

The New Zealand
Acromegaly Society

Hydrocortisone Advice for Patients

Supporting & Educating
those affected by
Acromegaly and their
families



INFORMATION BOOKLET SERIES

INTRODUCTION

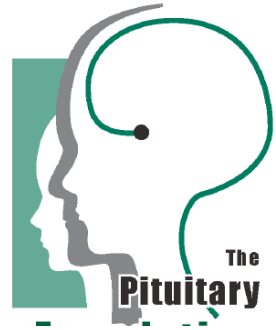
The New Zealand Acromegaly Society is a charitable organisation supporting patients with Acromegaly, and their families.

Website: www.acromegaly.org.nz

Email: info@acromegaly.org.nz

The aim of this leaflet is to provide general information about Hydrocortisone use in acromegaly patients. You may not find that all of the information applies to you in particular but we hope it helps you to understand your condition better and offers you a basis for discussion with your GP, Endocrinologist and Neurosurgeon.

A very special thank you The UK Pituitary Foundation for allowing us to reproduce their Information Booklets and adapting it to the New Zealand's health system.



www.pituitary.org.uk

MEDICAL ADVISORS

The New Zealand Acromegaly Society gratefully acknowledges the contributions from medical professionals to the development of this series of Information Booklets (listed in alphabetical order):

- Dr Richard Carroll – Endocrinologist, Wellington
- Sandra de Vries – Radiation Therapist, Dunedin
- Professor Ian Holdaway – Endocrinologist, Auckland
- Dr Penny Hunt – Endocrinologist, Christchurch
- Dr Lyndell Kelly – Radiation Oncologist, Dunedin
- Mr Martin MacFarlane – Neurosurgeon, Christchurch
- Dr John North – Radiation Oncologist, Dunedin

Thank you to the New Zealand Addisons Network (www.addisons.org.nz) for allowing us to reproduce their guideline on intramuscular hydrocortisone injection.

Thank you to Canterbury Health for allowing us to reproduce information from their "Guidelines for taking Hydrocortisone".

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WHAT IS CORTISOL?

Cortisol is a hormone produced by the adrenal glands that sits on top of each kidney. It plays a complex role in regulating body functions and is essential for survival

In Acromegaly patients, sometime the normal pituitary gland is not functioning properly if it is squashed by the pituitary tumour. It can lead to a deficiency in ACTH (the hormone that stimulates the production of cortisol by the adrenal gland). Cortisol is essential to life, therefore hydrocortisone is taken as a replacement for the natural hormone where this is deficient.

Cortisol has many important functions in the body. It is especially important in helping the body to combat stress or recover from any shock or illness. Cortisol controls metabolism, including the supply of glucose and energy to allow muscles to perform efficiently, it helps regulate blood pressure and to fight off infections. Cortisol also helps to control appetite and body weight.

NAMES OF CORTISOL MEDICATIONS

Hydrocortisone is most commonly used for replacement therapy. It is available as tablets, 5mg or 20mg tablet form.

Prednisone or **Prednisolone** may be prescribed to individual patients instead of hydrocortisone, and they work in the same way as hydrocortisone.

- Prednisone is available in 1mg, 2.5mg, 5mg, or 20mg tablets.
- Prednisolone is available as 5mg tablets.

A 5mg tablet of prednisone has equivalent steroid effect to a 20mg tablet of hydrocortisone.

It is important to realise that you are simply taking a replacement dose of a hormone normally present in the body, so you should not be prone to the complications of “high doses of steroids” that may occur in patients required to take very large doses to suppress some other disease eg. Some arthritis or respiratory conditions. If you do not take enough hydrocortisone, you will feel faint, exhausted, and become nauseated.

HOW DO I TAKE IT?

The usual dose of hydrocortisone is 15-25mg orally split over two or three times daily, the regimens tend to be individualised depending on your Endocrinologist's recommendations, and varies according to your age, sex, weight and progress on the tablets. The larger dose is usually taken on getting up each morning to mimic normal hormone levels in the body. E.g. 10mg before rising, 5mg at mid-day and 5mg no later than 6pm.

It is best to take the first dose as early as possible on waking in order to mimic normal circadian rhythm. Hydrocortisone can be taken with or without food, although if you suffer indigestion it is best to take the tablets with food.

NEVER STOP taking this medication unless your doctor tells you to stop

Try to take the tablets at a set time each day so you will remember them more easily. Some people find setting an alarm on their phone helps as a reminder. If you have forgotten a dose (or cannot remember if you took it or not) take the tablets anyway, rather than omit a dose.

NEVER let your tablets run out as it is dangerous to go without hydrocortisone

It is important you mention your steroid therapy when receiving treatment for any illness and injury.

FREQUENTLY ASKED QUESTIONS

- **When would I need to take more hydrocortisone?**

When you become ill the body would naturally increase the output of cortisol from your adrenals. Therefore if you are taking replacement hydrocortisone it is essential to mimic the natural response by increasing your dose appropriately.

(Please see table on Page 5)

- **Can I lead a normal life on hydrocortisone?**

Yes you should be able to do what you wish including sports and other recreational activities. As long as you remember to take your tablets each day you should have a normal quality of life and normal life expectancy.

- **Will alcohol interfere with my treatment?**

You maybe more sensitive to alcohol than you used to be.

HOW CAN I LET OTHERS KNOW I TAKE REPLACEMENT HYDROCORTISONE?

The New Zealand Acromegaly Society suggests that you purchase and wear a medical necklace or bracelet, such as a MedicAlert bracelet, to show that you are on cortisol replacement therapy.

<https://www.medicalert.co.nz/> Phone: 0800 840 111

The following text is generally acceptable to be used on your MedicAlert jewellery "Steroid Dependent needs Hydrocortisone".

RECOMMENDATIONS FOR CHANGES IN DOSE

Illness or Stress Situation	Increase of Usual Dose	For how long?	Is this an emergency, when do I seek help?
General stress, exams etc.	Not usually required		Ask GP if concerned
Long haul flight over 12 hours	Double usual dose on the day of flight	Extra dose every 6-8 hours when day is lengthened. Usual dose when day is shortened	We suggest you speak to your endocrinologist before travel
Cold with no fever	Not usually required		
Fever, Flu, infections	Double dose	For duration of fever	See GP if still unwell after 48 hours
Vomiting (more than once) &/or Diarrhoea	An extra 10mg-20mg hydrocortisone orally. If this cannot be kept down, an emergency 100mg is needed	Resume on usual dose once stable after medical intervention	Phone GP, or go to Emergency Dept. If you have a steroid injection at home, you need to administer this
Surgical Procedures	<ul style="list-style-type: none"> - Minor (e.g. tooth extraction) double your usual dose on the day - Small operations (e.g. hernia) 50mg injection every 8 hours for 24 hours - Major operations - as directed by specialist 	<ul style="list-style-type: none"> - Minor/Small op - Resume usual dose the next day - Major Op - injections at least until patient adequately eating and drinking, then reduce to usual dose over 1-2 days (as directed by your specialist) 	Tell the anaesthetist and surgeon that you take hydrocortisone before the operation
Colonoscopy	Double your usual dose the day before when the bowel is cleaned out. 100mg injection 30 minutes before procedure to be given by doctor.	Take usual dose on morning of procedure. Double dose day after.	Drink lots of water to prevent dehydration. Tell the doctor before procedure that you take hydrocortisone
Severe shock eg Trauma assoc with a road traffic accident	100mg injection, or take an extra 20mg tablet if able	See GP or hospital for further advice	Sudden & severe shock maybe classed as emergency - seek medical attention if in doubt

TRAVELLING AWAY FROM HOME?

If you are going on holiday abroad you need to ask your GP or Endocrinologist for a letter with a summary of your medical history & medications. This letter is necessary should you become unwell, and is useful whilst going through airport security. Also ensure you have adequate supplies of all your medications. It is wise to take an extra 2 weeks supply of hydrocortisone tablets with you in case you need to increase your usual dose whilst away.

It is suggested that you have a 100mg injection kit whilst you are travelling abroad, in case of an emergency. If you are to travel to an area where your emergency injection kit may be subject to sustained temperatures exceeding 25°C, then it should be placed in a small cool bag. All of your medication should be labelled with your name and kept with you at all times during your journey, as part of your hand luggage.

At check-in they will ask if you are carrying anything sharp i.e. needles; please mention if you are carrying injection needles for your medical condition. If you have any doubts whatsoever regarding airline or airport policies and procedures, please telephone the airport or airline well in advance of your departure.

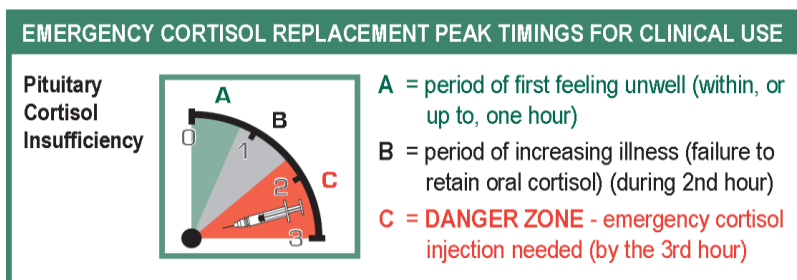
EMERGENCY INJECTIONS

It is advisable for all patients on hydrocortisone replacement to have a 100mg injection pack at home and for them or their partners to be taught how to administer it either at the GP or Endocrine clinic. If you don't have one of these already, you can ask your GP or endocrinologist if they will prescribe this for you. Please check regularly that these preparations are not expired.

When do I know that I would need an emergency injection?

If you cannot absorb your tablets, or your usual replacement wasn't sufficient for an acute shock or illness, then gradually or perhaps quite quickly, you would feel weak, sickly and light headed. This is known as a "crisis". It may lead to collapse due to low blood pressure. If severe and untreated, it can progress into a semiconscious or unconscious state.

The cortisol clock below gives approximate times of need for emergency medical help and replacement:



HYDROCORTISONE IM INJECTION

EMERGENCY TREATMENT KIT

Hydrocortisone injection cannot do harm, and starts to work within minutes. It stabilises your condition while you wait for appropriate medical help.

Content of your kit:

- 1 x vial Hydrocortisone 100mg/2mL Injection (Solu-Cortef Act-o-Vial)
- 1 x 20G Needle (bigger hole 0.9mm)
- 1 x 25G Needle (smaller hole 0.5mm)
- 1 x 3ml or 5ml Syringe
- 2 x Alcohol swabs
- 1 x Gauze swab
- Sharps container for disposal of used syringe and needles
- Copy of Instructions leaflet

You will need a prescription from your Endocrinologist or GP for Solu-Cortef Hydrocortisone injection. Needles & Syringes don't come with the pack of Solu-Cortef. Some pharmacies do sell these, or you can obtain these from your GP or Endocrine clinic.

The same needle can be used to fill the syringe and to give the injection. However pushing it through the rubber stopper blunts it a bit, and may hurt a little more when it goes through the skin. That's why some nurses prefer to use two needles, a needle with a bigger hole (20G) to conveniently fill the syringe, and a needle with a smaller hole (25G) for injecting into muscle.

STORAGE AND MAINTAINING YOUR INJECTION KITS

We recommend you keep one kit at home and have another one that you take with you. Store everything together in a container that protects them from damage. We suggest you also put a copy of the instructions from the back of this booklet, inside your injection kits too.

Write the expiry date of the Solu-Cortef on the front of your container and keep a record of it in your diary or calendar, so that you will replace it before it expires.

Check the expiry before you take off on holiday!

Solu-Cortef hydrocortisone is best kept at room temperature 20-25°C. If you leave a kit in your car, put it in an insulated container so it won't bake.

When you replace your Solu-Cortef because your current vial is about to expire, is a good opportunity for you and your family to read through and remind yourself how

to given an injection. Dissolve the old Solu-Cortef, draw up the liquid into the syringe, and inject it into an orange!

In New Zealand, ambulances do not carry supplies of injectable hydrocortisone, however ambulance officers called to a home usually have a scout around looking for medications or lists of medications if there is no one to show them. This usually starts in the kitchen, so on the fridge is a good place to leave details of the medications you take, and where the Solu-Cortef kit is.

FREQUENTLY ASKED QUESTIONS

- **How to dispose used needles?**

Put the cap back on used needles before removing them from the syringe, be very careful to avoid a needle-stick injury. Put used needles in an opaque plastic “sharps container”. Ask your GP or Endocrine clinic on how to dispose safely.

- **Does it matter to inject some air?**

There is no need to worry if some air is injected into the muscle. It is best to remove any large air bubbles by tapping the filled syringe with the needle pointing upwards, letting any air out by pushing on the plunger gently until a drop forms at the end of the needle.

- **Which injection site is best?**

The best and easiest site for most people is the front outer thigh, midway between the hip & knee.

Other sites include the upper outer buttock (gluteus muscle), or upper outer arm below the shoulder (deltoid muscle). We recommend that you talk with your doctor or practice nurse.

If necessary, e.g. Tight trousers or pantyhose, inject through clothing

- **What do I do after the injection?**

Ensure you dispose of the needles safely in a sharps container.

It is important to seek medical help even if you are feeling fine. The Solu-Cortef injection is NOT a replacement to medical care.

The New Zealand Acromegaly Society takes sole responsibility for producing this publication in New Zealand.

Disclaimer: *All information is general. If you or your carer have any concerns about your treatment or any side effects please consult your GP, or Endocrinologist.*

HOW TO GIVE AN IM INJECTION OF HYDROCORTISONE

Patients low on cortisol do not think clearly, tend not to take action, and are not good advocates for themselves. It is important to act quickly as deterioration can be rapid.

An injection that may possibly not be needed, can do no harm.

1. Wash your hands and assemble your equipment on a flat clean surface.



2. Place the Act-O-Vial on a flat surface and tap to ensure that the powder is at the base of the vial and away from the central stopper.
3. Press down firmly on the yellow plastic activator (for some patients it is easier to use the palm of the hand to press down firmly on the plastic activator). The diluent will enter into the lower compartment.

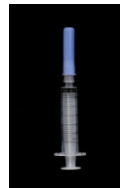


4. Gently mix the solution by turning the vial upside down several times.
DO NOT SHAKE THE VIAL.
5. Once the solution is clear and the bubbles disperse, remove the plastic tab covering the centre of the yellow stopper, and use an alcohol swab to clean (sterilise) the rubber stopper on the vial.



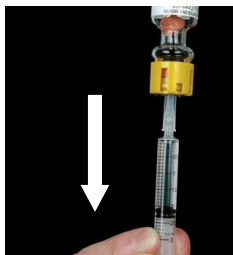
Please tear off & store with your Emergency Hydrocortisone Kit

6. Unwrap the needle with the biggest hole (20G) and syringe from their packaging, easier by pushing through the paper backing.
7. Attach the needle (20G) to the syringe and remove the needle cap.
8. Pull out the plunger of the syringe to the 2mL mark for an adult.
9. Place the vial on a firm surface, and insert the needle into the vial through the rubber stopper, and push plunger down to insert air into the vial.



10. Turn vial and syringe upside-down with the needle in the solution.
11. Pull back the plunger and draw the solution into the syringe.

For an adult – draw up all the medicine from the vial



12. Withdraw the vial away from the syringe and cap the needle on the syringe.
13. Remove the capped needle and discard (into Sharps container).
14. Unwrap the new needle with the smaller hole (25G), put onto the syringe and remove the cap.
15. With the needle pointing upwards, tap the syringe to remove air bubbles and then push gently on the plunger until a drop forms on the tip of the needle.



16. Put the cap back on needle and prepare the injection site by cleaning it with an alcohol swab.
17. The best choice of site is usually the front outer thigh (midway between the knee and hip; other options are the deltoid (your upper arm near the shoulder) or the gluteus (buttock outer upper quarter).

If necessary, e.g. Tight trousers or pantyhose, inject through clothing



18. When ready to inject, remove the cap from the needle and bunch the muscle
19. Hold the syringe like a dart and quickly insert the needle fully at a 90 degree angle.



20. Pull back on the plunger slightly to check for blood. (This rarely happens, but if you see blood, withdraw the needle and re-insert nearby).
21. Push down the plunger for 5 to 10 seconds to inject the solution.
22. Withdraw the needle and discard in sharps container.
23. Cover the injection site with a gauze swab and apply pressure to the site for about one minute to stop any bleeding.
24. Seek medical help immediately for further treatment.

Read this leaflet and discuss any questions you have about your medicine with your doctor, pharmacist or nurse.

This instruction piece has been written by New Zealand Addison's Network.
Photography by the Medical Illustration Unit, POWH, and The UK Pituitary Foundation.

Instructions for AMBULANCE and Emergency Clinicians

If I am in severe shock, trauma, have vomiting and/or diarrhoea, or I have been in an accident, I will urgently need to have either an injection of:

100mg Hydrocortisone IM or IV

Please check my blood pressure.

If I am not treated urgently, my life could be in danger

- Arrange hospital admission
- Insert IV cannula and commence infusion with N/Saline + dextrose
- Give Hydrocortisone 100mg IM or IV stat
- Continue Hydrocortisone 100mg, 6 hourly by IM injection or IV bolus
- Exclude underlying precipitating causes
- Check U&E, glucose & other relevant tests

Ensure that the patient is stable on oral steroids prior to discharge

If you (the treating clinician) have any queries about emergency hydrocortisone and/or pituitary related illnesses:

**PLEASE CONTACT THE ENDOCRINOLOGIST
ON CALL WITHOUT DELAY**