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AN-1222

## RECOVERY FROM MASSIVE AMITRIPTYLINE OVERDOSAGE

SIR,—We have recently treated a case of amitriptyline ('Tryptizol') overdosage, similar to the one reported by Dr. Borden and Dr. Rostand.[1]

A 70-year-old woman with depression had taken 100 tablets (2500 mg.) of amitriptyline and was transferred to this hospital 2–3 hours later, deeply comatose. She had a stomach washout and was transferred to our unit. She was comatose, with hypothermia, shallow respiration, and hypotension, symptoms that have already been described in previous cases.[1] The tendon reflexes were normal and the pupils reacted to light. Since the ingested dose was so large, we started her on peritoneal dialysis, and we tried to maintain the fluid and electrolyte balance. She was in coma for about 60 hours; her recovery was complicated by infection of the left lung with consolidation, which responded well to antibiotics and physiotherapy.

The amitriptyline content (in µg. per 100 ml.) of the body-fluids, estimated by the laboratory of the Department of Industrial and Forensic Science (N. Ireland), was: blood (on admission) 10; gastric content 1400; blood (18 hours after admission) 0; urine (volume 600 ml.) 200; peritoneal effluent, 1st day 10, 2nd day 0. Thus despite the size of the ingested dose, the amitriptyline levels in blood and peritoneal effluent were negligible, while those in the urine and the gastric content, although higher, were still insignificant. These results support the previously expressed opinion[2,3] that peritoneal dialysis is of no use in the treatment of patients with amitriptyline poisoning. Treatment should be mainly supportive of the respiratory and cardiovascular system. The prognosis, because of the obviously large $L.D._{50}$, is generally good.

We are grateful to Dr. E. Fletcher, who referred the patient, and to Dr. M. G. McGeown who allowed us to present this case.

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## WHAT'S IN P.V.C.?

SIR,—I should like to comment on the interesting paper by Dr. Duke and Professor Vane and your annotation (July 6, pp. 21, 34).

I am trying to maintain adult *Schistosoma mansoni* in vitro at 37°C in a continuous flow heart-lung apparatus composed of plastic polyvinylchloride (P.V.C.) tubing and 'Fenwal' plastic blood-packs connected with a glass worm chamber with glass, rubber, and plastic spigot connections, and driven by an electric pump. Control worms are maintained in an identical serum medium in various glass containers. Experiments carried out so far have shown that worms always die in the continuous-flow apparatus within, at most, two days and nearly always within a few hours. In control tubes containing identical medium they have lived for up to a month; but in control tubes containing medium drawn from the P.V.C. tubing in the continuous-flow apparatus, after circulating in it overnight, they have died within at most two days, or more rapidly. Very small pieces of sterile plastic tubing, silicone tubing, or red or white rubber in the control tubes do not kill the worms; however, the surface area of the apparatus, comprising 21 ft. (6·4 m.) of plastic tubing and two plastic blood-packs, in continuous contact with the circulating medium must be considerable.

In one experiment carried out so far with another helminth (*Hymenolepis nana*, the dwarf tapeworm) a similar result was obtained. Worms died immediately in the flow apparatus but lived up to a week in identical medium in control tubes.

The apparatus is sterilised either by penetration by ethylene-oxide gas, followed by flushing through with sterile isotonic saline solution and/or some of the medium to be used; or, alternatively, by omitting the gas and scouring the inside of the tubing and worm chamber with 70% alcohol followed by sterile saline and sterile medium. Since the worms died whether or not gas was used, the action of residual adsorbed ethylene-oxide gas or the formation of ethylene chlorohydrin cannot be the whole explanation, although it could be an additional factor.

An adult *Schistosoma* in vitro can be regarded as a piece of tissue-culture, and the conclusion drawn is that the plastic tubing produces some substance which, acting through the medium, is rapidly lethal to the worms. The tubing used is P.V.C. transparent surgical tubing size 4, internal diameter 4·12 mm., together with about a foot (30 cm.) of silicone-rubber translucent tubing, internal diameter 5 mm. This investigation is continuing, but the above observations do seem to support the idea of the toxicity of P.V.C. tubing.

The P.V.C. tubing used was supplied by Portex Ltd. (formerly Portland Plastics), Hythe, in 1966. It was apparently not made to a U.S. specification at that time.

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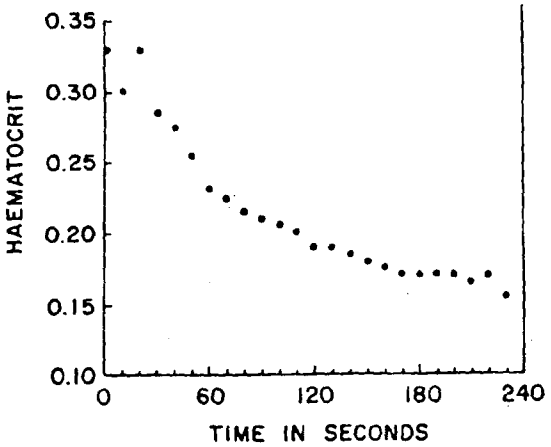
1. Borden, E. C., Rostand, S. G. *Lancet*, 1968, i, 1256.
2. Sunshine, P., Yaffe, S. J., Alto, P. *Am. J. Dis. Child.* 1963, 106, 501.
3. Harthorne, J. W., Marcus, A. M., Kaye, M. *New Engl. J. Med.* 1963, 268, 33.

## MEASUREMENT OF SPLENIC HÆMATOCRIT

SIR,—It may usually be true that when the spleen is enlarged anæmia is due to a pooling of red blood-cells (R.B.C.s) within that organ, and "when it is grossly enlarged it may contain up to two-thirds of the total R.B.C. mass".[1] These observations were based on sophisticated methodology such as simultaneous R.B.C.-volume and plasma-volume measurement. We report here one observation based on a simple in-vitro examination of a massively-enlarged spleen in a patient with chronic myelogenous leukæmia which yielded a diametrically opposite finding to that mentioned above.

The accompanying figure shows serial microhæmatocrits as sequentially taken from the splenic vein immediately after splenectomy for a period of four minutes after which bleeding no longer occurred spontaneously from the specimen. A sequence sign test[2] indicated that the hæmatocrit decrease was highly significant ($p < 0.001$). It is obvious that in this patient, who had no evidence of œdema, there was a striking hæmodilution in the spleen rather than a pooling of R.B.C.s. The cause for this surprising finding was probably prior steroid therapy.[3] Thus, while in no way detracting from the value of

1. Glass, H. I., de Garreta, A. C., Lewis, S. M., Grammaticos, P., Szur, L. *Lancet*, 1968, i, 669.
2. Bross, I. D. J. *Cancer, N.Y.* 1960, 13, 394.
3. Fudenberg, H., Baldini, M., Mahoney, J. P., Dameshek, W. *Blood*, 1961, 17, 71.




**Serial hæmatocrits sequentially taken from splenic vein during spontaneous bleeding immediately after splenectomy.**

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