mg i.c.v.) the pressor response to carbachol (i.c.v.) and potentiation of the carotid occlusion response were completely blocked (Fig. 1).

Carotid occlusion response was potentiated along with a rise in blood pressure when a swab soaked in 100 μ g/ml solution of carbachol was placed over the floor of the fourth ventricle. Both responses returned to normal after removing the swab and washing with normal saline. Atropine (8 mg i.c.v.) pretreatment blocked the potentiation of carotid occlusion response as well as the rise in blood pressure produced after topical application of carbachol.

Sinha *et al.* (2) reported that cholinergic agents such as acetylcholine and carbachol have a stimulant action on the central vasomotor loci. In the present study we have demonstrated that the reflex vasomotor stimulation produced by bilateral carotid occlusion response is potentiated after intracerebroventricular administration and local application over the floor of fourth ventricle of carbachol. The potentiation of the carotid occlusion response was blocked after intracerebroventricular administration of atropine. These findings are in conformity with the hypothesis that acetylcholine has an excitatory role in the medullary vasomotor centre (2). Atropine does not depress the control carotid occlusion pressor response while it completely blocks its potentiation. This may be due to the inability of atropine to reach the receptor sites responsible for the carotid occlusion pressor response while the superficial receptors which are stimulated by carbachol and produce potentiation are effectively blocked.

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ANTI-NICOTINIC ACTION OF VASTAREL® ON GUINEA-PIG ATRIA

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Vastarel®, 1-(2, 3, 4-trimethoxy benzyl)-piperazine dihydrochloride, was pharmacologically investigated on contractions of guinea-pig atria in reference to the anti-nicotinic action. Male adult guinea-pigs weighing 200 to 300 g were used in this experiment. The effects of the drug on atrial contractions were examined by observing the atrial rate and amplitude in normal or modified forms of Locke's solution at a temperature of 31°C.

As shown in Fig. 1, both rate and amplitude in atrial contractions were scarcely affected by the addition of Vastarel in concentrations of from 10^{-6} to 10^{-7} g/ml; the presence of Vastarel for 30 minutes or more, however, the biphasic effects of nicotine (Merck), that is, initial suppressive and subsequent augmentative effects on atria, were markedly depressed. The anti-nicotinic action of Vastarel was observed in concentrations of from 10^{-8} to 10^{-4} g/ml, the nicotine concentrations being from 10^{-5} to 5×10^{-5} g/ml. This action of Vastarel on nicotine was shown not only in normal Locke's solution but also in such modifications of Locke's solution as with free or low potassium concentrations, low sodium concentrations up to 40% of normal, or a double sodium concentration.

FIG. 1. Contractions of guinea-pig atria: the diphasic effects of nicotine 5×10^{-5} , i.e., initial suppressive and subsequent augmentative effects, were antagonized by preceding addition of Vastarel 10^{-4} . Numerals above the record give atrial rates (beats/min). The concentration of each drug is shown in g/ml. Time intervals are one minute.

The anti-nicotinic action of Vastarel was considered to be similar to that of hexamethonium, but Fujita (1) has reported that it has hardly any depressive effect on blood pressure response in rabbits. This anti-nicotinic action of Vastarel then suggests that Vastarel may have an action mechanism which differs from that of hexamethonium.

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