NHS
Greater Glasgow and Clyde

# CLINICAL GUIDELINE

# Suspected Iatrogenic Adrenal Insufficiency Guidance

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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| **Version Number:** | 1 |
| **Does this version include changes to clinical advice:** | N/a |
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| **Lead Author:** | Marie Freel |
| **Approval Group:** | Medicines Utilisation Subcommittee |

**Important Note**:

The Intranet version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

## 1 Scope

1.1 **This guidance applies to patients described below:**

a. Patients who have been treated with long-term (≥ 4 weeks) supraphysiological doses (≥ 5mg equivalent prednisolone daily dose) of glucocorticoid for a non-endocrine condition
b. Patients no longer require GC treatment for their non-endocrine condition
c. Patients are now on ≤5mg equivalent prednisolone daily dose (see appendix 2 for glucocorticoid dose equivalents)

1.2 This guidance can be read in conjunction with the following protocols and guidelines:

a. Society for Endocrinology Emergency Endocrine Guidance: Acute Adrenal Insufficiency- Adrenal Crisis. (Available at: http://www.endocrinology.org/adrenal-crisis).

## 2 Abbreviations and Definition of Terms

2.1 AI - Adrenal Insufficiency

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- AI in this document pertains to secondary adrenal insufficiency caused by long-term exogenous glucocorticoid use.

2.2 GC - Glucocorticoids

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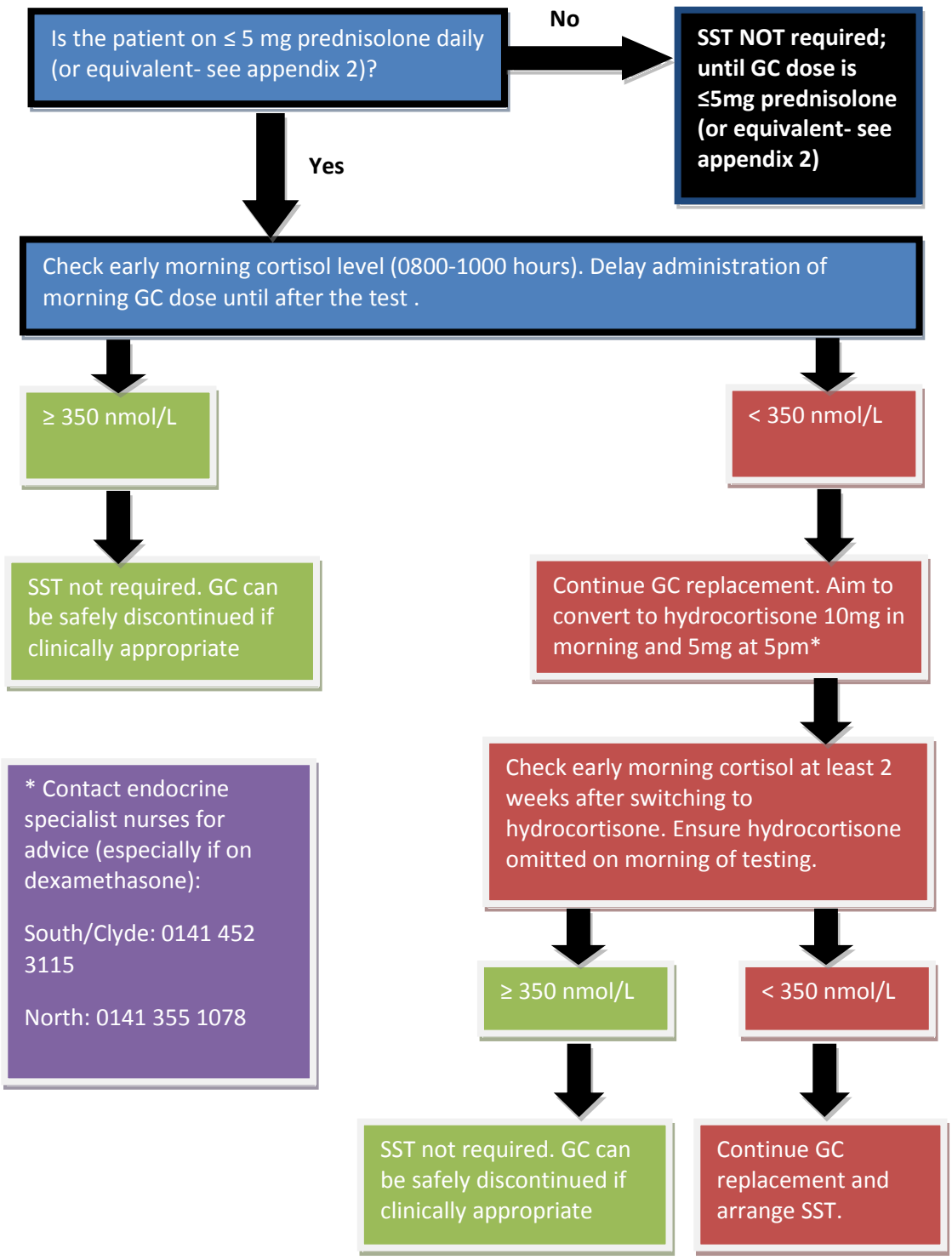
- GC in this document refers to oral steroid medications such as prednisolone, dexamethasone, hydrocortisone or inhaled corticosteroid such as betamethasone and fluticasone.

2.3 SST- Short Synacthen Test

2.4 HC - Hydrocortisone

Appendix 1: Assessment of adrenal function in patients on GC for non-endocrine disease (only applicable if on GC for ≥4 weeks and able to stop on clinical grounds)



## 3 Early morning cortisol level is first mode of assessment of adrenal function

3.1 Patients who are on glucocorticoids

- Early morning cortisol level should be checked between 0800 and 1000 hours
- Patients should be advised to omit their glucocorticoids on the morning of the test
- Patients should re-start their daily glucocorticoid dose immediately after the test until told otherwise.

3.2 Patients with early morning cortisol level of <350nmol/L on prednisolone.

- If prednisolone is no longer required for disease control, this should be converted to hydrocortisone (10 mg in the morning and 5 mg after lunch).
- Patient should undergo a repeat measurement of early morning cortisol at least 2 weeks after conversion to hydrocortisone (morning hydrocortisone to be omitted on the morning of test)
- Patients should be referred to endocrine nurse specialists for steroid education (i.e. sick day rules).

3.3 Patients with early morning cortisol level of <350 nmol/L on dexamethasone.

- Patient should remain on at least 0.5mg dexamethasone daily and referred to endocrinology for further assessment of adrenal function.
- SST will only be performed once patient's glucocorticoid has been successfully switched to hydrocortisone (usually under the endocrine supervision).

3.4 Patients on inhaled or topical steroids

- Refer for endocrine advice

## 4 Short synacthen test (SST)

4.1 SST only indicated if early morning cortisol level is <350 nmol/L on patients who have been switched to hydrocortisone for at least 2 weeks previously.

4.2 It is usually the responsibility of the referring clinician to:

- convert patient's glucocorticoid to hydrocortisone (10mg in the morning and 5mg in the afternoon) and
- check patient's early morning cortisol after 2 weeks of hydrocortisone

therapy before arranging patient to have a SST.

4.3 If SST abnormal (see appendix 3 for SST interpretation):

- Patient should remain on hydrocortisone at a minimum dose of 10mg in the morning and 5mg in the afternoon.
- Patient should be given steroid education (i.e. sick day rules).
- Refer to local endocrine clinic for further evaluation/monitoring of adrenal function

## 5 Weaning off glucocorticoid therapy

5.1 If early morning cortisol level of ≥350nmol/L no further evaluation is required and patient can be weaned off glucocorticoid when clinically appropriate.

5.2 Some patients who have been on prednisolone for a long period of time might find it difficult to stop it abruptly due to 'withdrawal' symptoms. In those cases, prednisolone can tapered by reducing the dose by 1-2 mgs every week without need for further cortisol measurement. Ideally, this should be supervised by the clinician who initiated the prednisolone treatment.

5.3 Patients with early morning cortisol level of ≥350nmol/L who are on hydrocortisone can immediately stop the medication without the need for weaning off.

5.4 Patients with early morning cortisol level of ≥350nmol/L who are on dexamethasone would require gradual weaning off by reducing the dose by 0.5mg every week until patient is completely off dexamethasone. This is an unusual scenario and may require specialist endocrine input (see point 3.3 above).

## 6 Useful Contact Details

| **Contact Name** | **Contact Details** |
|---|---|
| ST Endocrinology (South/Clyde) | gg-uhb.endocrinereferralsouthglasgow@nhs.net |
| ST Endocrinology (North) | gg-uhb.endocrinereferralnorthglasgow@nhs.net |
| Endocrine Specialist Nurses (QEUH / Clyde) | 0141 452 3115 |
| Endocrine Specialist Nurse (North) | 0141 355 1078 |

## Appendix 2: Glucocorticoid conversion chart

| Glucocorticoid | Approximate equivalent (mg) | GC potency | Half life (hours) |
|---|---|---|---|
| Hydrocortisone | 20 | 1 | 8-12 |
| Methylprednisolone | 4 | 5 | 18-36 |
| Prednisolone | 5 | 4 | 18-36 |
| Dexamethasone | 0.75 | 25 | 36-54 |

## Appendix 3: SST interpretation

Criteria for normal response:
Basal cortisol >225nmol/L

Final cortisol >430nmol/L

Results of 400-430nmol/l are considered borderline and the test may need to be repeated. There is no need to consider the increment in basal-final cortisol when interpreting SST.