

LETTER TO THE EDITOR :

PRESSOR RESPONSE WITH SMALL VOLUMES OF SALINE IN ANAESTHETIZED DOGS

Sir,

A volume/dose related pressor response has been obtained with 1,2,4,8 and 16 ml of normal saline (9% NaCl) administered into the femoral vein of 7 mongrel dogs of either sex weighing between 5-7.5 kg anaesthetized with sodium pentobarbitone 35 mg/kg administered intraperitoneally (Fig.1). The observation that as little as 1 ml of normal saline can evoke a detectable

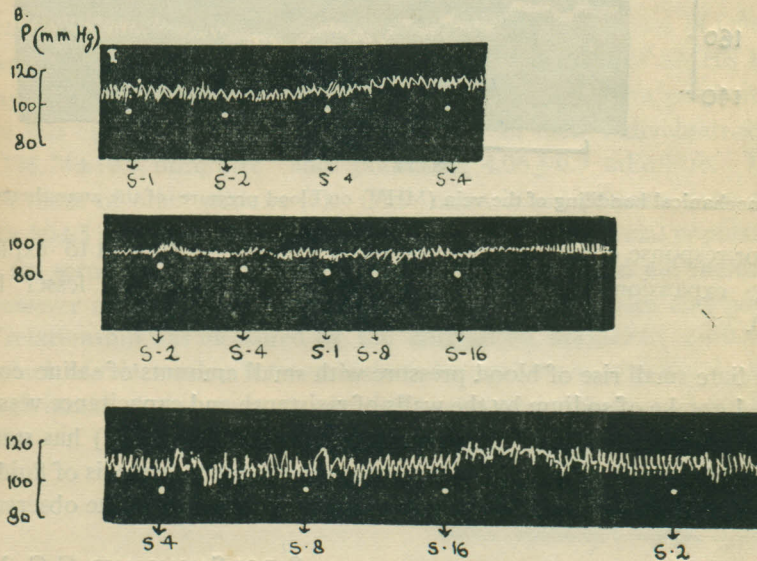


Fig. 1: Effect of saline on anaesthetized dog. At S1, S2, S4, S8 and S16, normal saline was injected into femoral vein in volumes of 1, 2, 4, 8, and 16 ml respectively.

pressor response is noteworthy; it has not been reported in literature. Sellig (2) has reported changes in blood pressure with small injections of saline, but the smallest amount administered has not been mentioned.

The pressor response does not appear to be due to any local reflex arising from the venous segment adjacent to the tip of the venous cannula, as distension of the vein by injecting against

occlusion with bull dog forceps, evoked no response (Fig.2) and instrumental handling and stretching of the vein produced a fall rather than a rise of blood pressure (Fig. 3).

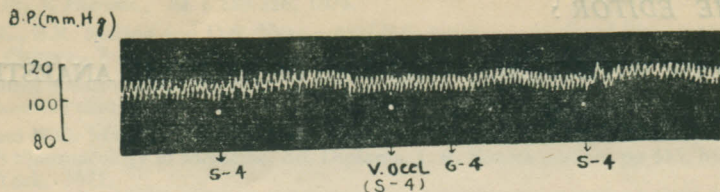


Fig. 2: Effect of saline on anaesthetized dog, showing absence of pressor response when saline is administered against venous occlusion (V. occl.) and the effect of 4 ml of glucose (G4).

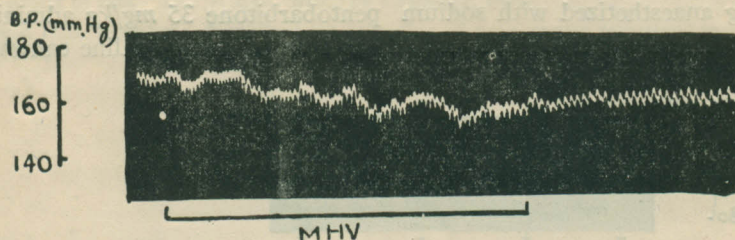


Fig. 3: Effect of mechanical handling of the vein (MHV) on blood pressure of the anaesthetized dog.

The pressor response observed with such small volumes is difficult to explain only on the basis of volume expansion, because 4 ml of 5% glucose produced lesser blood pressure changes (Fig. 2).

The immediate small rise of blood pressure with small amounts of saline could possibly be explained by rapid uptake of sodium by the walls of resistance and capacitance vessels resulting in immediate, transient enhancement of their sympathetic tone. Guyton (1) has stated that penetration of the walls of arterioles results in oedematous vessels due to osmosis of fluid, whose lumens are thereby constricted. This could be another possible explanation of the observation described.

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REFERENCES

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2. Sellig (1911) Quoted by Sollmann, T. In "A Manual of Pharmacology and its Application to Therapeutics and Toxicology." 7th Ed, Philadelphia and London; W.B. Saunders Company, p. 764, 1948.