Assay change for cortisol

From 14/11/2022 at NBT, in January 2023 at RUH and in March 2023 at UHBW, the Clinical Biochemistry departments at each Trust will be moving to a new suite of analytical equipment, produced by Beckman Coulter UK (BCUK). For most assays there will be either no, or only very small, differences in results.

In the case of cortisol there are some expected method related differences that will impact on result interpretation. These are summarised below:

Assay bias

- For males and females (not pregnant or on OCP) the BCUK cortisol assay has a small positive bias compared to the previous assay
- In hyperestrogenic states the BCUK cortisol assay has a large negative bias compared to the previous assay (see 'CBG dependence' below)

Interpretation of short Synacthen tests

- A stimulated cortisol (at either 30 or 60 minutes) ≥450 nmol/L excludes adrenal insufficiency
- In pregnant ladies, or those taking OCP, a higher threshold of 600 nmol/L applies

Interpretation of overnight dexamethasone suppression tests

- No change to current interpretation (i.e. cortisol ≤50 nmol/L excludes Cushing's)

Interpretation of unstimulated cortisol

- An unstimulated cortisol result of >350 nmol/L makes adrenal insufficiency very unlikely

CBG dependence

- The BCUK assay has a tendency to under-recover cortisol when CBG is elevated, e.g. in hyperestrogenic states
- Although patients with high CBG do have higher total cortisol, the BCUK assay will give results that are lower than you are used to with the previous assay

Cross reactivity

- The BCUK assay has significant cross reactivity with 11-deoxycortisol: as such the assay should not be used to monitor patients treated with metyrapone
- The BCUK assay has significant cross reactivity with prednisolone: patients taking prednisolone should wait 24h from the last dose prior to blood sampling for cortisol