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SPECTRUM OF RENIN ANGIOTENSIN ALDOSTERONE SYSTEM DISORDERS IN YOUNG HYPERTENSIVES OF PAKISTAN

Mehwish Gilani

Armed Forces Institute of Pathology, Pakistan

The study was a cross sectional study conducted in the Department of Chemical Pathology and Endocrinology Armed Forces Institute of Pathology (AFIP) Rawalpindi from January 2016 to December 2016. 165 young hypertensive subjects, aged 17-40 years, of either gender presenting in the outpatient department (OPD) were recruited from local population of Rawalpindi. All subjects were having blood pressure more than 140/90 mm of Hg and were not on any anti-hypertensive medicine. Patients with renal dysfunction, heart failure, pregnancy and secondary hypertension were excluded from the study. Blood sample was taken from each patient to analyze arterial blood gases, plasma renin, serum aldosterone and electrolytes. Sandwich chemiluminescence immunoassay and ELISA techniques were used to analyze plasma renin and serum aldosterone level. Arterial blood gases and electrolytes like sodium and potassium were measured by potentiometry, while bicarbonate was calculated. Normally distributed continuous variables were presented as mean+SD and others as median. Multiple regression analysis was performed to compute association of age, electrolytes, systolic and diastolic blood pressure in OPD and endocrine clinic AFIP with essential hypertension and primary hyperaldosteronism. $P < 0.05$ was considered statistically significant. Out of 80 subjects, 72 were diagnosed with essential hypertension and 8 with primary hyperaldosteronism. None of the patients had Liddle syndrome, apparent mineralocorticoid excess or Gordon syndrome. Mean age of patients having essential hypertension was 30.97 ± 7.13 years, whereas those with primary hyperaldosteronism was 29.25 ± 7.1 years. Mean serum sodium was 137.8 ± 6.5 mmol/l and potassium was 4.23 ± 0.6 mmol/l. Mean systolic blood pressure of patients measured in OPD was 172.7 ± 19.2 mm of Hg whereas diastolic blood pressure was 100.0 ± 8.3 mm of Hg. Mean systolic blood pressure measured in endocrine clinic AFIP was 142.7 ± 10.5 mm of Hg and diastolic blood pressure was 90.3 ± 6.5 mm of Hg. Diastolic blood pressure was significantly higher ($p = 0.001$) among all the patients reported in OPD. No statistically significant association was found between age, systolic and diastolic blood pressure ($p < 0.05$) in either OPD or endocrine clinic. Therefore, it was concluded that hypertension is not uncommon in young population of Pakistan. Primary hyperaldosteronism as compared to other RAAS disorders, remains the leading cause of hypertension in young population.

drmehwishgilani@hotmail.com