

respiratory arrhythmia and its phasic influence on conduction. It decreased both the positive chronotropic and dromotropic influence of atropine.

In conclusion, pentobarbital is contraindicated as

an anaesthetic for the study of atrioventricular conduction in the dog. Although chloralose seems preferable, it also attenuates if to a lesser extent, the facilitating dromotropic influence of atropine.

### **Heterogeneous reactivity of atrial and ventricular cardiac contractile tissue**

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In order to investigate induced changes in the effective refractory period of the atrial and ventricular cardiac muscle by means of cardiotropic drugs, the inter-ventricular septum was removed in 24 mongrel dogs under chloralose anaesthesia and during total cardio-pulmonary by-pass to obtain independent atrial and ventricular contractions. The comparison of the variations of the effective refractory period in the right atrium and in one of the ventricles was checked by the

extra-stimulus method, the contractile fibres being directly under the dependence of an electric pacer (frequency: 150/min) to prevent rhythm-induced changes of the refractory period.

Acetylcholine (0.5, 1 and 2 mg kg<sup>-1</sup> min<sup>-1</sup>) considerably shortened the effective refractory period of atrial cardiac fibres ( $P < 0.05$ ), but did not provoke any change in the ventricular contractile tissue.

Ouabain (30, 40 and 50 µg/kg) and quinidine (5, 10 and 20 mg/kg) induced larger variations in the refractory period of atrial contractile tissue than in the ventricular tissue.

Nevertheless, the heterogeneous reactivity of the contractile tissue, present both in the atrium and in the ventricle, is not a general law. As a matter of fact, the isoproterenol (0.5, 1 and 2 µg/kg/min)-induced shortening of the effective refractory period for both atrial and ventricular tissue is not significantly different.

### **A method for experimental study of arrhythmias following myocardial infarction in closed-chest dog. Its use as a test for antiarrhythmic drugs**

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A small metallic coil was wedged distally either in the anterior interventricular artery or in the circumflex artery through coronary catheterization under X-ray control. While the animal recovered from anaesthesia a thrombosis developed progressively. The ECG was

monitored by telemetry on a 24 h basis. All changes of the cardiac rhythm and/or of the QRS complexes were analysed on a specially built electronic device.

The method has been applied to 50 dogs on which a total of 55 infarctions were elicited. All animals but one showed ventricular arrhythmias. Two of them died from ventricular fibrillation. More than half of the dogs had episodes of ventricular tachycardia. In all cases trains of ventricular extrasystoles were observed. The delay in onset of the arrhythmia was variable, ranging from 70 min to 30 hours. The duration of the periods of arrhythmia ranged from one to six days.

Ajmaline, amiodarone, phenytoin, disopyramide, quinidine, lidocaine, procainamide, propranolol and verapamil were administered during various types of ventricular arrhythmias.