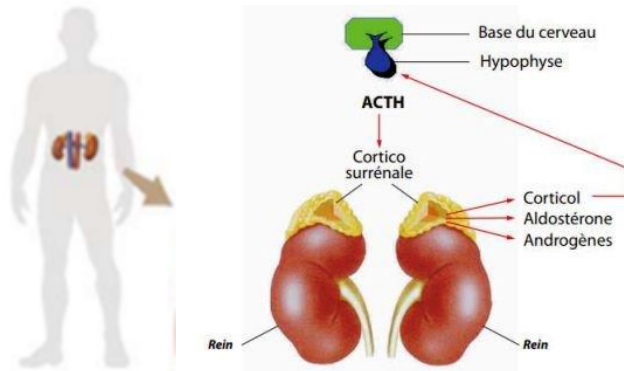


Patient information: Adrenal insufficiency

Modified from UpToDate by Dr. Juan Rivera

SYMPTOMS OF ADRENAL INSUFFICIENCY — The hormones produced by the adrenal glands (two glands located on top of the kidneys, behind the intestines in the abdomen) have numerous important (even essential) functions, so it is not surprising that deficiencies of these hormones can lead to a wide variety of symptoms. The type and severity of symptoms depend on the speed with which the condition develops the degree of the hormone deficiency, the underlying cause of the condition, and other stresses on the body.



Most patients with primary adrenal insufficiency (meaning that the problem lies in the adrenal glands themselves) experience fatigue, generalized weakness, loss of appetite, and weight loss. Other common symptoms include: gastrointestinal symptoms such as nausea and vomiting (vomiting or abdominal pain is a signal that an *adrenal crisis* might occur; see below), hypotension (low blood pressure with lightheadedness after standing up), muscle and joint pain, salt cravings, darkening of the skin. When the problem lies in the pituitary gland or the hypothalamus in the brain (secondary adrenal insufficiency), the symptoms are similar except for darkening of the skin that is absent, gastrointestinal symptoms that are less common, and symptoms of hypoglycemia (low blood sugar) which are more common, and include mental fogginess, sweating, anxiety, tremulousness, nausea, palpitations.

Symptoms of adrenal crisis — Adrenal crisis refers to overwhelming and life-threatening adrenal insufficiency. This condition usually occurs in people with primary adrenal insufficiency. The main symptom is shock (very low blood pressure with a loss of consciousness). In some cases, shock may be preceded by fever, nausea, vomiting, and abdominal pain, weakness and fatigue, and confusion. Adrenal crisis is usually precipitated by an infection, trauma, or some other stressor.

General precautions — People with adrenal insufficiency should wear a medical alert bracelet or necklace. They should also carry an Emergency Medical Information Card that indicates their daily medications and doses, and the physician to call in the case of emergency. It is extremely important to be able to identify early symptoms of deficiency and adrenal crisis; your doctor can describe subtle symptoms that you shouldn't ignore.

Emergency precautions — Sometimes, even with careful use of medications and medical monitoring, people with primary adrenal insufficiency may experience adrenal crisis. As a safety measure, your doctor will recommend that you always carry a syringe pre-filled with dexamethasone or an emergency kit of Solucortef. You should also keep these emergency kits in your home, at work or school, and in your car. In addition, you and any appropriate family members or friends should be given instructions on how to give the injection.

Situations that may necessitate a dexamethasone or solucortef injection include a major injury with blood loss (more than a cup of blood), fracture, or shock; nausea, vomiting, and an inability to keep

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down oral medications; symptoms of acute adrenal insufficiency; and unresponsiveness. It is very important that medical help is sought as soon as the injection has been given.

Most people with adrenal insufficiency go for years without needing these injections, but doctors generally recommend an injection whenever you are in doubt. Dexamethasone-filled syringes or Solu-cortef kits should be replaced when they are used; if they are not used, they should be replaced once a year or if the liquid becomes cloudy or colored.

Illnesses, medical procedures, and surgery — The adrenal glands normally increase cortisol output when the body is stressed by illness, major medical procedures, or surgery, but people with adrenal insufficiency do not have this ability. The risk of adrenal crisis associated with these stressors can be minimized by adjusting the dose of medications.

Stress doses:

If you have symptoms of a "cold" or flu, or severe pain or any major illness, you can double or triple* your daily dose of glucocorticoid for 3 to 5 days without calling your doctor. (Your doctor may have instructed you to take a certain fixed dose of cortisone in such situations, regardless of your daily dose). However, if your symptoms become worse during those few days on higher dose of cortisone (or equivalent medication), or if you cannot return to your usual dose on the fifth to sixth day, you should call your doctor for advice or go to the ER.

Note that if your doctor has judged that your adrenal glands are making enough cortisol for everyday life (but not for situations of illness), you may not need to take a regular dose of cortisone or a cortisone-equivalent medication. In that case your doctor may have instructed you to take a stress dose (typically 20 to 25 mg) 2 to 3 times per day while you are ill.

It is important to inform your doctor if you require any medical procedures or surgery. Your doctor will usually recommend that you temporarily increase your glucocorticoid dose for these types of stresses.

There are several medications that can be used to replace the main deficient hormone in adrenal insufficiency: the cortisol. These medications are called glucocorticoids. Your doctor has chosen for you the following:

As of today _____ your doctor has prescribed

_____ mg in the morning
_____ mg _____
_____ mg _____

These doses and timing could change overtime depending on many factors. Please follow your most recent prescription.

Your stress dose is:

Take this dose 2 or 3 times a day in case of illness as explained above.

Any question? Take note and bring it with you to your next appointment or call (514) 934-8224 and leave a message for your nurse or doctor (during office hours).