Addison's Disease
Self Help Group (ADSHG)

Life-threatening Condition
Steroid Dependent Patient

Surgical Guidelines for Addison's disease and other forms of adrenal insufficiency

For Members

Notes for patients

In line with Sick Day Rules, you will need to ensure that you receive the correct dose of steroids before, during and after any surgical procedure. The Surgical Guidelines have been authored by our ADSHG Clinical Panel in line with national clinical guidance, in order to help you and your healthcare team be prepared and stay safe.

- Prior to any surgical procedure, make sure that the pre-operative assessment team, surgical team and anaesthetist are aware that you have Addison's disease/adrenal insufficiency and ensure they understand and have a copy of these Surgical Guidelines.
- Take your steroid emergency card with you and ensure you have your medical history clearly noted down, including your medication regime and times.
- Consider purchasing a hospital folder or 'steroid-dependent' drug chart stickers, available from the ADSHG shop. Turn over for our 'Hospital Stay Checklist' if you are going to be admitted.
- You should request a review by the endocrine team during admission.
- We recommend that you have an advocate with you who would be available to support you, if needed.
- On discharge, take a note of any additional medications and request the discharge summary is sent to the relevant healthcare professionals.

TAPERING

Depending on what dose of medication you have required during / after your surgery, you may need to gradually taper it back down to your normal daily medication dose.

- If you have been on an increased steroid dose for less than 48hours, you can return to your usual maintenance dose without tapering down if you feel well when you reduce your dose.
- If you have updosed for 3-7 days, it is advisable to gradually reduce your medication (hydrocortisone or Prednisolone equivalent) back down to your 'usual' dose over the course of 1-2 days.
- If you have updosed for over a week, then you will need to gradually reduce your medication each day, over the course of a week.

Everyone is different and you need to listen to your body. If you start to feel unwell when you start to taper down, updose (increase your steroid dose) again and seek medical advice from your GP or endocrinology team.

PREPARING FOR A HOSPITAL STAY

1. Pack for an overnight stay;
   - a change of clothes
   - your medication and our medical summary leaflet
   - recent prescription / medication list
   - your emergency injection kit
   - hospital folder with your key information and relevant ADSHG leaflets which can be shared by you or your carer /advocate, with your healthcare team as needed. These are available from our online shop, or our leaflets are available digitally for you to download from our website.
   - your phone and charger
2. Make it clear that everyone knows you are steroid dependent and have Addison's or adrenal insufficiency
   - Wear medic alert identification (bracelet or necklace)
   - Stick a steroid alert sticker on your hospital notes or ask staff to put it on your 'folder'
   - Ask if staff have a steroid alert system on their hospital files
   - Put a steroid emergency card on your side table so it is visible to all staff
3. Make sure that staff understand your time-critical medication regime. Provide your ward staff with a copy of our 'Notes for Ward Nurses' leaflet (www.addisonsdisease.org.uk/notes-for-ward-nurses).
4. Share information here with a family member, friend or advocate in case of emergencies. Here are some QR codes to take you to useful information online.

Scan for Ward Nurses Notes

Scan for Adrenal Crisis Guidelines

Scan for Steroid Medication & Emergency Injection

Notes for medics

1. INTRA AND POST OPERATIVE STEROID COVER IN ADULTS WITH ADRENAL INSUFFICIENCY

Recommended doses for Intra and Post Operative Steroid Cover in Adults with all types of Adrenal Insufficiency, including CAH and Hypothalamo-Pituitary Disease.

Type of Procedure	Pre Operative & Operative Needs	Post Operative Needs
All procedures	**Back up supplies** of oral and injectable hydrocortisone must be available. Post-operative **resuscitation** may still be needed, even at full steroid cover.	**Closely monitor electrolytes and blood pressure post-operatively.** If the patient becomes hypotensive, drowsy or peripherally shut down, administer **100mg** hydrocortisone IV or IM bolus immediately. If any post-operative complications arise, e.g. fever, **delay return to normal dose until clinically stable.**
Minor Procedure (under local anaesthetic)	Take an additional oral dose of **10mg hydrocortisone** or **2.5mg prednisolone 60 mins ahead of the procedure.**	Take an additional oral dose of **10mg hydrocortisone** or **2.5mg prednisolone 60 mins after the procedure.** Return to normal doses next day if feeling well.
Bowel Procedures requiring laxatives / enema	Bowel prep under hospital clinical supervision. Consider intravenous fluids and injected glucocorticoid (hydrocortisone **50mg IM or IV 6 hourly**) during preparation, especially for fludrocortisone or vasopressin-dependent patients. Hydrocortisone **100mg** IV or IM at start of procedure.	Resume oral glucocorticoid at following doses for **48 hours** when clinically stable and eating, then return to maintenance dose. Hydrocortisone users: **40mg daily in 2-3 doses.** Prednisolone users: **10mg daily in 1-2 doses.**

Minor Surgery e.g. cataract surgery, hernia repair, laparoscopy with local anaesthetic	Hydrocortisone 100mg IV or IM just before anaesthesia (see note 6).	Resume oral glucocorticoid at following doses for **24 hours** when clinically stable and eating, then return to maintenance dose. Hydrocortisone users: **40mg daily in 2-3 doses.** Prednisolone users: **10mg daily in 1-2 doses.**
Labour and Vaginal Birth	Hydrocortisone **100mg** IV or IM at onset of active labour, followed by immediate initiation of continuous hydrocortisone infusion **200mg/24 hours** or **50mg 6 hourly**.	Resume oral glucocorticoid at following doses for **48 hours** when clinically stable and eating, then return to maintenance dose. Hydrocortisone users: **40mg daily in 2-3 doses.** Prednisolone users: **10mg daily in 1-2 doses.**
Surgery under Anaesthesia (general or regional), including joint replacement, endoscopy, IVF egg extraction, caesarian section.	Hydrocortisone **100mg** IV at induction, followed by immediate initiation of a continuous infusion of hydrocortisone **200mg/24 hours** or **50mg** IV/IM **6 hourly**.	Hydrocortisone **200mg/24 hours** by IV infusion while nil-by-mouth. **Or** hydrocortisone **50mg** IM **6 hourly**. Continue **200mg hydrocortisone/ 24 hours** while nil-by-mouth or vomiting. Once able to take orally, resume oral glucocorticoid at following doses for **48 hours**, then return to maintenance dose when clinically stable and eating. Hydrocortisone users: **40mg daily in 2-3 doses**. Prednisolone users: **10mg daily in 1-2 doses**.

Scan for Exogenous Steroids Treatment Guide

Scan for NICE guidelines on Identification and Management of AI

2. INTRA AND POST OPERATIVE STEROID COVER IN ADULTS RECEIVING ADRENOSUPPRESSIVE DOSES OF STEROIDS

Recommended Doses for Intra and Post Operative Steroid Cover in Adults Receiving Adrenosuppressive Doses of Steroids

(high dose inhaled steroids, or those on combined inhaled steroids and interfering drugs; prednisolone equivalent for ≥ 4 weeks or longer)

Type of Procedure	Pre Operative & Operative Needs	Post Operative Needs
All Procedures	**Back up supplies** of oral and injectable hydrocortisone must be available. Post-operative **resuscitation** may still be needed, even at full steroid cover.	**Closely monitor electrolytes and blood pressure post-operatively.** If the patient becomes hypotensive, drowsy or peripherally shut down, administer **100mg hydrocortisone IV or IM bolus immediately.** If post-operative complications e.g. fever occur, **delay** return to normal dose until clinically stable.
Post Operative Needs (under local anaesthetic)	Take an additional oral dose of **10mg hydrocortisone** or **2.5mg prednisolone 60 mins ahead of the procedure.**	Take an additional oral dose of **10mg hydrocortisone** or **2.5mg prednisolone 60 mins after the procedure.** Return to normal doses next day if feeling well.
Bowel Procedures requiring laxatives / enema	Bowel prep under hospital clinical supervision. Consider intravenous fluids and injected glucocorticoid (hydrocortisone **50mg** IM or IV **6 hourly**) during preparation, especially for fludrocortisone or vasopressin-dependent patients. Hydrocortisone **100mg** IV or IM at start of procedure.	Once able to take oral medication, resume the oral glucocorticoid regime. Hydrocortisone users: continue usual dose, or, if normally lower than 40 mg in 24 hours, increase temporarily to at least **40 mg daily in 2-3 divided doses, for 48 hours**. Prednisolone users: continue usual dose, or, if normally lower than 10 mg in 24 hours, increase temporarily to at least **10 mg daily in 1-2 divided doses, for 48 hours**.
Labour and Vaginal Birth	Hydrocortisone **100mg** IV or IM at onset of active labour, followed by immediate initiation of continuous hydrocortisone infusion **200mg/24 hours** or **50mg 6 hourly**.	

Surgery under Anaesthesia (general or regional), including joint replacement, endoscopy, IVF egg extraction, caesarian section.	Hydrocortisone **100mg** IV at induction, followed by immediate initiation of a continuous infusion of hydrocortisone **200mg/24 hours** or **50mg IV/IM 6 hourly**.	Hydrocortisone **200mg/24 hours** by IV infusion while nil-by-mouth. **Or** hydrocortisone **50mg** IM **6 hourly**. Continue **200mg hydrocortisone/24 hours** while nil-by-mouth or vomiting. Once clinically stable and able to take oral medication, resume the oral glucocorticoid regimen. Hydrocortisone users: continue usual dose, or, if normally lower than **40mg in 24 hours**, increase temporarily to at least **40mg daily (in 2-3 divided doses)** for **48 hours**. Prednisolone users: continue usual dose, or if normally lower than **10mg in 24 hours** increase temporarily to at least **10mg daily (in 1-2 divided doses)** for **48 hours**.

NOTES FOR HEALTHCARE PROFESSIONALS

1. **Steroid-dependent patients** should be **first on the list** (alongside Type 1 Diabetes).
2. Patients who have been taking **4-6mg** or more **prednisolone** (or equivalent) on a long-term basis should be regarded as potentially having adrenal insufficiency and managed with perioperative supplemental steroid cover, on a precautionary basis. See QR code for Exogenous Steroids Treatment Guide.
3. If patients are **anticoagulated** or clinically indicated as unsuitable for IM administration, the recommended hydrocortisone **50mg** every **6 hours** can be given IV as an alternative to IM.
4. For steroid-dependent patients taking **CYP3A4 accelerants**, e.g. anticonvulsants, rifampicin and antifungal drugs, arrange steroid cover. For full list see QR code for Exogenous Steroids Treatment Guide.
5. **Hydrocortisone acetate cannot be used** due to its slow-release, microcrystalline formulation. Ensure parenteral drug is hydrocortisone sodium phosphate or hydrocortisone sodium succinate, **100mg**.

6. **Prevent vascular damage** by administering any intravenous bolus of hydrocortisone over a **minimum of 2 minutes**.
7. For any **nil-by-mouth regimen**, arrange an IV saline infusion (**0.9% saline** or equivalent) to prevent dehydration and maintain mineralocorticoid stability.

Depending on the duration patients have been taking an increased steroid dose, they may need to taper down gradually to their usual medication regimen. Manage on an individual basis based on patient health with the following guidelines;

- <48hours increased dose: can usually return to routine maintenance dose without tapering down.
- 3-7 days increased dose: gradually reduce dose over the course of 1-2 days.
- >7 days increased dose: gradually reduce over the course of a week.

Guidance for the prevention and emergency management of adult patients with adrenal insufficiency
https://pubmed.ncbi.nlm.nih.gov/32675141/

Guidelines for the management of glucocorticoids during the peri-operative period for patients with adrenal insufficiency
https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.14963

Society for Endocrinology
https://www.endocrinology.org/adrenal-crisis

If required, all citations can be found at
www.addisonsdisease.org.uk/surgery

For further advice please contact:
Email: enquiries@addisons.org.uk
Website: addisonsdisease.org.uk

The Addison's Disease Self-Help Group works to support people with Addison's and adrenal insufficiency and to promote better medical understanding of this rare condition.

The ADSHG is supported and advised by a Clinical Advisory Panel: a group of medical professionals with an interest in adrenal medicine. Registered charity 1179825, established 1984.

ADDISON'S Self Help Group
ADDISON'S Clinical Advisory Panel

This leaflet has been authored and reviewed by the ADSHG Clinical Advisory Panel, with particular thanks to :

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