Endocrine Investigation Unit

Wolfson Diabetes and Endocrine Clinic

Steroid replacement for adrenal insufficiency due to HPA Axis suppression

This information leaflet is intended to provide support with the management of steroid replacement for people taking prednisolone or hydrocortisone due to hypothalamic pituitary adrenal (HPA) axis suppression.

What is adrenal insufficiency?
Adrenal insufficiency is a condition in which the adrenal glands (small hormone producing glands sitting above the kidneys) stop producing enough cortisol. Cortisol is a naturally occurring steroid hormone which regulates blood pressure, blood sugar and muscle strength. It is a hormone that is essential for health; severe deficiency can cause illness or even death.

The amount of cortisol produced by the adrenal glands is regulated by a hormone called adrenocorticotrophic hormone (ACTH) which is produced by the pituitary gland (a small gland producing many hormones which sits under the brain). The adrenal glands also produce another hormone called mineralocorticoid. The production of mineralocorticoid is not regulated by ACTH.

Adrenal insufficiency can occur due to many reasons including:

- **Addison’s Disease** - In this condition, the adrenal glands do not make enough cortisol or mineralocorticoid. It is discussed in the leaflet entitled “Steroid replacement for Addison’s disease PIN3574”.

- **Hypopituitarism** - This occurs when the pituitary gland does not produce enough of the hormone ACTH, in turn resulting in too little cortisol being produced by the adrenal glands. The adrenal glands produce enough mineralocorticoid in this condition.

- **Hypothalamic Pituitary Adrenal Axis Suppression (HPA axis suppression)** - Long term use of steroid medication such as prednisolone or dexamethasone can lead to suppression of the body's natural ACTH production, causing the adrenal glands to stop producing enough cortisol. There is sufficient production of mineralocorticoid in this condition. It is possible for the ACTH production from the pituitary to recover over time.
How is adrenal insufficiency due to HPA axis suppression treated?

Fortunately, cortisol can be replaced easily with daily steroid tablets. These steroid tablets are essential for your health and must never be stopped suddenly. Your doctor will advise on your correct doses and also when or if, to reduce the doses. Steroid medication is called prednisolone or hydrocortisone.

- **Prednisolone**
  This is a long acting steroid medication which is usually taken once a day in the morning on waking but occasionally a second dose will be required during the day.
- **Hydrocortisone**
  This is a short acting steroid medication. It is usually given in two or three daily doses with the first dose always on waking. It is the medicine of choice used when attempting to 'wean down' steroid replacement if adrenal recovery is anticipated in HPA axis suppression. However, this should never be attempted without discussion with your endocrine doctor.

Will I be on steroid tablets forever?

It is sometimes possible to slowly reduce steroid doses over time in order to allow the pituitary and adrenal glands to recover. This may eventually allow your doctor to stop your steroid medication. Please note that it is very important only to reduce your steroid doses if your doctor has specifically advised you to.

What do I need to know about managing my medications?

- Take your tablets every day at the right time of day. They are essential.
- You can take your steroid replacement medication on an empty stomach, unless you have pre-existing digestive problems.
- Always carry spare medication with you.
- Order your repeat prescription in plenty of time (ideally maintaining a month’s reserve supply) to ensure you do not run out of your essential medication.
- Take an extra supply of medication (i.e. double what you need) with you on holiday, plus your steroid injection kit.
- Carry your medication and a steroid injection kit in your hand luggage when travelling by plane, along with a doctor’s note explaining why you need to carry needles and syringes.
What could go wrong if I don’t take enough medication?

In cases of vomiting or shock, people with adrenal insufficiency can experience a sudden drop in blood pressure. **If you do not take sufficient extra medication, you may experience an adrenal crisis which is a medical emergency.**

An adrenal crisis is a state of sudden and severe low levels of cortisol. It is a medical emergency. Warning signs include severe nausea, headache, dizziness, extreme weakness, chills or fever, confusion.

- If you feel severely unwell, take extra medication and call a doctor.
- An emergency injection followed by urgent hospital treatment is needed for an adrenal crisis.
- We recommend that you wear a medical alert identifier of some kind to alert emergency services to your condition.
- If your job involves the risk of physical injury (e.g. fire service, military) you will need to advise your employers of the risks of adrenal crisis and ensure that your colleagues are trained to administer an emergency injection if needed.

Are there any special precautions I will need to take?

Cortisol hormone is essential for life. Ordinarily, if we are sick or injured, our bodies immediately produce more cortisol to cope with this stress. Since your adrenal glands cannot do this reliably, you will need to take extra steroid medication. The general guidelines for extra steroid cover are:

- **Double your normal daily dose for minor illness or with a fever of more than 37.5 ° C.** If you need to double the dose for more than seven days, you should consult your doctor. Once you feel better, you can gradually decrease the prednisolone or hydrocortisone back to your normal dose over a couple of days.
- **Vomiting illness** - Take a double dose immediately after you vomit and sip water to keep hydrated.
- If you vomit twice and cannot keep medication down, use your emergency injection kit if you have one, then call a doctor. If you have no injection kit, please seek medical attention or attend A&E.
- **Serious injury** - Take an extra dose of steroid medication orally immediately to avoid shock.
- **For minor procedures requiring local anaesthetic such as dental treatment** - take an extra dose one hour before the procedure.
- **For any other surgery** - Ensure your surgical team is aware of your need for extra medication and that they have checked the surgical guidelines for the correct level of steroid cover. If in doubt, please ask your doctor for a letter for your surgeons, advising on the correct steroid dosages for you around the time of surgery.
What about sport and exercise?

Gentle exercise such as recreational swimming or walking does not usually need extra medication. Challenging physical exercise such as competitive sport, may need extra medication. You may need to double your normal dose during the competition. For any sports with a risk of physical injury, you must ensure that a teammate has been trained to administer an emergency injection if needed.

You are entitled to receive your medication free of prescription charges. Your GP must certify your entitlement to free prescriptions on a Medical Exemption card.

Where can I get further information?

Information and support are available from the Addison’s Disease Self-Help Group (ADSHG), a registered charity run by and for people with Addison’s disease which is also a good resource for people with adrenal insufficiency.
Contact:  [www.addisons.org.uk](http://www.addisons.org.uk)
General endocrine information: [www.yourhormones.info](http://www.yourhormones.info)

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We are now a smoke-free site: smoking will not be allowed anywhere on the hospital site. For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169.

Other formats:

If you would like this information in another language, large print or audio, please ask the department where you are being treated, to contact the patient information team: patient.information@addenbrookes.nhs.uk.

Please note: We do not currently hold many leaflets in other languages; written translation requests are funded and agreed by the department who has authored the leaflet.

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Document history

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