Sepsis

RCGP LEARNING

Sepsis basics

Definition and epidemiology

- Sepsis - life-threatening organ dysfunction due to a dysregulated host response to infection.
- Septic shock – subset of sepsis with circulatory, metabolic and cellular abnormalities associated with a greater risk of mortality.
- Little recent UK data available:
  - 2017/18 - 200,000 UK admissions.
  - 2022 – caused 3770 deaths and contributed to 25,542 more (England and Wales).
- More common in men than women, and in those who are elderly or very young compared to other ages.

Pathophysiology, causes, prognosis

- Immune system produces inflammatory mediators → endothelial damage and clotting factor activation → thrombosis and vascular leakage.
- Clotting factors are consumed by disseminated intravascular coagulation (DIC) → bleeding.
- Anti-inflammatory mediators deplete lymphocytes.
- Commonest causes are infections in respiratory, renal, gastrointestinal & genitourinary tracts, skin & soft tissue.
- Adult mortality 25-30% (sepsis), 40-60% (septic shock).
- Survivors may have neurological, cognitive, psychological and other functional sequelae.

Risk factors

- Risk factors:
  - Multimorbidity and immunosuppression.
  - Age ≥ 75, frailty.
  - Ethnic minority and/or need for interpreter.
  - Repeated antibiotic use.
  - Recent trauma or surgery.
  - Breach of skin integrity (trauma or medical).
  - Drug/alcohol misuse.
  - Difficulties in communication or cognition.
  - Homelessness & deprivation.
  - Pregnancy, post-partum or within six weeks of miscarriage/abortion.

Clinical assessment

History

- If taking history remotely, have a low threshold to see face to face if there is any concern about sepsis.
- Ask about:
  - Risk factors for sepsis.
  - Fever/rigors.
  - Reduced urine output.
  - Symptoms of the specific infection.
  - Change in behaviour, cognitive state or functional ability.
  - Risk factors for antibiotic resistance e.g. recent use or hospital admission.
  - Vaccination status.

Examination

- Consciousness level & hydration.
- Temperature (elderly immunosuppressed and those with cancer or spinal cord injury may have sepsis without fever).
- Structured set of observations - HR, RR, BP, cap refill, 02 sats.
- Skin mottled/ashen, pale, cyanosis, cold extremities, purpuric/petechial rash, any breaches of skin integrity.
- Be aware that difficulty picking up 02 sats may indicate poor peripheral circulation due to shock.

Decision making

- NICE risk stratification tables in resources.
- Interpret HR in context of baseline fitness and meds such as beta blockers which may prevent a rise. Older people may develop a new arrhythmia instead of a tachycardia.
- Low threshold to refer if neutropenic (consider for anyone on chemo) or otherwise immunocompromised.
- If referring for suspected sepsis, do so by emergency ambulance and pre-alert secondary care.
- NEWS score can be used but not validated in primary care.

Quality improvement ideas

Practical sepsis related QI in the surgery

- Survey your clinical rooms – does everyone have a sphygmomanometer, oxygen saturation meter and thermometer? Do they tend to go missing?
- Consider putting the SEPSIS mnemonic on posters in clinical rooms (**s**lurred speech or confusion, **e**xtreme shivering or muscle pain, **p**assing no urine (in a day), **s**evere breathlessness, **i**t feels like you are going to die, **s**kin mottled or discoloured). Poster in resources.
- Reception are your first point of contact with patients – have they had training to recognise someone who is deteriorating? See resources for training materials.
- Review admissions and deaths from sepsis. In hindsight, could it have been suspected earlier?

Resources References