Increased barbiturate sleeping time by simultaneous administration of cardiac glycosides to mice

SIR,—It is well known that cardiac glycosides exert effects on the central nervous system. In addition to stimulant actions, symptoms referable to sedation have been observed.

A central sedative action has been ascribed to adonis glycosides (Bechterew & Pewsner, 1925). Experiments showing the anticonvulsant effect of adonis glycosides against convulsions in rabbits induced by cocaine, camphor and picrotoxin have also been reported (Masslow, 1926).

This sedative effects was ascribed to a special glycosidal fraction of adonis (Fromherz, 1928). We have noted that the hypnotic effect of barbiturates in mice may be potentiated by simultaneous administration of various cardiac glycosides. This may be of interest because cardiac glycosides can be profitably associated with sedatives clinically (Fontana & Portinaro, 1960). The results of our investigations are in Table 1. All drugs were administered orally to male albino mice weighing 20–30 g.

TABLE 1. THE EFFECT OF CARDIAC GLYCOSIDES ON THE PENTOBARBITONE OR QUINALBARBITONE SLEEPING TIMES OF MICE

Drug (mg/kg)	Sleeping time (min) mean ± s.e.	P
Pentobarbitone (100)	196 ± 21	—
Pentobarbitone (100) + desacetyl lanatoside C (3)	448 ± 24	<0·01
Pentobarbitone (100) + G-strophanthin (3)	287 ± 28	<0·05
Pentobarbitone (100) + adonis glycosides (3)	359 ± 30	<0·01
Quinalbarbitone (70)	313 ± 45	—
Quinalbarbitone (70) + desacetyl lanatoside C (3)	375 ± 36	>0·05
Quinalbarbitone (70) + G-strophanthin (3)	444 ± 25	<0·05
Quinalbarbitone (70) + adonis glycosides (3)	564 ± 40	<0·01

It would appear from these results that the sleeping time induced by pentobarbitone and quinalbarbitone was significantly prolonged by simultaneously administering desacetyl lanatoside C, G-strophanthin and adonis glycosides. It is difficult, at present, to provide a satisfactory explanation of these findings. However, direct actions on the brain cells, enzymatic inhibition or modified renal excretion could be involved.

Laboratorio di Farmacologia,
Simes S.p.A., Milan. — R. FERRINI

Cattedra di Farmacologia e
Farmacognosia,
Università di Bologna,
Italy — M. SCUKA

September 8, 1967

References

Bechterew, W. M. & Pewsner, G. A. (1925). *Münch. med. Wschr.*, **72**, 1106.
Fontana, G. & Portinaro, A. (1960). *Minerva Med., Roma*, **51**, 2184.
Fromherz, K. (1928). *Münch. med. Wschr.*, **75**, 818.
Masslow, M. (1926). *Arch. exp. Path. Pharmak.*, **111**, 114.