Microlife: GP

From your local Clinical Microbiology Team

March 2013

Welcome

In this edition we provide an update on laboratory modernisation with new technology enabling us to provide an improved bacteriology service and information on PVL-producing *Staphylococcus aureus* infections. Please send any queries or comments to: Savita.gossain@heartofengland.nhs.uk

Clinical enquiries:

Heartlands Hospital:
Microbiology Consultant
0121 424 3244

Good Hope Hospital:
Microbiology Consultant
07917 648323

Heartlands Hospital:
Virology enquiries:
Switchboard, bleep 2821

Out of Office Hours:
Switchboard
0121 424 2000

Laboratory results:

For all results enquiries, contact: 0121 424 3256

Laboratory Opening Hours:

Mon - Fri: 7am - 7pm

Sat, Sun & Bank Holidays: 8am - 4pm

New rapid diagnostics in the laboratory: improving accuracy and speed

Routine bacterial identification methods of bacteria recovered from clinical isolates can take up to 48 hours in some cases. Organisms can also be identified through genetic sequencing, but a new rapid technology is now available using mass spectrometry. Matrix-assisted laser desorption ionisation – time of flight (MALDI-TOF) uses ribosomal protein mass peaks to speciate organisms. Colonies of organisms from culture plates are placed on a target, which is then heated with a laser triggering desorption. The mass peaks produced coupled with the travel time allow accurate organism identification within 20 minutes.

As part of the modernisation and automation of the microbiology laboratory, the MALDi-TOF equipment (pictured below) will allow rapid throughput and turnover of clinical specimens thus potentially reducing the turnaround time. The robust identification of bacteria may in the future allow us to increase the range of primary specimens that could be tested, further reducing turnaround times and increasing the information flow to our users.

The MALDI-TOF

What does this mean for reports?: Users may see more detailed bacterial genus and species names or names of some unfamiliar organisms.

Examples of changes:

Streptocccus pyogenes (Beta-haemolytic Streptococcus group A)

Streptococcus agalactiae (Beta -haemolytic Streptococcus group B)

The laboratory will endeavour to interpret significant results, and will be available for advice. See our contact details to the left of this article

PVL producing *Staphylococcus aureus* (PVL-SA)

Panton-Valentine Leukocidin (PVL) is a toxin which destroys white blood cells and is a virulence factor in some strains of S*taphylococcus aureus.* Strains of *S. aureus* producing a new pattern of disease have emerged in the UK and world-wide. In the UK the genes encoding for PVL are carried by less than 2% of clinical isolates of *S. aureus* whether meticillin-sensitive (MSSA) or meticillin-resistant (MRSA).

Clinical picture:

In common with *S. aureus* infections in general, PVL-SA predominantly cause skin and soft tissue infections, but can also cause invasive infections, the most serious of which is a necrotising haemorrhagic pneumonia with a high mortality, and often follows a flu-like illness. It may affect otherwise healthy young people in the community.

PVL-SA and soft tissue infections (SSTI)

These are often recurrent and can comprise:

• Boils (furunculosis), carbuncles, folliculitis, cellulitis

• Cutaneous lesions 5cm or larger in diameter are not uncommon

• Pain and erythema that seem out of proportion to severity of cutaneous findings may occur

• Necrosis is an indicator of possible PVL-SA infection

Risk factors

- Compromised skin integrity
- Skin to skin contact with infected/colonised persons
- Fomite contact between affected person and infected/colonised persons
- Household contacts, Contact sports, Military camps, Gyms, Prisons

Laboratory Investigations

In patients with suspected PVL-SA skin infection, please send pus (in a sterile universal container) or a swab (in liquid culture medium) for M,C & S and add "?PVL" in the clinical details section of the request form.

Management :

- Surgical incision and drainage of abscesses may be all that is required
- Moderate infection can be treated with oral antibiotic agents depending on sensitivity tests for 5-7 days
- Severe disease may require admission for intravenous antibiotics/surgical management
- If PVL-SA is confirmed by the laboratory, we will notify the Health Protection Unit (HPU) who will advise about contact tracing and decolonisation treatment

Further information see www.hpa.org.uk (the HPA will be part of Public Health England from 1 April 2013)