The action of commercial preparations of oxytocin and vasopressin on the smooth muscle of the gut

SIR,—Reports of the actions of oxytocin and vasopressin on the smooth muscle of the gut are variable, but a fair conspectus of the published work is that vasopressin often causes contraction and oxytocin has no action. Yet in a recent publication, Levy (1963) presented evidence that both these hormones actually inhibit isolated preparations of rabbit and guinea-pig gut. Commercial preparations were used by Levy and these contained chlorbutol (0·5%) as a preservative. Since we believed that this preservative might produce these unexpected results we compared the activities of Syntocinon (Sandoz) and Pitressin (Parke Davis) with lysine vasopressin, prepared from porcine neurohypophyses (U.S. National Institutes of Health Endocrinology Study Section), and a preparation of synthetic oxytocin (kindly supplied by Professor J. Rudinger) on rabbit and guinea-pig ileum. Only the first two of these preparations contained the preservative. The effects of chlorbutol in a concentration equivalent to that in Syntocinon and Pitressin were also studied.

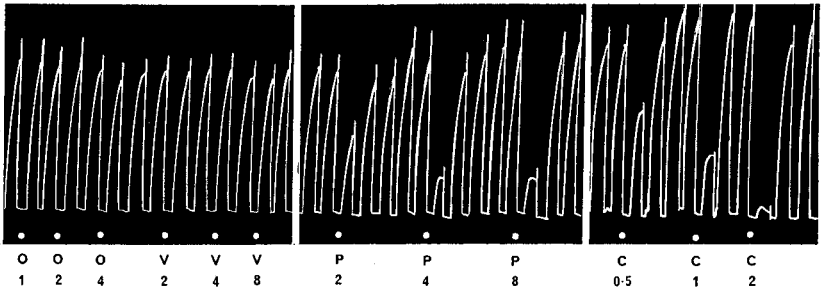

FIG. 1. The effect of Pitressin (P) compared with preservative-free lysine vasopressin (V), preservative-free synthetic oxytocin (O), and chlorbutol (C) on contractions of guinea-pig ileum after acetylcholine (2×10^{-7}). Four units of Pitressin are equivalent to 1 mg of chlorbutol. Neither pure vasopressin nor pure oxytocin inhibit the contractions caused by acetylcholine. Inhibition of the contractions seen after addition of Pitressin is due to chlorbutol and not to vasopressin. Doses of the hormones are in units and of chlorbutol in mg.

Only the commercial preparations of the hormones manifested any inhibitory effects, and these effects could be mimicked by chlorbutol. The effect for Pitressin on guinea-pig ileum is illustrated in Fig. 1. Our results suggest that any inhibitory effects shown by these commercial preparations are probably due, at least in high doses, to chlorbutol and not to a pharmacological action of the hormones.

Department of Pharmacology,
Chelsea College of Science and Technology,
(University of London),
Manresa Road,
S.W.3.

J. H. BOTTING
D. G. MANLEY

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Reference

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