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THE EFFECT OF HYPERGLYCEMIA ON NITRIC OXIDERGIC NEURONS IN NUCLEUS TRACTUS SOLITARIUS AND BLOOD PRESSURE REGULATION IN RATS WITH INDUCED DIABETES

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Abstract:

Background: The role of nucleus tractus solitarius in cardiovascular system regulation is controversial. On the other hand, study on the problem of hypertension in diabetic animals is the subject of many research programs. The aim of the present study was to determine wheather inactivation of nucleus can affect blood pressure in diabetic rats. Methods: To this end , stereptosotocin-induced diabetic rats were anesthetized with Urethane and a cannula was inserted above nucleus. Blood pressure and heart rate were monitored using an intraarterial cannula. The cannulas were filled with L- glutamate (78 pmol/60 nL, to functionally identify the NTS; see below), L-NAME(1nmol, to inhibit the nitric oxidergic neurons) and sodium nitroprusside (100mmol,as a NO-donor) . Results: The results indicated that inactivation of nucleus in diabetic rats, had no effect on systolic and mean arterial pressure but enhanced diastolic blood pressure (P<0.05). There was no significant difference in heart rate between control and test groups. Conclusion: Glucose affect on increasing blood pressure in rats with induced diabetes, in part, is caused by nitric oxidergic neurons resided in neucleus tractus solitarius.

Keywords:

"Hyperglycemia , Glutamate , Sodium Nitroprusside , Rat "

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