The possibility of breaking the enterohepatic circulation of methylmercury by the oral administration of a non-absorbable mercury binding resin (Clarkson, Small & Norseth, 1971) focused our attention on the mechanisms by which methylmercury is excreted in the bile.

After the I.V. administration of 1 mg/kg Hg as methylmercury chloride, labelled with ^{203}Hg, to male rats of 190–220 g body weight, bile was collected at 1 h intervals from the cannulated bile duct of conscious animals. It has been found that in the first 4–5 h more than 95% of biliary mercury retained the metal to carbon bond. Radioactive distribution of Sephadex G-10 showed that methylmercury was mainly bound to a low molecular weight compound with a molecular weight lying between cysteine and glutathione. *In vitro* incubation of control bile with methylmercury chloride resulted in the same elution pattern as that of bile of rats injected with methylmercury chloride. This indicates that methylmercury is probably complexed by a normal bile constituent. Treatment of rats with cysteine after the injection of methylmercury caused a temporary increase in the biliary excretion of methylmercury without alteration in the elution pattern. This finding seems to indicate that methylmercury was not excreted with cysteine, but treatment increased the availability of the usual mercury acceptor for the removal of mercury with the bile. The elution pattern was also the same in phenobarbitone pre-treated rats, though methylmercury excretion was significantly higher.

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Drinking in the cat induced by centrally administered angiotensin

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It has been proposed that drinking following reduction of the extracellular fluid volume is due to an action of angiotensin on the central nervous system (Fitzsimons, 1972). This view is supported by reports that intracerebral administration of angiotensin II causes drinking in the rat, rabbit, goat, monkey and dove (Fitzsimons, 1972).

The domestic cat does not readily drink water (Carver & Waterhouse, 1962) and there are no reports of drinking behaviour induced by central chemical stimulation in this species. Therefore we have investigated the central dipsogenic activity of angiotensin in the cat.

Cats which had a modified Collison cannula implanted into a lateral cerebral ventricle (Feldberg & Sherwood, 1953) were housed in separate cages and allowed free access to water. The spontaneous water intake was measured daily and the mean value was found to be 6 ± 1 g.

Angiottnsin II amide (Hypertensin CIBA) 0·1–4 μg was infused intracerebroventricularly in a volume of 100 μl 0·9% NaCl over four min. Drinking began 1 to 10 min after the start of the infusion and continued for 10 to 20 min. The range of water consumption initially was 60 to 180 g and there was no dose-response relationship over the range investigated. The response could be evoked at hourly intervals but the quantity of water consumed declined progressively. After an animal had been used on several occasions the magnitude of the response to angiotensin declined and stabilized at a new value (range 30–50 g).

The possibility that angiotensin may act peripherally to initiate drinking was excluded because intravenous administration of a centrally effective dose did not elicit the response.

We have investigated the central mechanisms involved in angiotensin-induced drinking using various blocking agents administered intracerebroventricularly one hour before angiotensin.

Atropine 200 μg caused an increase in motor activity but did not reduce drinking. This

observation is consistent with the results reported by Fitzsimons and Setler (1971) in the rat.

Fitzsimons & Setler (1971) proposed that central catecholaminergic mechanisms were involved in angiotensin-induced drinking since the response was abolished after pretreatment with 6-hydroxydopamine centrally. We have found that bethanidine (400 μg) caused a significant reduction in drinking in each of 5 cats whilst a dose of 600 μg abolished drinking in three animals and reduced the response in two others. Phentolamine (250 μg) abolished drinking but tolazoline (600 μg) another α-adrenoceptor blocker, had no effect. The drinking response to angiotensin was abolished by propranolol (450 μg) and significantly reduced by practolol (400 μg).

These results indicate that angiotensin-induced drinking in the cat involves central adrenergic mechanisms.

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Tetanic and single twitch responses of skeletal muscle during repeated injections of suxamethonium in man

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The effect of repeated I.V. injections of suxamethonium in man was studied by measuring simultaneously single twitch and tetanic contraction responses of the thumbs (Gissen & Katz, 1969). The investigation was carried out during Helmstein's treatment (Helmstein, 1966) for carcinoma of the bladder, a procedure which lasts for 6 hours.

Eleven patients were studied after informed consent had been obtained on the previous day. Without premedication, anaesthesia was induced with halothane, nitrous oxide and oxygen. In some patients pentazocine supplements instead of halothane were used for maintenance. Respiration was controlled or assisted in order to maintain the pH within normal limits. Statham force transducers, Model UC with hand grips, were mounted one on each hand to measure the force of the thumb adduction. The ulnar nerves were stimulated at the wrists ; a single square wave pulse of 200 μs duration was applied to one nerve every 12 s and a tetanic stimulus of 30 Hz for 1 s was used every 12 s on the other. The force of the thumb adduction was recorded on a Brush-Clevite recorder with a slow speed of 5 mm/min and on a Mingograf recorder at a fast speed of 5 mm/s.

After an initial control period, repeated injections of suxamethonium (0·1–0·2 mg/kg) were given at 15 min intervals. In most patients the first dose of suxamethonium caused complete block of the tetanic contraction and partial block of the single twitch contraction. With the single twitch response tachyphylaxis developed progressively with successive injections and this trend continued until virtually no depression was seen. With the tetanic response the initial depression became less, the initial stage of recovery developed earlier but complete recovery occurred more slowly with successive injections.

In five patients edrophonium (0·1 mg/kg) I.V. was given at the 50% recovery point of the tetanic contraction after the first injection of suxamethonium and caused a potentiation of the block but this potentiation was less obvious when edrophonium was repeated after subsequent injections of suxamethonium and ultimately towards the end of each study edrophonium reversed the block by suxamethonium.

These studies have shown that the single twitch and the tetanic contraction respond