

LETTERS TO THE EDITOR

Plasma prolactin concentrations in hypertensive rats

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Stumpe, et al (1977) reported plasma prolactin concentrations to be elevated at all times throughout the day in a group of male patients with essential hypertension. As an increase in plasma prolactin may be the consequence of reduced central dopaminergic activity, they proposed that a defect in central dopamine control could be a factor in the maintenance of essential hypertension. In some subsequent work, however, Holland & Gomez-Sanchez (1977) found no increase in the plasma prolactin concentration of a group of hypertensive patients consisting of both men and women. Thus contrasting data now exist in the clinic and in order to gain more insight into the problem we considered it of value to examine plasma prolactin levels in some animal models of hypertension. For this purpose we chose spontaneous hypertension (SH) and deoxycorticosterone acetate (doca)/NaCl-induced hypertension, in rats.

The SH rats used were of the Japanese strain (Okamoto & Aoki, 1963) being males of 14 weeks of age. Doca/NaCl hypertension was induced in male Sprague Dawley rats, 60–80 g, by subcutaneous implantation of doca (50 mg) together with unilateral nephrectomy and replacement of the drinking water with 1% w/v NaCl solution for the first 5 weeks; the rats were then left for at least 2 months after the operative procedure at which time their blood pressures had usually attained a stable level. As a control, a group of unoperated male Sprague Dawley rats were used. Systolic blood pressure values were obtained by the tail cuff method (Friedman & Freed, 1949) using a W + W B.P. Recorder, Model No. 8002. For all measurements of blood pressure the rats were held in restraining cages in a heated environment ($33.5 \pm 0.5^\circ\text{C}$) and each determination was the mean of at least 6 readings.

Groups of 6 rats were used, and one day after blood pressure determinations the animals were rapidly anaesthetized with ether and blood was quickly removed from the abdominal aorta with heparinized syringes. After centrifugation of the whole blood the plasma prolactin was measured using the NIAMD rat prolactin

Table 1. Plasma prolactin concentrations in hypertensive and normotensive rats.

Rat type	Weight (g)	Systolic blood pressure (mm Hg)	Plasma prolactin (ng ml ⁻¹)
Spontaneously hypertensive	292 ± 14	217 ± 10	23.5 ± 2.6
Doca/NaCl-hypertensive	478 ± 16	222 ± 13	24.7 ± 2.2
Normotensive	350 ± 7	133 ± 4	29.0 ± 3.7

radioimmunoassay kit supplied by the NIAMD-NIH pituitary hormone programme.

The results, as shown in Table 1, revealed that the plasma prolactin concentration was not increased in established spontaneous or doca/NaCl-induced hypertension. In fact the values were slightly, but not significantly ($P > 0.05$), lower in the hypertensive animals compared with the normotensive control group. Thus, the results of this study in the rat do not appear to support the suggestion that plasma prolactin concentrations are changed in hypertension through a defect in central dopaminergic control. The relevance of this finding to the clinical situation is of course uncertain as it can be argued that the etiology of experimental hypertension in animals may be different from that of essential hypertension in man. However, the two models of experimental hypertension chosen here, particularly the SH model, have often been likened to human essential hypertension.

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