13) Does the depressor response of Bromocriptine elicit centrally in SHR?

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(Purpose) It is known that Bromocriptine(BRC), the dopamine agonist, decreases blood pressure when IV administered to normotensive rats and hypertensive rats. However, the underlying mechanism of depressor response is not yet clear. To study whether BRC will have the central depressor effect or not, we administered BRC intracerebroventricularly in SHR and WKY.

(Materials and methods) 9 weeks-old male WKY and SHR, normotensive male Wistar rat (230-260g of weight) were anesthetized with urethane (1.2g/kg, i.p.) Cannules were inserted into the femoral artery and vein, which were used to record the blood pressure and to inject the drugs. The stainless cannula was inserted into the right lateral ventricle. BRC was injected 250 μ g/kg into the ventricle or vein. Metoclopramide(MCP) 2.5, 5.0mg/kg and Domperidone(DMP) 1.0, 2.5mg/kg pretreatment before BRC administration was also examined.

(Results) (1)ICV injection of BRC caused significantly larger depressor responses in SHR compared to WKY. (30 min.: -20.7% vs. -16.0% ; $p<0.01$)

(2)IV injection of BRC caused significantly larger depressor responses in SHR compared to WKY. (10 min.: -39.0% vs. -29.5% ; $p<0.05$)

(3)IV injection of BRC caused significantly larger depressor responses in both SHR and WKY compared to ICV injection. (SHR 10 min.: -39.0 % vs. -12.0 % ; $p<0.01$) (WKY 10 min.: -29.5 % vs. -7.3 % ; $p<0.01$)

(4)MCP 5mg/kg pretreatment inhibited depressor responses of BRC intracerebroventricularly in SHR. (30 min. : -8.9% vs. -20.7% ; $p<0.01$)

(5)DMP2.5mg/kg pretreatment significantly inhibited depressor responses of BRC intracerebroventricularly in SHR. (10 min.: 0.1% vs. -20.0% ; $p<0.01$)

(6)DMP 1mg/kg pretreatment significantly inhibited depressor responses in IV injection of BRC in SHR. (SHR 3 min.: -16.0% vs. -32.1% ; $p<0.05$)

(Conclusion) BRC elicited larger depressor response when IV injection compared to ICV injection. Pretreatment of DMP, which cannot pass the blood brain barrier, inhibited the depressor response in ICV injection of BRC. Depressor response to IV injection of BRC was significantly larger in SHR than in WKY. This finding indicated that the response by ICV injection of BRC induced possibly by its peripheral leakage. In SHR, peripheral dopamine system may be rearranged.