Adrenal insufficiency FACTSHEET

Information on adrenal insufficiency with a focus on employment participation

Etiology

Adrenal insufficiency is characterised by a deficiency of cortisol. This may be because the adrenal glands themselves do not work properly (primary adrenal insufficiency), because the adrenal glands are not properly regulated by the pituitary gland (secondary adrenal cortex insufficiency) or because of exogenous corticosteroid use. In primary adrenal insufficiency, there is usually also a deficiency in aldosterone. The most common cause of primary adrenal insufficiency in the Netherlands is Addison's disease (autoimmune disease).
Secondary adrenal insufficiency is caused by a disorder of the pituitary gland, such as a pituitary adenoma.[1,2]

Symptoms

A deficiency in cortisol (and possibly aldosterone) can cause the following symptoms and signs:[1,2]
- fatigue, malaise, poor appetite, weight loss;
- nausea, vomiting, abdominal pain, diarrhea;
- muscle and joint complaints;
- dizziness, hypotension;
- psychological complaints (e.g. depression) and memory and concentration problems;
- salt craving (in primary adrenal insufficiency);
- hyperpigmentation of the skin (in primary adrenal insufficiency);
- hyponatraemia, hyperkalemia (in primary adrenal insufficiency), hypoglycemia;
- Risk of developing Addison crises, during stress, illness and in the event of trauma/surgery.

Despite optimal replacement therapy, some patients have residual complaints and symptoms such as those mentioned above. This means that long-term, and sometimes permanent, impairments in functioning are experienced, physical and/or psychological, as a result of the absence of the hormone.

Treatment

Treatment consists of cortisol replacement therapy (usually with hydrocortisone). In primary adrenal insufficiency, replacement of aldosterone (fludrocortisone) is also required. The dosage of hydrocortisone varies from patient to patient. It takes time, sometimes months to years, to find the optimal dosing schedule for a patient. The goal is to provide the lowest possible dose at which the patient feels as well as possible. A daily hydrocortisone dose that is too high increases the long-term risk of obesity, hypertension, diabetes mellitus and osteoporosis. A dose that is too low causes symptoms of hypocortisolism, as described above. Secondary hypocortisolism often involves a simultaneous deficiency of other pituitary hormones.
Cortisol levels have a day-night rhythm. Early in the morning, cortisol levels are at their highest, then they decrease in the course of the day, and are at their lowest at night. To mimic the day-night rhythm of cortisol as closely as possible, the dose of hydrocortisone is divided and taken throughout the day, with the morning dose being the highest. If a patient's day-night rhythm is disturbed, by working irregular shifts for example, or in stressful situations, this can cause problems in managing dosages of hydrocortisone.[1,2] Adrenal insufficiency is a chronic condition, meaning that patients are dependent on lifelong daily medication intake (usually 3 times daily), they require periodic medical check-ups and the condition requires lifestyle adjustments (stress management instructions, workload adjustments).

Stress situations and adrenal crisis

In the event of illness, surgery or severe psychological stress, more cortisol is required by the body. Patients with adrenal insufficiency should therefore increase their dosage of hydrocortisone in these situations, with the level depending on the severity of the situation. In cases of vomiting, severe illness or major surgery, hydrocortisone (or prednisone or dexamethasone) should be administered by injection (intramuscular or intravenous). Failure to increase hydrocortisone dosages adequately can lead to an adrenal crisis (also known as an Addison crisis), which can result in malaise, hypotension, a blackout, and eventually shock and death. Patients are therefore well advised to increase their hydrocortisone dosage in a timely manner and to carry an emergency injection kit of hydrocortisone (i.m.).
AdrenalNET has developed recommendations on what to do in the event of an adrenal crisis and specific treatment centers are usually accessible 24/7 to answer any questions.[1,2]

March 2025, UK V4

Employment

Despite careful adjustment of the optimal dosage regimen of hydrocortisone and, if needed, fludrocortisone, the quality of life of patients with adrenal insufficiency remains on average lower than that of the healthy population.[3,5] This indicates that the complex physiological hormonal secretion of the pituitary and adrenal glands, including day-night rhythms and adaptations to stressful situations, cannot be perfectly mimicked with current replacement therapies. Studies show that, on average, patients with adequately treated adrenal insufficiency score lower in terms of physical, social and mental functioning as well as vitality.[3,5] Residual symptoms vary widely from patient to patient. Some patients experience little or no limitations in daily life, while other patients are severely impaired by, for example, physical and mental fatigue, memory and concentration problems and psychological issues.[3,5] It is difficult to predict which patients will continue to have residual symptoms and which patients will experience no limitations from their disease. Although great variability can be observed between patients, it is not uncommon for patients to experience problems with work participation (patients with adrenal insufficiency are 2.5-5 times more likely to be out of work compared to the healthy population).[4,5,6]

A significant portion of patients are permanently impacted by specific impairments, but to varying degrees. These include limited cognitive and/or physical endurance, increased need for recovery, limited capacity for stress and, in particular, limited work endurance. Neuropsychological testing does not always reveal cognitive impairments. In our experience, however, work capacity testing conducted in a practical setting, and carried out in an occupational rehabilitation center, makes the limitations more visible. The use of work capacity testing can help the patient gain better understanding and control of the obstacles and specific limitations experienced and how to cope with them. It can also help with reintegration and adjustments of workload.

Key points of attention for the occupational physician/insurance assessor:

- A patient with adrenal insufficiency is dependent on hormonal replacement therapy for life.
- A patient with adrenal insufficiency should increase the dosage of hydrocortisone in the event of illness, surgery or severe psychological stress to prevent an adrenal crisis and, if necessary, administer an emergency intramuscular injection of corticosteroids in the event of severe illness (vomiting, collapse).
- After diagnosis, it takes time to find the optimal dosage regimen for an individual patient.
- The quality of life of patients with adrenal insufficiency is, on average, lower than that of the healthy population. However, residual symptoms vary greatly from person to person. Energy levels may fluctuate throughout the day and differ from one period to another. Having the possibility to be flexible with one's work schedule can be a helpful factor in employment participation.
- It is difficult to predict which patients will continue to have symptoms, after adjusting hormone replacement therapy as optimally as possible, and which patients will experience no impairment from their condition.
- Working irregular shifts can cause problems with the hydrocortisone dosage regimen and lead to the manifestation of symptoms.

Coordination and consultation:

In complex situations, a written information exchange or verbal coordination between the general practitioner and the accompanying occupational physican/insurance assessor is useful; always, of course, with the consent of the patient/employee.

References:

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This factsheet was created as part of the Dutch project on employment participation and chronic illness, a project co-funded by subsidies from ZonMw.

This factsheet may be subject to changes or improvements.
New versions will be posted on the project's website: www.werkwijzer.online

March 2025, UK V4