THE SCOPE

Labtests

LABTESTS PATHOLOGY NEWS

Issue 28// February 2019

Dr Gary McAuliffe
Medical Director

Welcome to this February edition of the Scope. I hope you have all had a chance to enjoy the glorious summer, and that these warm, sunny days continue for a good while longer.

I would like to share with you some work that we have been doing with our public health and sexual health colleagues to improve access to testing and treatment for sexually transmitted diseases and long term medical conditions. This work has involved connecting the sexual health service with community practitioners, to assist with case management and contact tracing for syphilis cases, and also working with regional corrections facilities, to improve testing for high prevalence communicable and non-communicable diseases. I hope to be able to provide some updates on positive outcomes from these initiatives over the coming months.

I would also like to take this opportunity to welcome two clinical microbiologists who have recently joined the pathologist team at Labtests: Dr Matt Blakiston, and Dr Max Bloomfield.

Dr Matt Blakiston joins us two days a week, and also works at Auckland Hospital laboratory. He graduated from University of Otago medical school and trained in the Auckland region. Matt has completed an MSc in Tropical Infectious Diseases (Liverpool) and Medical Microbiology (LSHTM). His areas of particular interest within microbiology include the epidemiology and control of antimicrobial resistance, antimicrobial susceptibility testing, and mycobacteriology.

Dr Max Bloomfield will be working for Labtests a day a week, in addition to his role as a clinical microbiologist at Southern Community Laboratories, Wellington. Max trained in microbiology and infectious diseases at Wellington Hospital and University College London Hospital, UK, leading to fellowship with RCPA and RACP. Whilst in the UK he completed two masters degrees: an MSc in clinical microbiology at Queen Mary, University of London, and an MPhil in epidemiology at the University of Cambridge. He has a wide range of interests within microbiology and infectious diseases, including diagnostic stewardship and antimicrobial resistance.

Chris Davey
General Manager

The first edition of The Scope for 2019 is also the first since announcement of the extension to our contract term to provide community pathology services across the 4 northern region DHBs - Auckland, Waitemata, Counties Manukau and Northland – until 2026.

While satisfying to provide future certainty for our staff and ensuring continuity of community pathology services, the new agreement also confirms the high regard in which the quality of our service and the value we provide, is held.

With a focus on continuous quality improvement, there are two processes which we will highlight in this edition to ensure patients receive the right test and the right referrer receives their results.

The first issue is managing the 100 - 150 request forms that are faxed to collection centres every day for patients to attend. Faxes may get lost or fail and considerable time is spent by clinic staff, patients and Labtests collection centre staff with phone calls to confirm faxes have been received. There is much time wasted and frustration for patients when forms cannot be located. So we have created a centralised fax/email facility. Once request forms are received they will be sent to the nominated collection centre the patient will attend and the sender will receive an email acknowledgement that the process has been completed.

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The second issue is around request forms received with no referrer name or location. There are still large numbers of referrers using Labtests request stationery, up to 40% of the 10,000 – 13,000 referrals we receive each day! You might be surprised that we receive approximately 40 forms per day where the referrer can't be identified. These forms often result in a delay to issuing results which may represent a risk to patients. Therefore we will no longer provide "blank" request stationery and ask all referrers to provide their details and register with Labtests, so a referrer code can be generated and referrer details preprinted on request forms.

You will find details for both these processes in this edition of The Scope.

Chris Davey
General Manager
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An Update on Serum Ferritin Level Interpretation

We often get asked how to interpret Serum Ferritin Levels (SF), particularly unexpectedly high results.

Serum ferritin is the first test used to assess body iron status in both primary care and inpatient settings. Ferritin is a soluble 450kDa protein produced by the liver. It is found in all cells, providing an easily accessible intracellular iron store to support cellular function. In addition, ferritin is stored at higher concentrations in marrow macrophages, the spleen, and liver cells. Relatively small amounts are found in the serum in health, but the SF can increase quite rapidly, though transiently in inflammation, from ferritin release by the macrophages/reticuloendothelial cells. In health, SF is directly proportional to iron store levels, with 1 microgram/L of SF representing 8mg of stored iron. It is a non-invasive accurate investigation to assess body iron stores. As a large protein SF can be measured using immunoassays (ELISA), immunochemiluminescence or immunoturbidometric assays. The latter is used at Labtests.

Low ferritin always indicates iron deficiency, while high ferritin could be due to iron overload or many other causes. An example of the latter is the raised ferritin in inflammatory conditions, as ferritin is an acute phase protein. Useful tests in the further investigation of an unexpectedly raised serum ferritin are to exclude acute phase reaction, and to evaluate the serum transferrin saturation.

High serum ferritin levels with a normal transferrin saturation is commonly seen in primary care, most commonly caused by inflammation, liver, and renal disease. Less common causes include metabolic syndrome, malignancy, and haematological disorders with ineffective erythropoiesis.

If serum ferritin is unexpectedly high, and there is no history of transfusional iron overload, a transferrin saturation >45% (especially in a fasting morning sample when well) may point towards genetic haemochromatosis, particularly if there is a positive family history.

Genetic haemochromatosis is a relatively uncommon cause of high serum ferritin levels, and HFE haemochromatosis, the type seen in people of Western European ancestry, can be excluded by the finding of a normal transferrin saturation. There are,however, rare forms of genetic haemochromatosis, notably Type IV due to a ferroportin mutation that may present with a normal transferrin saturation.

The following are common secondary causes of hyperferritinemia frequently found in the community:

Hepatic disorders	acute/chronic liver injury (alcoholic, non-alcoholic, viral)
Renal disorders	chronic kidney disease(CKD), especially if on haemodialysis *
Malignancy	any systemic malignancy — especially hepatocellular carcinoma, haematological malignancies, breast & pancreatic tumours
Infective/inflammatory disorders	any significant infection, SLE, RA and other autoimmune disorders , HIV, EBV, granulomatous disease
Metabolic syndrome (dysmetabolic hyperferritinaemia)	hyperglycaemia, dyslipidaemia, obesity and hypertension.
Haematological disorders	thalassaemias and other haemolytic anaemias, sideroblastic anaemia, myelodysplastic syndrome, long-term transfusional iron overload and excessive iron intake
Other	hyperthyroidism (esp. thyroiditis), acute hypersensitivity reactions (drug, other allergen), assay interference (uncommon)

It is important to note that moderate hyperferritinaemia is a misleading marker of iron stores for erythropoiesis in CKD and with recent parenteral iron or blood products

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When investigating raised serum ferritin, the following questions are helpful:

- Is it secondary to an underlying clinical condition? As described above.
- Is there a history of red cell transfusions?
- Is this patient on iron supplements?
- Is there a family history of iron overload (genetic haemochromatosis)?

In response to the previous questions, the following tests may be requested (see algorithm):

- FBC
- repeat serum ferritin and transferrin saturation (early morning sample when well)
- Liver function tests and Viral hepatitis serology
- Renal function tests
- Inflammatory marker - CRP
- HbA1c and Lipid profile
- TSH

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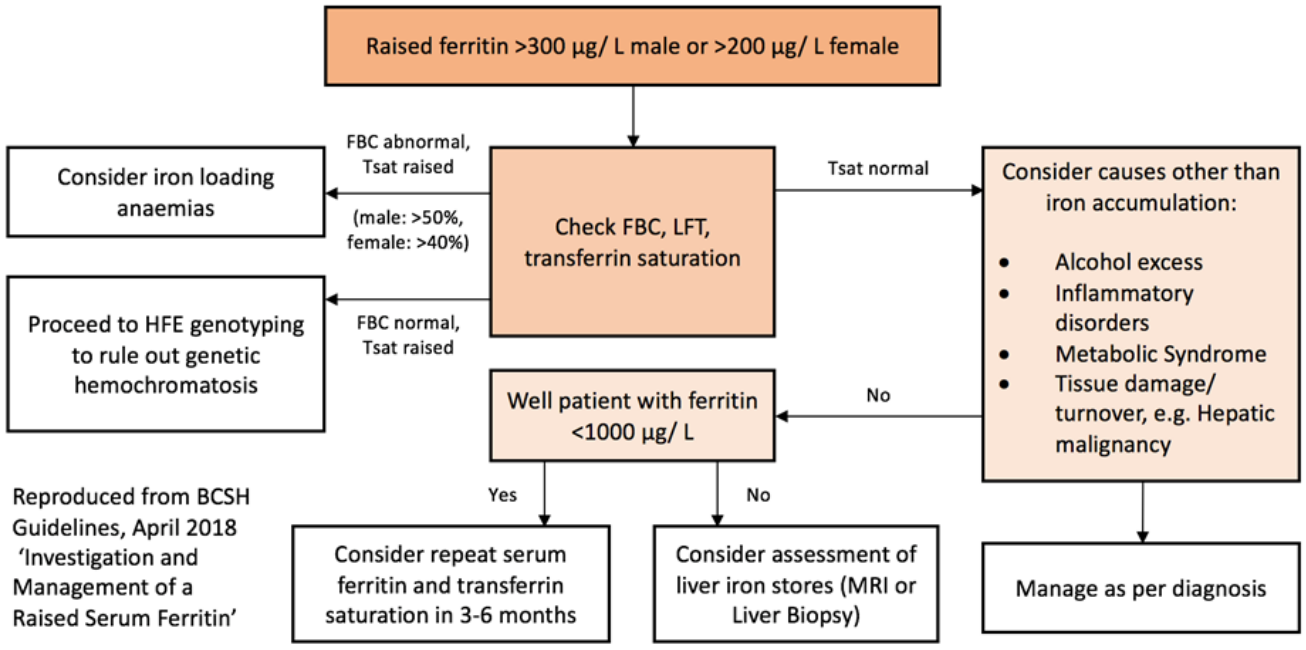
How to manage high ferritin with normal transferrin saturation, continued from page 3

The following algorithm shows further investigations in patients with isolated elevated serum ferritin:



For an unexplained rise in ferritin with a Tf sat < 40 in females < 50 in males, a period of observation is recommended if there are no other features to suggest a clear secondary cause. A stable moderately raised level (< 1000ug/l) may not require further investigations. Fluctuating levels are typically seen in hepatic steatosis and alcohol excess.

If the SF level is > 1000ug/l, the patient should be referred to a Hepatologist.

There is no evidence to support venesection therapy to reduce serum ferritin levels in patients with no alcoholic liver disease.

Conclusions

Raised serum ferritin is common in primary and secondary care. Common causes of high ferritin in primary care are hepatic, malignant, renal, haematological and metabolic diseases which can be ruled out with a few simple investigations, and management of the underlying condition usually normalises serum ferritin levels.

References

Jonathan O.Cullis et al. (2018) Investigation and management of raised serum ferritin British Journal of Haemotology, ***181*** *, 331-340*

Adams, P.C. & Barton, J.C. (2011) A diagnostic approach to hyperferritinemia with a non-elevated transferrin saturation. Journal of Hepatology, ***55****, 453–458.*


Dr Fransisca De Silva
Haematologist


Dr George Chan
Haematologist


Dr Lesley Overend
Haematologist

New process for sending a referral form to a Labtests Collection Centre

Labtests now has a centralised system for practitioners to send referral forms instead of faxing directly to a Collection Centre.

- **Forms can now either be faxed to 09 574 7284 or emailed to contactcentre@labtests.co.nz**
- **Please include details of the collection centre your patient will be attending.**

Emailing the form is preferred as this enables us to respond directly to the sender if any clarification is required.

For confirmation that a fax has been received and forwarded on, please call 09 574 7399 and one of our Contact Centre staff can assist. We will respond to emailed request forms with an acknowledgement that they have been forwarded on appropriately.

Recurrent Urinary Tract Infection Advice

As microbiologists we often get asked for advice about how to manage recurrent urinary tract infections in women, and we have put together some information that may be of benefit to GPs when approaching this in their practice:

This material is intended for the management of women with recurrent lower tract UTI (cystitis) without features of upper tract involvement e.g. fever, flank pain. Upper tract involvement or reason to suspect an anatomical abnormality e.g. stone, previous surgery, radiation therapy, may warrant imaging +/- urology referral.

Recurrent UTI is defined by multiple episodes of cystitis symptoms with associated positive urine culture

- Multiple positive urine cultures without symptoms of cystitis (asymptomatic bacteriuria) do not constitute recurrent UTI. Treatment of asymptomatic bacteriuria has been shown to cause harm.
- Follow-up 'test of cure' urine culture is not recommended if symptoms have resolved after treatment.
- Urine culture in asymptomatic non-pregnant women should not be performed, including if the dipstick is positive, as a positive culture would still constitute asymptomatic bacteriuria.

Potentially modifiable risk factors that should be considered:

- Diaphragm and/or spermicide use with sexual intercourse increases UTI risk
- Vaginal prolapse/cystocoele etc. – PV examination should be performed
- Increased post void residual – consider post void ultrasound
- Overzealous cleaning of vulval/perineal area. This may increase risk due to irritation/contamination
- Presence of STI

Preventive treatments:

These should be trialled for a reasonable time period before assessing efficacy e.g. at least a month

There is evidence for these approaches. Trial if no contraindications:

- Increased fluid intake
  - In those with baseline low intake (<1.5 L/day) may decrease risk by 50%
  - Amount required unknown, 2-3 L/day reasonable recommendation
- Topically-applied intravaginal oestrogens in postmenopausal women
  - Normalises vaginal flora and shown to significantly reduce UTI risk

Limited evidence for these approaches, but low risk, therefore worth trialling:

- Cranberry (higher dose capsules have more cranberry and fewer calories than juice)
- Methenamine hippurate (needs acidic urine to be effective – vitamin C can achieve this)
- D-mannose tablets
- Probiotics
- Post coital voiding
- Avoiding constipation

Antibiotic management:

- There is some evidence that antibiotic treatment itself is a risk factor for recurrent UTI. Trying to break the cycle of recurrent courses of antibiotics should be one of the aims of management.
- Uncomplicated UTI in women is often a self-limiting condition. A focus on controlling symptoms, e.g. dysuria, is a reasonable approach until the condition resolves. Antibiotics are not mandatory. There is some evidence that NSAIDs are as effective as antibiotics for uncomplicated cystitis.
- Antibiotic prophylaxis has proven effective in trials, however it should be a treatment of last resort as there are several potential downsides:
  - Continuous prophylaxis is only effective while being taken. There is no long-lasting effect.
  - Significant risk of selecting out antibiotic resistant organisms, making treatment of future UTIs problematic. Resistance is increasing in NZ.
  - The studies showing benefit only had follow-up for a maximum of 1-2 years. Benefit beyond this time is likely to wane due to emergence of resistant organisms.
  - Side-effects of the antibiotic and negative affect on microbiome.

In summary, this is a difficult area, and there is no easy solution for everyone. Avoiding risk factors, and trialling non-antimicrobial preventative interventions are low risk tools that may be helpful for some women. Antibiotic prophylaxis can ultimately make things worse, and should be considered as a last resort.

Dr Max Bloomfield
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ANTIBIOTIC SENSITIVITY TABLE

The Microbiology Department publishes the annual antibiotic sensitivity table to assist in the prescription of empric antibiotics. The antibiotic sensitivity data for 2018 (Auckland and Northland) has been published to Labtests' website.

To view data click here or go to www.labtests.co.nz and select Referrer page, then 'Reference Ranges and Antibiotic Sensitivity Tables'

Blank pathology request pad ordering process has changed

Blank pads will no longer be provided. Labtests will provide pre-printed pathology pads with the referring practitioner's own unique Dr Code to ensure you receive your patient's results in a timely manner.

Need a code?

Please visit our website https://labtests.co.nz

Click on Request a referrer code to be set up located below the Referrers icon. Please print the form, complete your details and email scanned form to lta.practitioners@labtests.co.nz

Once your code has been set up your pads will be ordered and delivered to your designated address.

Need more pads?

Email Labtests contact centre contactcentre@labtests.co.nz

OR

Visit our website https://labtests.co.nz and click on "Contact" at the top of the home page or "Contact Us" at the bottom of the home page.

Whether your preference is ordering through email or website the following information on your order is required:

- **your full name**
- **Dr Code**
- **NZMC#**
- **Number of pads (min 2 pads max 8 pads) 100 forms per pad**

For further information please contact:

Lta.clientservices@labtests.co.nz

27/02/2019
Quality Manager

Labtests Key Contacts

Labtests Services		**(09) 574 7399**	
Results		**Press '1'**	24 hours/7 days per week
Courier		**Press '2'**	24 hours/7 days per week
Home Visits	**Email to auk.home.visits@labtests.co.nz (preferred)** **Or fax the request form for the test/s to (09) 574 7383.** If the home visit cannot be booked for the date requested Home Visits staff will contact the referrer to arrange an alternative date.	**Press '3'**	Mon-Fri: 8:00am to 6:00pm Sat: 8:00am to 12:00pm
Special Test Bookings		**Press '4'**	Mon-Fri 8:00am to 6:00pm
Other Enquiries		**Hold the line**	Mon-Fri 7:00am to 11pm Sat-Sun 8:00am to 7:00pm
ADD ON TESTS	To add test/s to an existing patient request form, Press '1' to speak to our call centre staff.	**Press '1'**	**Note:** some add on tests may require pathologists approval.
eOrders Helpline	**Email:** helpdesk@eorder.co.nz	**0508 37 37 83**	
Dedicated line for practitioners to access all results (24/7)		**(09) 574 7398**	

Labtests Pathologists

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Pathology numbers

Biochemistry: DDI: 09 574 7254 // Fax: 09 574 7308
Microbiology: DDI: 09 574 7348 // Fax: 09 574 7344
Haematology: DDI: 09 574 4728 // Fax: 09 574 7308
Duty Scientist: DDI: 09 574 7382 // Fax: 09 574 7308

Note: When faxing to these numbers please use a header sheet and our team will endeavor to contact you that day. **Do not hesitate to phone the Pathologist directly.**

Client Services

General enquiries: lta.clientservices@labtests.co.nz

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AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai
Anatomic Pathology Service
Mount Wellington

The contact numbers for all enquiries related to Anatomic Pathology Mt Wellington are:
Phone (09) 302 0516 **Fax: (09) 302 0517**

Updated: 22/2/19