

## EFFECT OF OUABAIN ON THE DURATION OF PENTOBARBITONE SLEEP IN RATS

Sir,

Intracerebroventricular administration of ouabain in mice produces depression of central nervous activity similar to that produced by systemic administration of reserpine (1). Neurological symptoms such as malaise, fatigue and drowsiness occur in the course of digitalis intoxication (2). In view of these central effects of digitalis glycosides a study of the effect of systemically administered ouabain on pentobarbitone sleeping time was undertaken.

Groups of albino rats of both sexes and weighing between 100-150 g were used. The rats were maintained on a diet of gram and bread with free access to water. Ouabain (2.5 to 10 mg/kg), dissolved in distilled water was injected i.p. in a constant volume of 0.4 ml/100 g of body weight, 1 hr prior to the administration of pentobarbitone (30 mg/kg i.p.). Separate controls were used simultaneously for each test. The control group received distilled water i.p. (0.4 ml/100 g body weight) 1 hr prior to the injection of pentobarbitone (30 mg/kg i.p.). The time of loss and recovery of righting reflex was used to determine the duration of sleep. The mean sleeping time with standard error was determined for each group. The significance of difference in the sleeping time between the control and the ouabain treated group was assessed by Student's 't' test. All experiments were performed at room temperature  $25^{\circ} \pm 1^{\circ}\text{C}$ .

No lethality was observed, with the doses of ouabain used, in the present study. Further rats were chosen for the present study in view of the relative resistance of the rodent heart to the effects of cardiac glycosides (3).

The results are summarised in Table I. Ouabain in doses of 5 and 10 mg/kg, i.p. produced a statistically significant prolongation of the pentobarbitone sleeping time.

TABLE I : Effect of ouabain on pentobarbitone sleeping time in rats.

<i>Treatment</i>	<i>Duration of sleep min <math>\pm</math> SEM</i>	<i>'P' value</i>
Control	82.1 $\pm$ 5.5 (10)	>0.05
Ouabain 2.5 mg/kg	85.5 $\pm$ 6.2 (12)	
Control	84.8 $\pm$ 4.9 (12)	<0.01
Ouabain 5 mg/kg	137.2 $\pm$ 7.1 (12)	
Control	87.4 $\pm$ 3.3 (10)	<0.01
Ouabain 10 mg/kg	152.7 $\pm$ 8.2 (12)	

Figures in parenthesis indicate the number of animals.

Depression of central nervous system activity following intracerebroventricular injection in mice has been related to interference with dopamine brain levels (1). A similar mechanism might be involved in the prolongation of pentobarbitone sleeping time by ouabain. This interaction may be kept in mind when patients receiving digitalis are given a barbiturate.

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