LETTER TO THE EDITOR

MYOCARDIAL DEPRESSANT EFFECT OF METRONIDAZOLE

Sir,

Jadhav *et al.* had demonstrated the anticholinesterase activity of metronidazole on the frog's rectus abdominis muscle preparation (2). The effect of metronidazole on the isolated frog heart has been investigated in the present study.

Isolated frog heart was set up according to the technique of Bulbring (1). The cannula was inserted in the inferior vena cava and by means of a glass Y tube was connected to a mercury reservoir containing frog Ringer solution. The other limb of the Y tube was connected to a burette containing metronidazole dissolved in frog Ringer solution (5 *mg/ml* of Ringer solution). The pH of the metronidazole containing frog Ringer was 7.8. The contractions were recorded with Starling heart lever.

Metronidazole (10 to 60 *mg*) caused reversible, dose-dependent, cardiac inhibition in all the 12 preparations tested (Fig. 1). After metronidazole perfusion the cardio-inhibitory responses of acetylcholine were found to be potentiated in all the 12 preparations tested (Fig. 2). This potentiation of the cardio-inhibitory responses of acetylcholine by metronidazole may be related to its antichlolinesterase activity (2), and yet, atropine sulphate (20 *µg*) administered first as a single injection and also added to the metronidazole containing Ringer in the strength of 5 *µg/ml* failed to block the cardio-inhibitory action of metronidazole (Fig. 3). This suggests that the cardiac depressant action of metronidazole is not mediated through cholinergic mechanism.

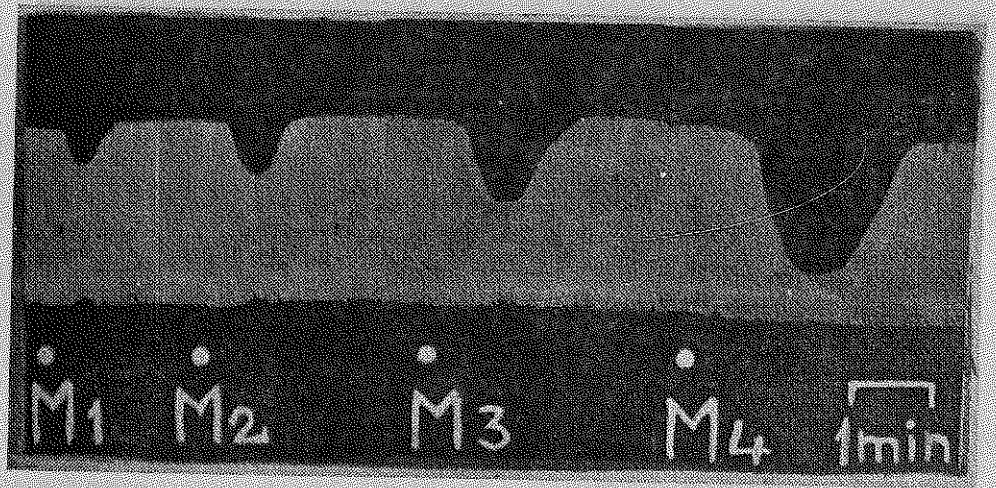

Fig. 1: Effect of metronidazole (M at dots) on isolated frog heart. At M 1, M 2, M 3 and M 4, 10, 20, 30 and 40 *mg* of metronidazole respectively was perfused.

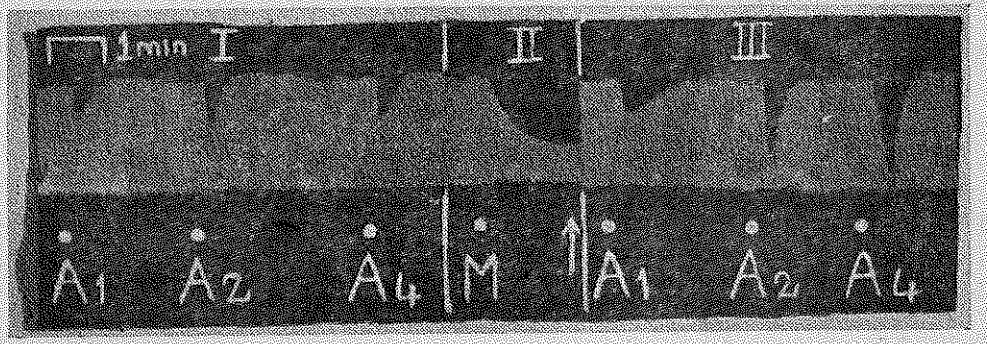

Fig. 2: Effect of acetylcholine on isolated frog heart (I) before and (III) after metronidazole perfusion (M)• At A 1, A 2 and A 4, 1, 2, and 4 *g* $\mu$of acetylcholine respectively was injected.
At ↑ the metronidazole perfusion (60 *mg*) was over, and perfusion with normal frog's Ringer was continued; the drum was stopped for 2 min till heart recovered to normal.

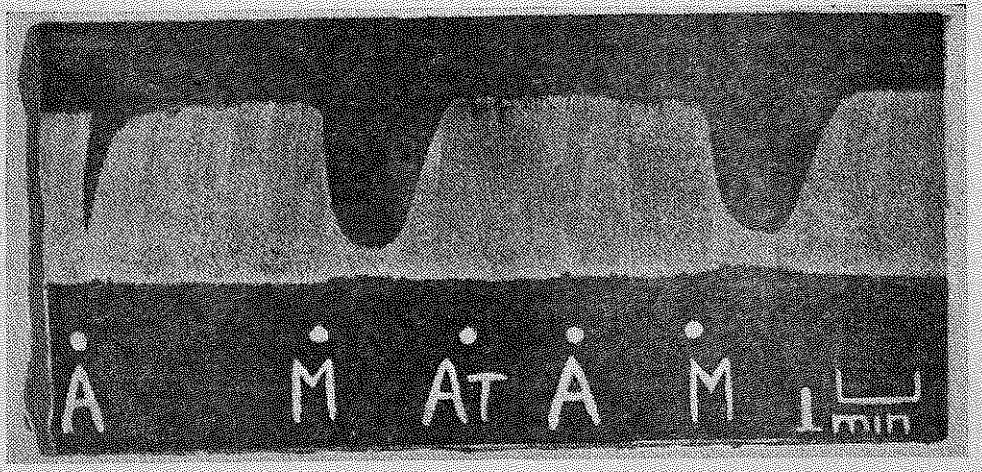

Fig 3: Effect of acetylcholine (A-8 μg) and metronidazole (M - 40 *mg*) after and during atropine (AT) treatment.

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REFERENCES

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2. Jadhav, J. H., J. J. Balsara, V.V. Joshi and D.S. Salunkhe. The effect of metronidazole on striated muscle. *European J. Pharmacol.*, **25** : 263-266, 1974.