

Effect of Epicaine on Blood Pressure.

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We¹ reported the discovery of a new drug, a vasopressor local anesthetic: α (3,4-dihydroxyphenyl) β (paraaminobenzoyl β -tadiethylaminoethanol) α phaethanonehydrochloride, designated for brevity as *epicaine*.

Procaine and its known relatives cause a pronounced fall in blood pressure, as does cocaine, in the ordinary concentrations.²⁻⁵ Epicaine raises the blood pressure in the intact cat.

We⁶ have previously pointed out that biochemorphologically the following factors are contributory to the formation of a typically sympatheticomimetic drug: the 3,4-position of the phenyl hydroxyls, a 2-carbon sidechain, a β -carbon hydroxylated, an α -carbon hydrogen substituted by some indifferent radical, preferably an amine (but not necessarily so), and the laevorotatory isomer. The chemical structural configuration of epicaine is compatible with these criteria.

The drug was injected into intact cats anesthetized with pentobarbital (40 mg. per kilo). Ten cats were used; in 8 both vagi were cut and the animal given atropine sulfate intramuscularly (2 mg. per kilo) at the start of the experiment. In 2 animals ether was used and the cats were neither atropinized nor vagotomized. Thirty-eight injections of the drug were given, and each was always controlled by epinephrine. The cannula was washed after each injection until no effect was obtained from 2 successive washes before the next injection of a drug.

Immediately upon intravenous injection of epicaine in doses from 2 to 10 mg. there is an abrupt rise in blood pressure ranging from about 20 to 40 mm. of mercury. This is illustrated in Fig. 1. Concomitant with the increase in pressure there is a dilatation of the pupil and a retraction of the nictitating membrane. Subsequent doses continue to elicit the same effect.

¹ Osborne, R. L., *Science*, 1937, **85**, 105.

² Osborne, R. L. (to be published).

³ Roth, *Hyg. Lab. Bull.*, 1917, **109**.

⁴ Roth, *J. Pharm. and Exp. Ther.*, 1917, **9**, 352.

⁵ v. Anrep, *Arch. ges. Physiol.*, 1880, **21**, 38.

⁶ Mulinos and Osborne, *Proc. Soc. Exp. Biol. and Med.*, 1935, **32**, 1344.

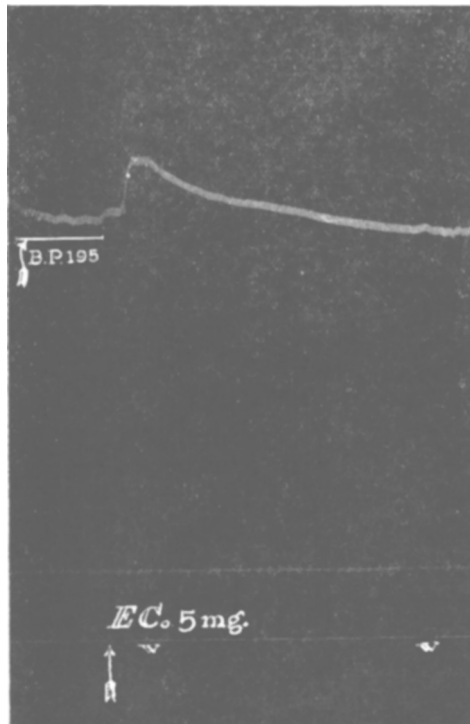


FIG. 1.

Five mg. of epicaine were injected at arrow. Initial pressure was 195 mm. of mercury. EC is epicaine. Figure reduced four times.

We⁷ have stated elsewhere that in the intact animal ergot reversal and cocaine synergy of a blood pressure rise indicate that the impulses eliciting the rise reach the blood vessels by way of the sympathetic nerves; they do not indicate the site of origin of the impulses. Therefore these invalid criteria were not employed; further experiments are now being carried out on decapitated, decerebrated, and demedullated, as well as pithed, animals.

⁷ Mulinos and Osborne, *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **33**, 458.