MEMORANDUM

DATE: 19 September 2014
TO: Clinicians/Healthcare Professionals
FROM: SEALS North Department of Clinical Chemistry and Endocrinology
SUBJECT: Growth Hormone and ACTH: Change of analytical methods of measurement

Dear Clinician/ Healthcare Professional,

As of 22 September 2014 SEALS is changing its Growth Hormone (GH) and Adrenocorticotropic Hormone (ACTH) assays from a Siemens Immulite immunoassay to a Roche Cobas immunoassay platform.

What does this method change mean for Clinicians?


- GH: plain serum gel tube (as for general biochemistry tests)
- ACTH: K-EDTA tube delivered on ice

Reporting and Interpretation of results:

- Since these assays are not internationally standardised or harmonised, the Roche assay gives somewhat different results than the previous Siemens assay. Therefore past results before 22/09/2014 cannot be directly compared to current results.
- The reference interval for ACTH will change
- **Reporting of GH concentrations will also change** from activity units (mU/L) to mass units (microg/L) in line with international consensus recommendations for the use of a pure recombinant 22 kDa GH standard (WHO 98/574) which is denominated in mass units (microg/L). The new unit of 1 microg/L converts to 3 mU/L in the old units.
- Reporting of growth hormone in both activity units (IU/L) and mass units (microg/L) will occur for a transitional period of 3 months. During this transitional period, on the printed and eMR laboratory reports, two sets of results will be shown for each unit of measurement: i.e. Growth hormone (ug/L) and Growth hormone (mU/L).
- Due to the pulsatile secretion and significant intra-individual variability of GH, a random measurement is not diagnostic of growth hormone excess. Therefore no reference intervals will be provided with GH results. Interpretation of GH results for the diagnosis of growth hormone deficiency or excess requires dynamic stimulation or suppression testing.
- Cut off levels for diagnosis vary in the literature, depending on the assay and stimulus used. Therefore the below cut offs need further clinical validation.
- As a guide, a nadir GH of > 1 microg/L during an OGTT is consistent with a diagnosis of growth hormone excess.
- Consensus guidelines suggest a GH concentration of <3-5 microg/L in the setting of hypoglycaemia (glucose <2.2mmol/L) to be consistent with a diagnosis of growth hormone deficiency in adults.
- A random growth hormone >5 microg/L excludes growth hormone deficiency (except in infancy).
References:


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