# Cushing's syndrome FACTSHEET

## *Information on Cushing's syndrome with a view to labour market participation (a project to improve participation potential in work processes)*

*This factsheet is intended for health professionals and insurance assessors. This factsheet briefly describes the essence of Adrenal Insufficiency, Pituitary Disorders and Cushing's Syndrome in relation to labour/work participation. More information on adrenal disorders can be found on AdrenalNET.EU These factsheets were developed in the year 2021/2022 in a project of BijnierNET/AdrenalNET in the Netherlands. It was a ZonMw funded project. No rights can be derived from this (translated) document. Copyright belongs to BijnierNET/ AdrenalNET (April, 2024).*

### Etiology

Cushing's syndrome is caused by an excess of cortisol[1]. It is usually caused by a benign, adrenocorticotropic hormone (ACTH)-producing adenoma in the pituitary gland (±80%) or a cortisol-producing tumour in the adrenal gland (±16%). Cushing's syndrome can also be caused by use of exogenous glucocorticoids (via medication prescribed for some other condition, for example).

### Symptoms

Hypercortisolism can cause a variety of symptoms, such as:

- weight gain (increase in abdominal girth and full-face);
- loss of muscle strength and muscle pain due to muscle atrophy;
- atrophy of the skin;
- fatigue, reduced stamina;
- memory, concentration and sleep impairments;
- psychological complaints such as emotional instability and mood problems.

In addition, hypercortisolism can cause hypertension, diabetes mellitus type 2, osteoporosis, increased bleeding and clotting tendency, and suppression of the immune system[2].

### Treatment

Treatment consists of surgically removing the tumour from the pituitary or adrenal gland. It is also possible to lower cortisol levels with medication (e.g. ketoconazole or metyrapone = Metopirone). This medication is usually used temporarily to bridge the gap until definitive treatment. If pituitary surgery is not possible, or has proved unsuccessful, radiotherapy of the pituitary gland is an option, but the effect on hypercortisolism will not be expected for several years.

### After surgery

After pituitary or adrenal surgery, there is usually adrenal insufficiency (at least temporarily) due to the previous long-term suppression of the pituitary-adrenal axis caused by the hormonal overproduction of the tumour. This requires substitution of cortisol (hydrocortisone). In the months or sometimes even years after surgery, hydrocortisone is slowly tapered off and stopped once the tumour's own cortisol production has recovered. If endogenous cortisol production is not initiated - due to damage to the pituitary gland during surgery or after radiotherapy, for example - the adrenal insufficiency will be permanent (see also the adrenal insufficiency factsheet). The rapid drop in cortisol after years of exposure to hypercortisolism frequently causes long-term withdrawal symptoms such as malaise, severe fatigue, muscle and joint pain, and psychological symptoms (steroid withdrawal syndrome)[3]. After curation/remission of Cushing's syndrome, patients also, on average, experience a lower quality of life in the long term with a lower exercise tolerance and need more recuperation time than healthy people. The adverse effects of long-term exposure to high cortisol values, such as unfavourable fat-muscle mass ratio, myopathy, skin atrophy, impaired cognitive functioning, fatigue, and reduced workload capacity, are often only marginally reversible[1,4,9]. The majority of patients treated for Cushing experience lasting effects on their quality of life and physical and mental functioning.

### Employment

Although there are large differences between patients, it is not uncommon for patients to experience problems with regard to labour market participation[10]. The treatment process is often



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lengthy, as described above. Recovery proceeds in several stages and may take years, and possibly persistent symptoms, such as reduced exercise tolerance and neurocognitive impairments, can remain present after reaching hormonal stability. The severity of Cushing's syndrome, as well as the course of the disease and the rate of recovery from symptoms, varies greatly from patient to patient. It is not easy to predict which patients will continue to have residual symptoms and which patients will make a full recovery. The long diagnostic delay, the duration of the treatment process and the lengthy recovery period can easily be more than two years.

## Points of attention for the company doctor and insurance assessor

- There can be years of delay before Cushing's syndrome is diagnosed.
- Prior to diagnosis, there may already be problems in functioning due to symptoms.
- After surgery, patients have to get used to the transition from hormone excess to hormone deficiency for the longer term.
- A proportion of patients (10-20%) will develop recurrent Cushing's syndrome.
- After severe Cushing's syndrome, recovery from steroid myopathy and neurocognitive symptoms takes a long time.
- The treatment process and recovery period also therefore take a long time: often years.
- The patient's endurance load capacity (both cognitive and physical) is often reduced with greatly increased recovery needs. This cannot be demonstrated with standard neuropsychological testing.
- Due to limitations in energy levels/cognitive functioning, the risk of overload during reintegration should be taken into account.
- Hormone disorders have a major impact on psychological functioning, and disease acceptance is a process that can take many years. This may require targeted psychological or other intervention.
- Some patients will also have dysregulation of other pituitary hormones in addition to dysregulation of the pituitary-adrenal axis, and this will then require dose titration to optimise quality of life.
- There is only a limited correlation between 'normal' hormone levels, symptoms and reduced functioning.
- There are large individual differences in the duration and degree of recovery from physical, neurocognitive and psychological symptoms.
- A proportion of patients sustain lasting effects, such as reduced energy levels and exercise intolerance, neurocognitive impairments and psychological symptoms.
- It is difficult for the treatment team to provide an unequivocal prognosis for the individual patient.
- Participation in multidisciplinary rehabilitation may have added value.

## Coordination and consultation:

In complex situations, it can be beneficial to arrange for written information exchange or verbal coordination between the treating practitioner and the relevant company doctor and insurance assessor - always, of course, with the consent of the patient/employee.

## References:


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