Clinical Practice Guidelines:
Medical/Adrenal insufficiency

<table>
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<tr>
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<th>CPG_ME_AI_0417</th>
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<tr>
<td>Date</td>
<td>April, 2017</td>
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<tr>
<td>Purpose</td>
<td>To ensure consistent management of patients with adrenal insufficiency.</td>
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<td>Scope</td>
<td>Applies to Queensland Ambulance Service (QAS) clinical staff.</td>
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<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
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<tr>
<td>Population</td>
<td>Applies to all ages unless stated otherwise.</td>
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<tr>
<td>Source of funding</td>
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Adrenal insufficiency (AI) is an endocrine disorder that involves reduced hormone secretion from the adrenal glands, resulting in a deficiency of adrenal hormones including cortisol and aldosterone. Cortisol regulates glucose and protein metabolism as well as affecting blood pressure and the immune system functioning. It is critically important as a stress response hormone. Aldosterone assists in regulating blood volume and pressure by effecting the renal reabsorption of sodium and secretion of potassium. Adrenal crisis is an acute, life-threatening form of adrenocortical insufficiency.[1,2]

Individuals prescribed long-term steroid therapy are at an increased risk of suffering symptomatic adrenal insufficiency due to:
- Non-compliance or sudden cessation in steroid medication
- Rapid decrease in medication dose
- Increased physical activity and extreme psychological stressors
- Acute illness (including trauma)

Primary adrenal insufficiency (PAI) results from an intrinsic adrenal gland problem that affects hormone production. It is most often caused by an auto immune disease. Addison’s disease and congenital hyperplasia result in PAI.[1,2]

Secondary adrenal insufficiency (SAI) occurs when the pituitary gland fails to produce enough adrenocorticotropin (ACTH), a hormone that stimulates the adrenal glands to produce cortisol. ACTH production is also inhibited by exogenous steroid consumption (e.g. prednisone). Panhypopituitarism is an example of SAI.

Tertiary Adrenal Insufficiency (TAI) is due to hypothalamic dysfunction resulting in a decrease in the corticotropin releasing hormone (CRH), the hormone which stimulates the pituitary gland to produce ACTH.

Clinical features

The non-specific clinical features of adrenal insufficiency may mimic a generalised illness:
- Chronic, worsening fatigue
- Muscle weakness
- Loss of appetite
- Light-headedness
- Weight loss
Additional information

- Adrenal crisis, associated with hypotension and disturbance of consciousness and/or mental state requires urgent treatment with hydrocortisone.[3]
- Hydrocortisone provides the necessary endocrine hormonal requirements in symptomatic adrenal insufficiency and adrenal crisis.
- The administration of hydrocortisone is appropriate if the clinician has a strong suspicion of symptomatic adrenal insufficiency or adrenal crisis.[3]

Clinical features (cont.)

Postural symptoms, hypotension and/or shock[1,2] are clinical features related to symptomatic adrenal insufficiency or adrenal crisis. This presentation is generally associated with one or more of the following:

- Altered level of consciousness
- Non-specific abdominal pain
- Anorexia
- Vomiting
- Diarrhoea
- Hypothermia
- Hypoglycaemia
- Hyperkalaemia (see CPG: Hyperkalaemia)

Risk Assessment

- Not applicable

Note: Clinicians are only to perform procedures for which they have received specific training and authorisation by the QAS.

Consider:

- IV fluids
- Hydrocortisone

If signs of hyperkalaemia consider:

- Calcium gluconate 10%
- Sodium bicarbonate 8.4%
- Salbutamol

If signs of hypoglycaemia consider:

- Oral glucose
- Glucagon
- Glucose 10%

Transport to hospital
Pre-notify as appropriate

Symptomatic adrenal insufficiency or adrenal crisis?