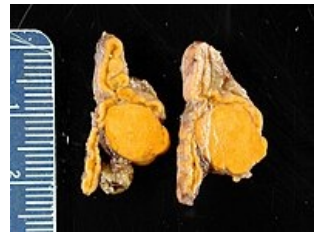


Primary hyperaldosteronism

- Excessive secretion of aldosterone by the adrenal cortex.

Etiology

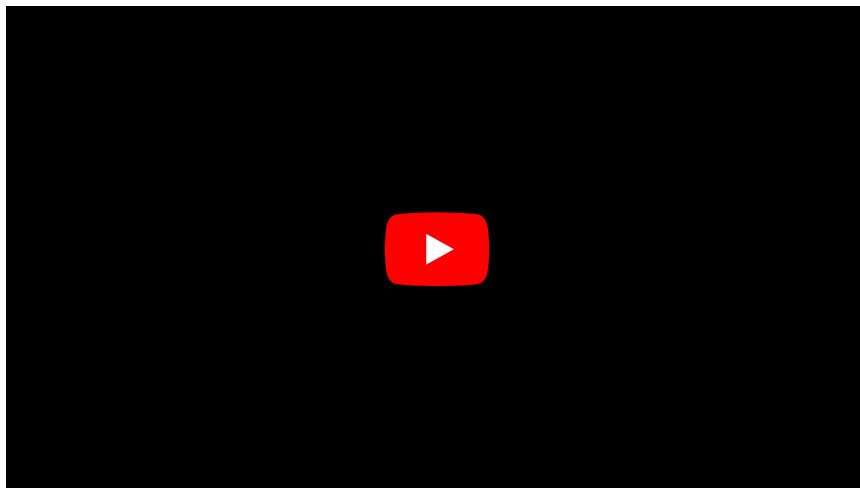
- **50-60%** – bilateral hyperplasia of the zona glomerulosa (idiopathic hyperaldosteronism)
- **35-40%** – **Conn's syndrome** – a label for a unilateral aldosterone-producing adenoma
- **5-8%** – unilateral hyperplasia
- **rare** – familial hyperaldosteronism type I - dexamethasone suppressible (DSH) - there is a fusion of the regulatory part of the *11beta-hydroxylase gene* with the coding part of the *aldosterone synthase gene*; the resulting chimeric gene produces large amounts of aldosterone, but this is under the control of **ACTH**.
- **rare** – carcinoma of the adrenal cortex



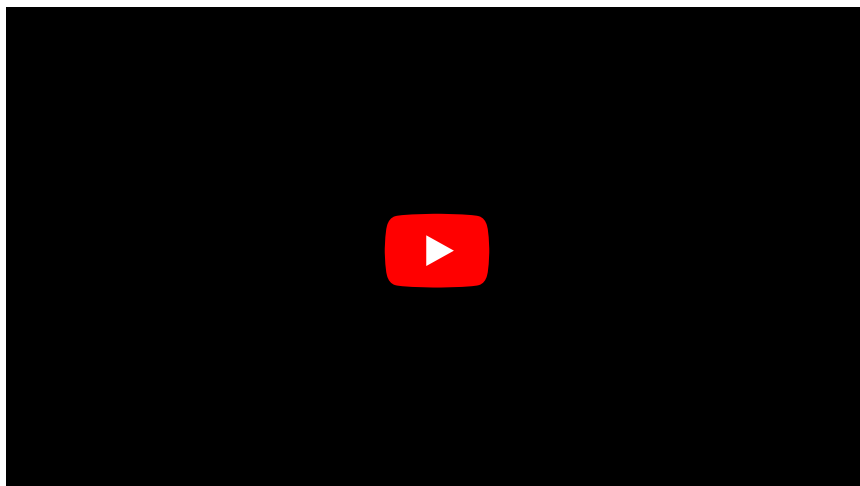
Adrenal cortex in primary hyperaldosteronism

A condition similar to primary hyperaldosteronism can also be caused by the kidney, where a benign reninoma can form. Its cells produce more renin and this leads to an increase in the production of aldosterone in the kidneys.

Primary hyperaldosteronism:



Reninoma:



Clinical picture

Regardless of the cause, the symptoms of the disease are the same – a high level of aldosterone has an effect on **reduced excretion of sodium** and, conversely, **increased excretion of potassium** by the kidneys. Sodium accumulates in the body, which leads to an increase in the volume of *extracellular fluid* (including plasma). The increase in fluid in the blood vessels leads to an **increase in blood pressure** with all the manifestations and complications (headaches, fatigue, nosebleeds).

Long-term elevated blood pressure can be the cause of **heart failure**. A reduced potassium level can manifest itself in any way - from *constipation*, through *muscle weakness*, *hypokalemic nephropathy* (with a reduced concentration ability of the kidneys manifested by nocturia) to life-threatening *heart rhythm disorders*.

So the patient has: **hypertension, hypokalaemia, hypernatremia**.

Diagnostics

Conn's syndrome must be considered in arterial hypertension that does not respond well to treatment.

Imaging methods

- ultrasound of the *kidneys (reninoma)* and *adrenal glands (tumor, bilateral hyperplasia)*
- CT, MRI of the *adrenal glands*

Laboratory examination

- **increased level of Na^+** and **decreased K^+** in the blood
- **hormone levels:**
 - if both *aldosterone and renin are high*, it means that the cause of the high aldosterone is in the **kidneys**
 - if the *aldosterone level is high* but *the renin level is low*, it means that the problem is in the **adrenal glands**
- **examination** of *plasma renin activity*
- **stimulation tests** (physical stress, furosemide)

Treatment

We choose the treatment procedure **according to the cause**.

- **adrenal tumors** – surgical removal (adrenalectomy)
- **bilateral hyperplasia of the adrenal glands** – conservative therapy: pharmacotherapy (*spironolactone* and *eplerenone*, which dampen the effect of aldosterone) – bilateral surgical removal of the adrenal glands is *not suitable* due to the great importance of their hormones.
- **familial hyperaldosteronism type I** - small doses of *ACTH-suppressing glucocorticoids*

Links

Related articles

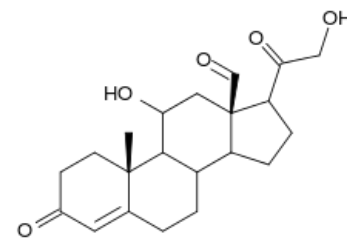
- Dysbalance natria
- Diabetes insipidus
- Addison's choroba

Source

- ŠTEFÁNEK, Jiří. *Medicína, nemoci, studium na 1. LF UK* [online]. ©2011. [cit. 14. 4. 2011]. <<https://www.stefajir.cz/?q=connuv-syndrom>>.

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- ČEŠKA, Richard – TESAŘ, Vladimír, et al. *Interna*. 132. edition. Triton, 2012. 855 pp. pp. 153. ISBN 9788073876296.



Aldosterone