LETTER TO EDITOR

VASOPRESSOR RESPONSE TO ISOPEPRENALINE

(Received on October 20, 1980)

Sir,

Isoprenaline has a minor adrenoceptor agonistic activity and a limited vasopressor response to this drug does occur following large doses, after blockade of the prominent β-adrenoceptor mediated vasodilatation (1). We found that isoprenaline in relatively small doses, which normally produce vasodepressor response, can exhibit dose dependent vasopressor activity in dogs, provided the animals are pretreated with propranolol, guanethidine and cyproheptadine.

Mongrel dogs of either sex weighing between 7-20 kgs were anaesthetised with pentobarbitone sodium (35 mg/kg, ip). Right femoral vein was cannulated for drug administration. Right carotid artery was connected to a mercury manometer for recording blood pressure. A period of 30 min was allowed for stabilisation of the preparations.

Cyproheptadine (400 and 800 μg/kg) produced a mean fall in blood pressure of 17.7±7.20 (n=3) and 31.5±6.0 (n=6) mm of Hg respectively. The fall was transient and resistant to propranolol (4 mg/kg, iv). Cyproheptadine (400 μg/kg) reduced the vasodepressor response to isoprenaline (1.0 μg/kg) to 42% (n=3). Guanethidine produced a biphasic effect on blood pressure, a primary transient fall being followed by sustained rise. Vasodepressor response to isoprenaline was hardly altered by guanethidine (n=3).

In dogs treated with propranolol, (4 mg/kg slow IV infusion) the blood pressure was hardly altered; response to isoprenaline was totally abolished. A subsequent injection of either guanethidine (1 mg/kg) or cyproheptadine (800 μg/kg) did not result in the appearance of any vasopressor activity to isoprenaline (n=6). However, when both drugs were administered serially in either of the sequences, isoprenaline produced a dose dependent vasopressor response (Fig. 1-A) in dose range of 0.125 to 0.5 μg/kg.

Subsequent experiments revealed that administration of propranolol after (n=3, Fig. 1-B) or in between (n=3) a serial administration of guanethidine and cyproheptadine
or cyproheptadine and guanethidine also resulted in the appearance of vasopressor responses to isoprenaline. Likewise, without propranolol, guanethidine and cyproheptadine failed to bring out the pressor responses to isoprenaline (n=3, Fig. 1-B).

Figure 1-A & B: Dog, pentobarbitone anaesthesia. Effect of isoprenaline (ISO), 0.125, 0.5 and 1.0 µg/kg (at 1, 2 & 3, respectively) on blood pressure before and/or after administration of cyproheptadine, 500 µg/kg (at C), guanethidine 1.0 mg/kg (at G) and propranolol, 4.0 mg/kg (at P). All injections were intravenous.

We concluded, that relatively small doses of isoprenaline can cause significant dose dependent vasopressor responses in animals pretreated with all three drugs, viz., propranolol, guanethidine and cyproheptadine. The experiments are in progress to seek explanation for roles played by guanethidine and cyproheptadine in this phenomenon.

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REFERENCE

REVIEW ARTICLE
LENS ALDOSE REDUCTASE

Jawaharlal Nehru University

Cataract is a result of aldose reductase (24). It is responsible for the development of cataracts leading to blindness in diabetes mellitus. Sugar, who found that 16% of the patients who did not have cataracts has been observed to be the diabetic and glucose

Though effective in reducing medical costs associated with insulin or oral

The present study suggests that the diabetic and gl