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Primary Aldosteronism (Conn's Syndrome)

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Annotation: Primary aldosteronism is a disorder caused by autonomous production of aldosterone by the adrenal cortex (due to hyperplasia, adenoma, or carcinoma). Symptoms and signs include episodic weakness, elevated blood pressure, and hypokalemia. Diagnosis includes measurement of plasma aldosterone levels and plasma renin activity. Treatment depends on cause. A tumor is removed if possible; in hyperplasia, spironolactone or related drugs may normalize blood pressure and eliminate other clinical features.

Key Words: polyuria, polydipsia, nicturia,, paresthesias, hypoisosthenuria, proteinuria, hyperkaliuria, hyponatriuria.

It is a disease characterized by an increase in the production of aldosterone from a tumor of the adrenal gland. The disease is very rare, it often occurs in women aged 20-50.

Historical background: first recorded in 1955 by Conn.

ETIOLOGY:

1. Hormonally active tumor (aldosteroma) of the adrenal cortex.
2. In rare cases, bilateral hyperplasia of the cortical part of the adrenal gland

In a tumor, aldosterone biosynthesis increases 40-100 times, cortisol 2-5 times, and corticosterone 2-4 times. Elevated levels of cortisol and corticosterone have been attributed to the heterogeneity of the adenoma, with some cells resembling zona tuft cells and others resembling zona reticularis. In addition, in primary aldosteronism, the reticular zone increases along with the ball zone.

PATHOGENESIS: as a result of excessive production of aldosterone, sodium reabsorption in renal tubules increases, potassium and hydrogen ions are excreted in urine. As a result of gynokalemia in the body, muscle weakness, paresthesias, temporary muscle paralysis and kidney symptoms: polyuria, polydipsia, nocturia, etc. develops. As a result of hypokalemia, instead of intracellular potassium, sodium and hydrogen ions are placed, causing intracellular acidosis and extracellular alkalosis. As a result, tetany occurs. Retention of sodium and water in the body is

hypervalemia, which is hypertension and its symptoms: headache, fundus changes, left ventricular hypertrophy, etc. cause. Increased urinary potassium excretion leads to hypokalemic alkalosis and hypokalemic tubular nephropathy.

CLINIC: Patients complain of severe headache, sudden attacks of muscle weakness, seizures, thirst, frequent and abundant urination, paresthesias, sudden muscle pain, pain in the heart area without irradiation, shortness of breath, rapid heartbeat. The following groups of symptoms of the disease are distinguished:

1. symptoms related to hypertension - headache, fundus changes, cardiac hypertrophy;
2. neuromuscular symptoms - tetany, muscle weakness, paresthesias and seizures;
3. kidney symptoms - polyuria, polydipsia, nocturia, relative proteinuria, alkaline reaction of urine.

Cardiovascular system - expansion of the heart to the left, muffled heart sounds, second-tone accent is heard over the aorta, systolic noise at the peak, increased blood pressure, mainly diastolic, Q-T, prolonged T interval on the ECG is negative, S-T is below the isoline. A sudden increase in blood pressure and hypoglycemia can lead to a crisis or even hypokalemic heart failure. It suddenly causes headache, nausea, vomiting, muscle weakness, shortness of breath, decreased vision, and paralysis. As a result of the crisis, there is a violation of blood circulation in the brain, acute left ventricular and coronary insufficiency. Peripheral edema can occur only in heart failure. When blood pressure is too high, hemorrhagic retinopathies, swelling of the retina, and eventual blindness occur. Paralysis occurs in the lower limbs and is transient in nature.

Laboratory diagnostics: The amount of aldosterone in the blood

increased, hypokalemia, hypernatremia, decreased plasma renin activity. Decreased urinary response, hypoisosthenuria, proteinuria, hyperkaliuria, hyponatriuria. The amount of aldosterone in the urine is increased. Increased relative density of urine.

Diagnostic tests.

1. Aldoctone (spironiloctone) test - based on determining the ability of aldoctone to block the effect of aldosterone in the urinary tubules. For this, 100 mg of veroshperon is given orally four times for three days. On the fourth day, the amount of potassium in the blood is determined, if the amount of potassium in the blood is more than 1 mmol/l, it indicates that the cause of hypokalemia is the result of an increase in the amount of aldosterone.
2. Hypothiazide test - in Conn's syndrome, when 100 mg of hypothiazide is taken at once, the amount of potassium decreases.

Instrumental diagnostics.

1. Radioisotope diagnostics.
2. X-ray diagnostics.
3. Computer tomography.
4. Magnetic resonance imaging. Adrenal gland tumors, hyperplasia and functional activity are determined by these methods.

DIFFERENTIAL DIAGNOSTICS:

1) With essential hypertension - muscle weakness, tetany, transient paralysis and hypokalemia are not observed.
2) With diabetes insipidus - in which arterial hypertension, hypokalemia, high relative density of urine are not observed, diuresis does not decrease after administration of desmopressin.

3) Congenital hyperaldosteronism - the patient is young, hypertension is of poor quality, polyuria and polydipsia are clearly expressed.
4) With secondary aldosteronism - swelling is observed, high hypertension and pronounced hypokalemia are absent.

TREATMENT:

1. Salt should be limited in the diet, and products containing potassium are recommended - apricots, bananas, kiwi, potatoes and other products.
2. Etio-pathogenetic - operative removal of the tumor in case of hyperplasia or total or subtotal resection is performed in case of hyperplasia of the adrenal gland. Glucocorticosteroids are prescribed during and after surgery.
3. Symptomatic - hypotensive drugs are prescribed.

CONCLUSION

Studies show that morbidity and mortality of those with primary hyperaldosteronism are directly related to chronic elevated hypertension leading to increased risk of cardiovascular disease, including CAD, stroke, and congestive heart failure secondary to left ventricular hypertrophy. Other studies point to the increased risk of cardiac arrhythmias secondary to persistent hypokalemia in those with primary hyperaldosteronism. Research has shown in individual studies that surgical correction by adrenalectomy leads to a better prognosis by a significant reduction in hypertension and hypokalemia when compared to those with medical therapy.

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