NHS Lanarkshire Steroid Withdrawal and Steroid-induced Hypoadrenalism Advice

TARGET AUDIENCE	Secondary Care
PATIENT GROUP	Patients on long term steroids

Clinical Guidelines Summary

- Therapeutic steroids should be tapered guided by treating hospital specialty team (rheumatology, oncology, haematology, neurology, respiratory, gastroenterology) advice depending up disease activity.
- This steroid withdrawal advice should be considered using steroids at drug prescriptions below 5 mg prednisolone (or equivalent steroid) when clinical plan is made to wean and stop steroids for the patient.
- Secondary hypoadrenalism due to long term steroids (oral/IM/IA/inhaled) can occur after only 3-4 weeks of steroid treatment.
- Steroid usage for less than 3-4 weeks does not require a taper.
- High risk patients include those on doses >20mg prednisolone, dexamethasone, elderly, cushingoid appearance and those dependent on steroids for >3 months a year.[1]

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Steroid withdrawal symptoms and guidance

- Therapeutic steroids should be tapered guided by treating hospital specialty team (rheumatology, oncology, haematology, neurology, respiratory, gastroenterology) advice depending up disease activity. This steroid withdrawal advice should be considered using steroids at drug prescriptions below 5 mg prednisolone (or equivalent steroid) when clinical plan is made to wean and stop steroids for the patient.

- Secondary hypoadrenalism due to long term steroids (oral/IM/IA/inhaled) can occur after 3-4 weeks of steroid treatment. Steroid usage for less than 3-4 weeks does not require a reducing/weaning regime.

- High risk patients include those on doses >20mg prednisolone, dexamethasone, elderly, cushingoid appearance and those dependent on steroids for >3 months a year.[1]

Daily Steroid equivalent doses (table.1)

Steroid	Daily dose equivalent
Prednisolone	5 mg daily
Hydrocortisone	10mg twice daily
Dexamethasone	500 micrograms daily
Methylprednisolone	4mg daily

- Reducing/weaning steroid regimes typically reduce by prednisolone 1mg every 4 weeks, below a dosage of prednisolone 5mg daily, till discontinued.

- As steroid dosage is reduced/weaned below 5 mg daily prednisolone Symptoms of steroid withdrawal may develop including weakness, anorexia, dizziness, nausea, weight loss, malaise or lethargy.

- In clinically well patients, who do not develop steroid withdrawal symptoms, steroids can be reduced, and discontinued, without necessarily testing for hypoadrenalism. Patients should be counselled to look for symptoms of steroid withdrawal as steroids are weaned.

- If patients develop possible symptoms of steroid withdrawal, or are high risk patients, steroids should be increased to prednisolone 5mg daily or hydrocortisone 10mg twice daily and 9am morning cortisol measured.

9am morning cortisol testing

- Patients on oral dexamethasone or methylprednisolone should be switched to equivalent oral prednisolone dosage prior to undertaking 9am morning serum cortisol testing. Hydrocortisone does not require a switch and 9am morning cortisol testing can be undertaken when patient established on prednisolone 5mg daily or hydrocortisone 10mg twice daily.

- Prior to 9am morning cortisol measurement, prednisolone/hydrocortisone should be withheld for 24 hours.

- For example, if patient is due to get 9am cortisol level taken on Thursday, they should take their Wednesday 9am dose of prednisolone/hydrocortisone, but not any other steroids that day, and then attend 24 hours later for 9am blood test on Thursday. After 9am cortisol taken, patient can immediately take their morning steroid after the blood test.

9am morning cortisol interpretation (table.2)

9 am morning cortisol level	Interpretation/Guidance
<150 nmol/L	High risk secondary hypoadrenalism, Continue prednisolone 5mg daily and repeat 9am cortisol in 1-2 months. If repeat cortisol <150 nmol/L, refer to endocrinology
150-300 nmol/L	Possible secondary hypoadrenalism, Continue prednisolone 5mg daily and repeat 9am cortisol in 1-2 months. If repeat cortisol 150-300 nmol/L, refer for short synacthen test.
300-430 nmol/L	**If patient has symptoms of steroid withdrawal or major stress/illness at timing of test** patient should continue daily 5 mg prednisolone and be referred for short synacthen test. Consider other causes of symptoms as hypoadrenalism remains unlikely. **If patient clinically well** can wean and stop steroids.
>430 nmol/L	Secondary hypoadrenalism excluded can wean and stop steroids

Short synacthen testing

- Patients needing short synacthen testing can be referred to local day bed unit at UHW, UHH or UHM respectively by hospital specialty team, does not require endocrine input for a short synacthen test.
- UHW – Refer to Charge Nurse, Medical Day Bed unit, University Hospital Wishaw
- UHH – Refer to Charge Nurse, Day Unit, University Hospital Hairmyres
- UHM – Refer to Planned Investigation Unit (PIU), University Hospital Monklands
- Prior to 9am short synacthen testing, prednisolone/hydrocortisone should be withheld for 24 hours.

Short synacthen test protocol

- Can be requested by specialty hospital team in charge of steroid withdrawal (IV or IM Synacthen 250 mcg will need prescribed).

- Patient withholds steroids as above and attends for 9am ACTH and cortisol blood test. Intravenous or IM Synacthen 250 micrograms immediately administered. At 30 minutes 2nd cortisol blood level taken and patient can go home to restart steroids till results available.

Short synacthen Test interpretation (table.3)

30-minute cortisol measurement	Interpretation
< 430 nmol/L	Consistent with hypoadrenalism, continue 5 mg prednisolone and refer to local Lanarkshire Endocrinology service
> 430 nmol/L	Consistent with normal adrenal cortisol production, can wean and stop steroids

- Any concerns/difficulties with interpretation please increase steroids to maintenance (prednisolone 5mg daily or hydrocortisone 10mg twice daily) for safety and refer to local Lanarkshire Endocrinology team.

References/Evidence

- Further information/reading (website link below): European Society of Endocrinology and Endocrine Society joint clinical guideline: Diagnosis and Therapy of Glucocorticoid-induced Adrenal insufficiency (2024)

1. Beushlein F, Else T, Bancos I, Hahner S, Hamidi O, Van Hulsteijn L, Husebye ES, Karavitaki N, Prete A, Vaidya A, Yedinak C, Dekkers OM (2024) European Society of Endocrinology and Endocrine Society Joint Clinical Guideline: Diagnosis and Therapy of Glucocorticoid-induced Adrenal Insufficiency. *The Journal of Clinical Endocrinology & Metabolism*, 109(7) DOI: https://doi.org/10.1210/clinem/dgae250

Appendices

1. **Governance information for Guidance document**

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CHANGE RECORD

Date	Lead Author	Change	Version No.
August 2025	J McLaren	*e.g. Review, revise and update of policy in line with contemporary professional structures and practice*	1
			2
			3
		.	4
			5

2.You can include additional appendices with complimentary information that doesn't fit into the main text of your guideline, but is crucial and supports its understanding.

e.g. supporting documents for implementation of guideline, patient information, specific monitoring requirements for secondary and primary care clinicians, dosing regimen/considerations according to weight and/or creatinine clearance