Adrenal Insufficiency

Adrenal insufficiency or AI is a lack of hormones made by the adrenal glands. The adrenal glands are found above each kidney. These glands release hormones called cortisol and aldosterone that are needed by your body. These hormones work in your body to:

- maintain a normal fluid balance
- control your blood pressure
- use sugars, electrolytes and proteins
- deal with stresses, whether physical or emotional

Adrenal insufficiency, also called Addison disease, is a condition where the adrenal cortex does not produce enough hormones. It can be caused by:

- the surgical removal of both of your adrenal glands
- problems with the pituitary gland, including tumors or surgical removal
- an autoimmune reaction where your own body attacks the adrenal gland
- treatment for Cushing’s syndrome, where the body makes too much cortisol
- long term use of steroids
- metabolic defects that affect the ability of the adrenals to make steroid hormones
- other conditions, such as infections or medicines that affect the amounts of cortisol in the body
Signs of Adrenal Insufficiency

Signs of adrenal insufficiency may take months to show up. You may have some of these signs or many, including:

- feeling tired or weak
- muscle weakness
- feeling dizzy when you stand up
- feeling cold
- nausea and vomiting
- craving for salt or salty foods
- diarrhea or constipation
- darkening of your skin
- loss of appetite
- hair loss

However, it is worth noting that the signs of adrenal insufficiency may be caused by many other conditions, some of which are serious, and some of which are not as serious. Because of this fact, it is not possible to diagnose adrenal insufficiency on the basis of symptoms.

Testing

Your doctor will want to check your cortisol and aldosterone levels, such as:

- An ACTH stimulation test. In this test, you will be given an injection of a small dose of synthetic ACTH, a hormone normally made in the pituitary gland. Blood is drawn before and after the ACTH to test the adrenal glands’ response.
- Fasting glucose test: Glucose is the sugar in the blood. You may be told to not eat for several hours before this test. A small amount of blood taken will be taken to check your blood sugar levels.
- Hormone-Insulin tests: Blood tests may be performed after the injection of a small amount of insulin to check cortisol levels at different timed intervals.
- Other blood tests: Your doctor may want to do a metabolic panel study. This is also a blood test but it measures other elements in the body, such as sodium and potassium.
- Computed tomography (CT): a scan which take x-rays pictures of the adrenal gland
• Magnetic resonance imaging (MRI): a scan to check the pituitary gland in the brain.

Medicines
Adrenal insufficiency is treated with medicines every day. Medicines can be taken in pill form or by injection, depending on your need.

• Glucocorticoids: One type of medicine you must take every day is a type of steroid called a glucocorticoid. This type of steroid (different from the “body building” steroids) is necessary for allowing the body to metabolize fuel, although it also helps regulate inflammation, stabilize blood pressure and has many other effects in the body. Your medicines may be ordered as:
  ▶ hydrocortisone
  ▶ cortisone acetate
  ▶ prednisone, or
  ▶ dexamethasone, also known by the brand name Decadron

The usual dose of hydrocortisone is 15-25 mg total each day. This is often taken as 2/3 in the morning, and 1/3 in the mid-afternoon. If you are on a different glucocorticoid, the dose will be different, since the medicines have different strengths.

• Mineralocorticoids: This type of steroid hormone helps your body control the amount of water and sodium so your system works as it should. The pill form of this hormone is called fludrocortisone, sold by the brand name Florinef. The usual dose is 50 to 200 mcg each day. If you notice any swelling in your feet or hands, be sure to call your doctor.

Special Considerations
You may be told to increase or decrease your dose of cortisol based on other medical events or conditions.

• If you have a mild cold or flu, an emotional stress such as a family crisis, receive an injury or get an infection, you may be told to increase your dose. Be sure to call your doctor. Take your normal dose once you are feeling better.
If you have vomiting or diarrhea for more than 12 hours, call your doctor. If you are not able to take your cortisol medicine by mouth, you will need to give yourself an injection of a cortisol medicine, like hydrocortisone or dexamethasone and then call your doctor.

Fludrocortisone may need to be adjusted in warm weather because of the body’s need to produce more sweat. If you feel lightheaded or dizzy when standing up, call your doctor. It is also important to drink plenty of water and fluids in warm weather.

Adrenal Crisis
Adrenal crisis can happen when your body's need for cortisol changes and the amount you take is not enough. Signs of an adrenal crisis are:

- Nausea and vomiting
- Abdominal pain
- Severe weakness or collapse
- Headache, dizziness or fainting
- Change in alertness or confusion
- Fever and chills
- Low blood pressure
- Fast heart rates, or going into shock

Treatment for Adrenal Crisis
If you have one or more of these signs, Dexamethasone can save your life, so carry doses with you at all times. You should have 2 or 3 prefilled syringes of dexamethasone. Have one at home, one at work, and one you carry with you all the time.

- Keep the medicine at room temperature. Avoid hot or very cold temperatures, and keep it away from sunlight, and water.
- Read the handout, Giving Medicine by Subcutaneous Injection, for more information on how to give dexamethasone.
- Refill your prescription when you use a dose, after the expiration date or one year after having the medicine filled, or if the medicine is cloudy or colored.
Medical Alert

For your safety, you should get and wear a medical alert bracelet or necklace that states you have Adrenal Insufficiency. If you had surgery that removed the adrenal glands, you may want to add Bilateral Adrenalectomy.

- Apply for a medical alert bracelet or necklace. Wear your medical alert jewelry at all times.
- Carry with you a wallet card that has your doctor’s name, phone numbers, medicines you take and how to help you in an emergency.
- **If you have one or more signs of adrenal crisis, or feel sick, take a dexamethasone injection, and call your doctor right away.**
- Tell your coworkers, family and friends about how to help you if you have adrenal crisis. **If someone finds you unconscious, have them give you dexamethasone right away. Then call 911 for help.**

Talk to your doctor or others on your health care team if you have questions. You may request more written information from the Library for Health Information at (614) 293-3707 or email: health-info@osu.edu.