Fever

Nov 5, 2014 | 0
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| General medicine,infectious diseases,onthepods

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James talks to Dr Andie Lee about an approach to fever on the wards.

Dr Andie Lee is a Staff Specialist in Infectious Diseases and Microbiology at Royal Prince Alfred Hospital, Sydney. Andie is a Clinical Senior Lecturer at the University of Sydney. She has an interest in healthcare associated infections, particularly due to multi-resistant Gram positive bacteria, as well as the transmission dynamics of infectious diseases. Andie was previously a Research Fellow at the University of Geneva Hospital in Switzerland where she coordinated a European multicentre clinical trial evaluating the effectiveness of interventions to control methicillin-resistant Staphylococcus aureus in hospitals.

Fever

With Dr Andie Lee, Infectious Diseases Consultant at Royal Prince Alfred Hospital, New South Wales, Australia

Case – You are asked to see a patient with fever. He is Day 4 post anterior resection of a colorectal carcinoma. It is important to bear in mind the context in which you are getting called – this is a **new fever in a post-op patient.**

1. Initial questions over the phone

- Magnitude and duration of fever
    - the height of the fever is not necessarily indicative of whether or not someone has an infection
    - post-operative patients commonly have fever, and if it's been a low grade fever present since the surgery, then it is less of a concern that someone with a high, new fever.
- Vital signs to triage urgency
    - Tachycardia is expected but if the heart rate is very high (e.g. >140-150) may suggest arrhythmia

    - Hypotension is concerning for septic shock
    - RR and oxygen saturations if abnormal may suggest hospital-acquired pneumonia
- Original reason for admission
- Any associated symptoms

2. General approach at bedside

- General observation:looking well or looking unwell
- Look at pattern of the fever and BP on observation chart
- If they don't look too unwell, review progressnotes e.g. operation notes – complications, prolonged procedure, team concerns then take a history and examine the patient.

3. Common sources of fever in the post-op patient

- **Non-infective causes**
    - Pulmonary embolism
    - Drugs
    - Malignancies or other inflammatory conditions (but uncommon, must exclude infection and PE first)
- **Infective causes**
    - surgical site infections (e.g. superficial wound infections, dehiscence of the anastamosis and intra-abdominal collections)
    - UTI (especially in presence of IDCs)
    - Cannula site infection or line sepsis
    - Pneumonia secondary to diaphragmatic splinting from post-operative pain and reduced clearing of their secretions.

4. Relationship between onset of fever and cause

- **Day 0:** could be related to infection at the time of surgery (e.g. intra-abdominal infection from bowel perforation prior to anterior resection), drug/transfusion reactions
- **Day 1-2:** more commonly post-operative non-infective fever from tissue breakdown or pulmonary atelectasis

- **Day 3-4:** infection becomes more likely, for e.g. from invasive devices or procedures.
- **Day 7 or more**: ?PE

5. Examination

- Skin: cannula site erythema/discharge
- IDC: good drainage (infection can cause obstruction), urine clear vs cloudy
- Signs for DVT (calf swelling/pain)
- Cardio-respiratory exam (?pneumonia) and abdominal exam (inspecting surgical site)

6. What is a septic screen?

- Minimum one set of blood cultures (aerobic plus anaerobic bottle) but recommend 2 sets from 2 sites, and 3 if suspecting infective endocarditis
    - one set picks up ~60% of bacteraemia
    - two sets pick up 90-95% of bacteraemia
    - also helps in interpretation of positive blood cultures that may be related to skin commensals – particularly important in patients with prosthetic joints/devices/catheters or suspecting infective endocarditis
    - try and space out collections over time, if not starting antibiotics straight away
- Urine MCS
- Others depending on clinical findings:
    - Wound swabs
    - Central line site swab if it is oozing
    - Line tip culture if lines are being removed
    - CXR if signs of respiratory tract infection

7. Approach to fever in a haematology patient with a low neutrophil count?

- Special group of patient as they are immunosuppressed and at higher risk of bacterial sepsis and shock
- Need to prioritise and assume it is an infection until proven otherwise

- If it is a new fever – assess the patient's vitals, history (symptoms of infection), examination and antibiotic history
    - Often this group have a lot of diarrhoea as a result of chemotherapy
    - Often have deep lines in – which can become infected
    - At risk of respiratory infections – bacterial and viral
    - Two sets of blood cultures should be collected (if recent collection, may get away with just doing one). Consider peripheral and line access cultures and label appropriately
- Febrile neutropenic patients need to be given antibiotics
    - Use broad spectrum cover
    - Needs to include pseudomonas as they are at increased risk of pseudomonas infections – includes tazocin + gentamicin; some sites use amikacin instead of gentamicin if hemodynamically unstable
- Speak to the haematologist on call for advice around antibiotics and management of these patients

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Tags: #Blood cultures,#fever,#infections,#inflammation,#neutropaenia,#neutrophil,#sepsis,#septic screen