AN ELECTROMANOMETRIC METHOD OF MEASURING THE ARTERIAL PRESSURE

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An electromanometric method of direct continuous measurement of the blood pressure is described. It is based on the use of a resistance manometer with electric pick-up connected to a recorder. Measurements of the arterial pressure obtained in rats during administration of vasotropic agents are described.

For several years the writers have used a resistance manometer with electric pick-up (Fig. 1) for the direct continuous recording of the arterial pressure in rats and larger laboratory animals. It consists of an ordinary U-shaped mercury manometer with a copper wire soldered into one limb for permanent contact with the mercury and with the graphite core of a "konstruktor 2H" pencil fixed into the other limb [1, 2]. A variable resistor (or better, a set of resistors) is connected to a type MS1-01 bridge. Instead of the MS1

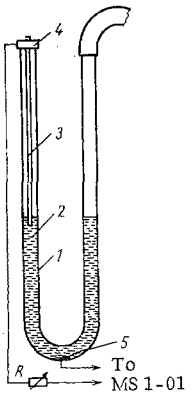

Fig. 1

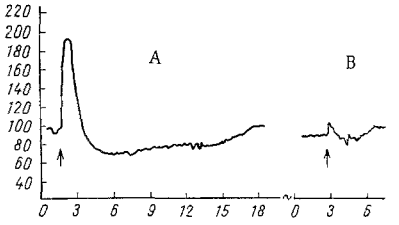

Fig. 2

Fig. 1. Diagram of the manometer and pick-up: 1) U-shaped manometer; 2) mercury; 3) graphite core; 4) core holder; 5) copper wire.

Fig. 2. Pressor response (A) to adrenalin (10 μg) and its blocking up preliminary subcutaneous injection of dihydroergotoxin (0.25 mg/kg) in an experiment on a rat (B). Arrows denote time of injection of adrenalin. Abscissa, time (in min); ordinate, pressure (in mm Hg).

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bridges, KSM4 or ÉPM-209M3 instruments can be used to record the pressure. All have balanced bridges designed for working with resistance thermometers using different standard scales of graduation. Since the resistance of the graphite core of pencils of different hardness (from B to 2H) varies from 10 to 100 Ω, all instruments with Group 20 graduation, and also instruments measuring temperature differences up to 100 and 150°C, corresponding to graduations of Groups 22, 24, and 21, 23, are suitable for these measurements. A graphite core with the required resistance is chosen by reference to the graduation tables supplied with the technical description of the instrument and the apparatus is then calibrated against a mercury manometer in mm Hg. The recorder must be read from right to left. The mercury in the U-shaped tube and the graphite core must be periodically washed. To minimize oxidation of the mercury the surface in contact with air is covered with distilled water.

Resistance manometers with a graphite core are more stable in work than the similar instruments with nichrome wire described in the literature [1, 3].

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