

Low Cortisol in Primary Care

A random cortisol result is of limited value in the investigation of adrenal insufficiency. The normal diurnal variation has higher levels in the morning and lower levels in the afternoon and evening. Signs and symptoms of significant primary adrenal insufficiency include postural hypotension, pigmentation, hyponatraemia and hypoglycaemia. Adrenal insufficiency secondary to pituitary dysfunction, or withdrawal of exogenous steroids, may lack these features.

Urgent Action Required:

- A cortisol result of <60 nmol/L in a patient, who is not on exogenous corticosteroids, should be investigated urgently and admission considered
- A low cortisol result (<100 nmol/L) in the presence of symptoms and/ or U&E abnormalities (low sodium, high potassium, high urea: creatinine ratio) should prompt urgent discussion with endocrinology and/ or admission
- If concurrent hypothyroidism is suspected, thyroxine should not be commenced until hypoadrenalism is excluded. Thyroxine therapy may precipitate an adrenal crisis

Further Investigation:

- If random cortisol concentration is <140 nmol/L the measurement should be repeated on a sample taken between 8 and 10am, requesting also urea, electrolytes and glucose
- If patient is on steroid therapy (including inhaled) contact duty biochemist to discuss measuring cortisol. Email lanarkshire.biochemist@nhs.net or phone 01698 858469

Interpretation and Further Action:

- For samples taken between 8 and 10am:
 - If cortisol is <140 nmol/L, consider a **Short Synacthen Test**
 - Also consider a short synacthen test if cortisol is 140 – 350 nmol/L and there is strong clinical suspicion of adrenal insufficiency
 - Cortisol ≥ 350 nmol/L (in not on steroid therapy) requires no further investigation unless there are compelling symptoms consistent with adrenal insufficiency, or the patient is acutely ill, when a higher stress response might be expected.
- Cortisol ≥ 500 nmol/L (in a patient not on steroid therapy) requires no further investigation unless there are compelling symptoms consistent with adrenal insufficiency

References :-

Bornstein SR et al. Diagnosis and treatment of primary adrenal insufficiency: an Endocrine Society Practice Guideline. JCEM 2016 (in press).

Roche Diagnostics : Information Ref No: EI_08_15 Cortisol II SN-RPD-2015-142 Document Date: 20/11/2015

Extended until Oct 2021 (Covid-19)

VALID ONLY ON DAY OF PRINT