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All Practice managers/treatment rooms/GPs

Dear Colleague,

Biochemistry Updates

Whilst I know you are all busy, I thought some key updates would be useful. Hopefully, this will help with the management of your patients.

PSA reference ranges

As of 22nd February we have changed the PSA thresholds to align with NICE NG 12 suspected cancer: recognition and referral guideline which was updated in December 2021. There is ongoing debate about the correct thresholds but they have been adjusted to try and reduce referrals in those where prostate cancer is unlikely to have an impact on health or quality of life. There was a feeling that the previous levels lead to higher referrals and unwarranted investigations so in turn there was a risk of harm. There is no evidence base in under 40 year olds or in those over 79 so clinical judgement is required and there is a greater emphasis on a patient centred approach. New PSA ranges will be as follows:

Table 1 Age-specific PSA thresholds for people with possible symptoms of prostate cancer

Age (years)	PSA threshold in mcg/L
Below 40	Use clinical judgement
40 to 49	2.5
50 to 59	3.5
60 to 69	4.5
70 to 79	6.5
Above 79	Use clinical judgement

When requesting PSA it is important to choose the correct reason for testing, as "for diagnosis" will reflex these reference ranges but "for monitoring" will not but instead alert you to the diagnosis.

Transport

Since the last update, the pathology management team and ICS have arranged a second transport to the laboratory. I hope this is helping with scheduling your phlebotomy. Along with the obvious higher workload, this has led to higher volumes of samples reaching the laboratory later at night and delays in processing however, we are recruiting more staff to deal with this. Please can you make sure that samples taken during the morning phlebotomy service are sent on the morning transport to avoid sample deterioration and help with the laboratory workflow?

Haemolysis in samples

We have undertaken a review of the haemolysis index threshold above which we would not report a potassium result. We were previously using the manufacturer advised threshold but there is wide consensus that we can report up to a higher limit without having a detrimental effect on pseudohyperkalaemia rates (the greatest cause for this is sample delay). **We are now reporting samples up to a haemolysis index of 100 which means we are reporting a larger proportion of results in slightly haemolysed samples.** This will provide you with clinically useful information avoiding the need for unnecessary repeat samples and brings us in line with our Pathology network partners. Slightly haemolysed samples have a warning comment on any potassium result that is outside of the normal reference range to alert you to consider the effect of haemolysis on the result. Reviewing our previous reports, very few samples would have been affected by being slightly haemolysed but if you receive such a report please be aware the maximum effect is likely to be an increase in potassium of 0.5 mmol/L.

Liver function interpretation

A new guideline will be added to the RUH pathology web page which offers advice on the interpretation of liver function tests. Please follow the link below:
https://www.ruh.nhs.uk/pathology/departments/biochemistry_guidelines.asp?menu_id=1

ICE requesting and label alignment

Our analysers are getting more automated, this means they read the patient identification from the labels and barcode as well as what tests are required. If the label is not clear or aligned properly we are not able to process the samples so please ensure your printers give you clear labels and that they are attached longitudinally along the tube.

Oestradiol

We have noticed a 20% increase in requesting of oestradiol despite the limited utility of this test. A review of requests indicate most are being done within primary care with the majority of clinical details saying for monitoring of HRT. We have discussed with Endocrine, the Breast clinic, Obstetrics and Gynaecology as well as Menopause experts and we all agree that this test is rarely indicated. The assay has significant performance issues which means it does not have diagnostic sensitivity especially at the low end. Other factors which prohibit it being used to monitor HRT include bias in assays, the frequent presence of cross reactants, bioavailability variability (lack of reference to timing of sample to dose), lack of reporting the analytical method in the literature and small numbers in studies.

JCEM Endocrine society consensus statement 2014 agreed that use should be limited until assay performance improved.

Its utility is limited to:

- Fertility treatment
- Endocrine clinic assessment of hypothalamic/pituitary failure
- Precocious puberty
- Adrenal tumours, gonadal dysgenesis
- Transgender treatment
- Rarely - HRT absorption with transdermal route (only via menopause/expert clinic)

We recognise that if you wish to request oestradiol currently the only way to do this is via the gender reassignment profile which is obviously incorrect and not appropriate so we will be changing ICE to include oestradiol. You will be asked to give one of the above reasons or to discuss with the duty biochemist if you are not sure of whether it can be used. It is important to try and follow this to avoid clinical risk from acting on incorrect results.

If you are wishing to order **Free Androgen Index (FAI) in women**, please note that we will automatically calculate this for you and you only need to order a testosterone. (NB: this is a grey bar marked Testosterone (female), under the Reproductive Hormones (female) section, and will include measurement of SHBG).

FSH

It is probably also timely to remind you that after the age of 45 FSH should not be used to diagnose the menopause. FSH fluctuates around this time so cannot be relied upon and the diagnosis should be based on clinical features.

NICE NG 23 states that in women who are otherwise healthy and older than 45 years of age, diagnosis of the menopause or perimenopause should be WITHOUT laboratory testing but based on:

- Perimenopause - vasomotor symptoms and irregular periods
- Menopause - No period for 12 months where not using contraception
- Menopause - Based on symptoms where there is no intact uterus

According to NICE, "FSH testing does not improve management and considerable health savings could be made by avoiding this unwarranted test". The exception to this is when women are on progesterone-only-contraception and 50-55 years of age but wish to discontinue contraception. If FSH is in the peri-menopausal range a repeat at 1 year before stopping (FSRH) is advised.

As ever, we are keen to hear back from you if we can improve our service in any way and we do act on what you say. We had some lovely feedback on our user survey last year with 97% satisfaction ratings but there were two key areas suggested for improvement; the need for a second transport pick up (now actioned) and comments that ordering from stores was not always easy. A review of this is being undertaken and you should see improvements within the next month. We are continuing to update ICE to improve ease of use. Every order profile is based on a thorough evidence review and follows discussions with subject matter experts. I am also working on trying to reconvene the Pathology-GP interface group now that the governance of BSW is taking shape, which will help us to understand the community needs as well.

For clinical queries, our duty biochemist advice line can still be used direct 9-5pm on 01225-824050 or we are on Cinapsis as well. It may be worth mentioning that for lipid advice you can telephone my secretary on 01225-824710 or for written advice send via eRAS on choose and book.

With best wishes,

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