

Sporadic Liddle's Syndrome

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INTRODUCTION

Liddle's syndrome is a classical entity which rarely presents with secondary hypertension. Work up for this entity is necessary while dealing with cases of hypertension, because the treatment protocol is different. We report a case of a 35-year-old male, who presented to us with history of recurrent headaches and fatigability. Examination revealed hypertension and hypokalaemia. No one in family was hypertensive. After work up, he was diagnosed to have Liddle's syndrome.

Liddle's syndrome is inherited as an autosomal dominant condition. It is characterized by increased sodium reabsorption and potassium secretion by kidneys.^[1-3] The classic triad of presentation is hypertension, hypokalaemia, and metabolic alkalosis, which often resembles hyperaldosteronism.^[4] It usually affects younger age group, but rarely it may be diagnosed in adulthood.^[5]

Secondary hypertension may be the first presentation in Liddle's syndrome. Diagnosis of this syndrome is important because the treatment is different from that of other causes of secondary hypertension. The triad of hypertension, hypokalaemia and metabolic alkalosis is usually seen in Liddle's syndrome.

PRESENTATION OF CASE

A 35-year-old male presented to this hospital with chief complaints of headache, and fatigability of 1-month duration. There was no history of vomiting, diplopia, blurring of vision, palpitations, diaphoresis. There was no history of diabetes. There was no family history of hypertension.

On examination: Blood Pressure (BP) was 180/106 mmHg without significant asymmetry or postural variation, with palpable pulses in all extremities. JVP was normal and there was no oedema. CVS examination was normal. Other systemic examination was normal.

Investigations revealed hypokalaemia (2.3 mEq/L), normal serum sodium (137 mEq/L), high 24-h urine potassium (48 mEq/L) and metabolic alkalosis (pH 7.48, and HCO₃ 27 mEq/L). Urine examination was normal. Serum Urea and creatinine was normal. USG KUB and renal artery doppler was normal. ECG revealed left ventricular hypertrophy with strain pattern. The patient's serum cortisol (11.2 µg/dL) and adrenocorticotrophic hormone (ACTH) (11 pg/L) levels were normal. Urinary fractionated catecholamine levels disclosed epinephrine 2.95 µg/day (normal: 0-20 µg/day), norepinephrine 12.10 µg/day (normal: 10-80 µg/day). Serum aldosterone- (28 pg/mL, normal: 40-480 pg/mL), low plasma renin (0.04 ng/mL/h). Computed tomography (CT) of the abdomen was negative for adrenal enlargement or mass.

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With a provisional diagnosis of Liddle's syndrome, the patient was treated with amiloride, which is available in a combination with frusemide (Amiloride 5 mg + Frusemide 40 mg) once a day. Oral potassium supplementation was also instituted. Three months later, the patient's BP stabilized at 128/78 mmHg with serum potassium at 4.2 mEq/L.

DISCUSSION

When hypertension and hypokalaemic alkalosis co-exist the various possibilities that should be considered in the diagnosis are; Conn's syndrome, pheochromocytoma, Cushing's syndrome, renovascular hypertension, essential hypertension with diuretic use, congenital adrenal hyperplasia, Liddle syndrome and syndrome of apparent mineralocorticoid excess.^[6] Low serum aldosterone with normal CT abdomen usually rules out primary aldosteronism (Conn's syndrome). We excluded Cushing's syndrome and pheochromocytoma on the basis of normal serum cortisol, ACTH and normal urinary catecholamines. The patient did not give history of liquorice intake, and; congenital adrenal hyperplasia does not usually present at this age. Renovascular hypertension was ruled out by normal USG Doppler.

With the features of hypertension, hypokalaemia with metabolic alkalosis and hyporeninaemic hypoaldosteronism, possibilities of Liddle's syndrome and syndrome of apparent mineralocorticoid excess were considered. Normal serum cortisol ruled out syndrome of apparent mineralocorticoid excess. The patient's response to amiloride confirmed the diagnosis of Liddle's syndrome.

The syndrome of severe hypertension, hypokalaemia and metabolic alkalosis mimicking hyperaldosteronism was described by Liddle et al.^[7] However, irrespective of absence of raised levels of mineralocorticoid, these patients have low renin and aldosterone levels.^[6] It is caused by mutations affecting epithelial sodium channel (ENaC).^[8] These mutations activates the epithelial sodium channel present in luminal membrane of the collecting tubule. This in turn leads to excessive sodium absorption, volume expansion and hypertension.

Liddle's syndrome presents with the triad of hypertension, hypokalaemia and metabolic alkalosis, resembling mineralocorticoid excess.^[7] The usual presentation is in the young age. There are reports that it can present in elderly populations also.^[8,9] Any patient especially in younger age who present with hypertension, hypokalaemia and metabolic alkalosis, Liddle's syndrome should be considered. Potassium-sparing diuretics such as amiloride and triamterene, are effective in treatment of Liddle's syndrome as these drugs directly close the epithelial sodium channels.

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