillation	Yes	No	300† 200 (3½ h later)†	60–120	Yes	Death
5	60 M	66	WPW syndrome	Atrial flutter	Yes	Yes	200 (thrice daily)*	150‡	Yes	Recovered

*Ventricular tachycardia during collapse.
†Also taking beta-adrenoreceptor blocking drugs.
‡Serum disopyramide concentration 6 mg/l.
WPW = Wolff-Parkinson-White syndrome.