

EFFECT OF PRELIMINARY ADMINISTRATION OF TISSUE
PREPARATIONS ON REACTIONS OF ANIMALS
TO INJECTIONS OF ADRENALIN SOLUTION

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The mechanism of action of tissue therapy has not yet received adequate study. There are opportunities in this field for the study of the reaction of the animal organism to the administration of various drugs against the background of the transplantation of tissues preserved by Filatov's method. There is evidence in the literature of a lowering of the toxicity of a number of pharmacological agents when administered after the preliminary injection of tissue preparations [1, 3, 5], and of the alleviation of the course of experimental diseases [4], indicating the stimulation of the activity of various systems determining the reactivity of the organism.

The object of the present investigation was to study the reaction of animals to injection of adrenalin solution after preliminary administration of tissue preparations.

METHOD

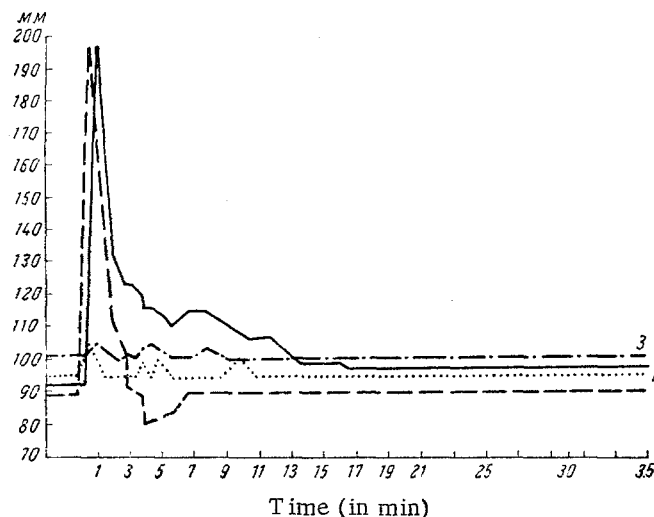
Experiments were conducted on 33 rabbits of the same weight and breed, in which the carotid artery was exteriorized into a skin tube one month before the beginning of the experiment, after which the initial background level of the blood pressure was then established by the Riva-Rocci method. The rabbits were divided into 4 groups. The animals of group 1 received an intravenous injection of adrenalin solution in a dose of 0.00001 k/kg body weight, following preliminary grafting of 0.5 g of heterologous skin by Filatov's method. The remaining 3 groups were composed of control animals: a control of tissue transplantation without injection of adrenalin solution, a control of injection of adrenalin solution without tissue transplantation, and a control of the season, the conditions of maintenance, environment, etc.

RESULTS

No significant changes were discovered in the level of the blood pressure during observations on the rabbits receiving neither transplants nor injections of adrenalin, and on the rabbits receiving transplants of heterologous tissue but not injections of adrenalin, for a period of 45 days: the value of the arterial pressure fluctuated within the normal physiological limits.

Determination of the level of the arterial pressure in response to injection of adrenalin solution in all the groups of rabbits before transplantation and in the special control group (without transplantation) revealed a uniform result (see figure): the duration of the rise of arterial pressure after injection of adrenalin solution was 3-4 min, after which the pressure fell below normal (second phase of action of adrenalin), and by the 10th-12th minute its value had returned almost to the initial level.

Injection of adrenalin solution into rabbits against a background of transplantation of heterologous skin preserved by Filatov's method produced a rather different effect: the duration of the increase in arterial pressure became appreciably longer, although the degree of lengthening was dependent on the day of transplantation. On the 1st-3rd day after transplantation in most rabbits the duration of the stage of elevation of the arterial pressure due to adrenalin was no longer than in the control animals, but the phase of the sharp compensatory decrease in pressure below normal on reaching the original level disappeared.



Changes in arterial pressure under the influence of adrenalin in rabbits on the 7th day after transplantation of heterologous tissue. 1) Adrenalin after preliminary transplantation; 2) adrenalin without transplantation; 3) transplantation without injection of adrenalin; 4) without transplantation and without injection of adrenalin.

The increase in the duration of the rise of arterial pressure was clearly visible on the 5th day after transplantation (up to 7-11 min), while on the 7th-9th day after transplantation the duration of this period averaged 12-15 min (see figure). The comparatively protracted character of the rise of arterial pressure was noted until the 17th-20th day after transplantation, and the increase reached its longest duration on the 10th day, when its mean value was 17 min.

The experimental results demonstrate some difference in the action of adrenalin solution when injected intravenously into rabbits in the presence or absence of preliminary tissue transplantation. From the results indicating an increase in the concentration of sympathicotropic substances after injection of tissue preparations, it may be concluded that some degree of synergism occurs between the action of adrenalin and tissue transplantation. In face of findings indicating an increase in the cholinesterase activity after tissue transplantation [2], a delay in the reflex transmission of impulses to the heart via the vagus nerve may be postulated, as a result of which, when the arterial pressure is high, no significant slowing of the heart rate takes place, and the pressure remains at this level for a comparatively long time.

LITERATURE CITED

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