ST VINCENT'S HEALTH AUSTRALIA

Sepsis & SBE

Some tips and tricks

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Sepsis

Frequent cause for admission to hospital – approximately 16-20% of all admissions will meet some sepsis criteria

Various scoring systems to determine severity

- SIRS
- qSOFA

- Significantly improved mortality figures as recognition of sepsis has improved
  - Down from 35% to 18%

- Multiple prognostic factors
  - Host related
  - Site of infection
  - Type of infection
  - Antimicrobial therapy
  - Restoration of perfusion

Severity

- SIRS criteria
  - Temp >38 or <36
  - HR >90
  - WBC >12,000 or <4,000
  - RR >20 or $PaCO_2$ 32mmHg
- qSOFA
  - RR ≥ 22
  - Altered mentation
  - SBP ≤ 100mmHg

Risk Factors

- Previous (especially recent) ICU admissions – 50% have a nosocomial infection and are at higher risk for sepsis
- Bacteraemia
- Advanced age – esp. ≥65
- Immunosuppression – more on this in a minute.
- Diabetes and cancer
- Community acquired pneumonia – increased risk of sepsis if patient is hospitalised (most likely due to more severe infection)
- Previous hospitalisation – especially in the past 90 days.
- Genetic factors

What about immunosuppression?

- Opioids modulate the immune system
- Downregulates antibody production, NK cell activity, cytokine production and phagocytosis.
- Opioid receptors have been found in immune inflammatory cells.
- Alcohol has similar effects with chronicity
  - Decreased neutrophil count and marrow reserve
  - Decreased lymphocyte transformation and migration
  - Decreased NK cell activity
  - Decreased antibody dependent cytotoxicity
  - Decreased macrophage adhesion and phagocytosis

Signs and Symptoms of Sepsis

- Primarily anything that suggests an infectious source (cough, dyspnoea, purulent exudates, dysuria)
- Hypotension
- Temperature >38.3 or <36
- Tachypnoea
- Poor end organ perfusion
  - warm flushed skin initially, then becoming pale and cold
  - Decreased capillary refill
  - Cyanosis
  - Altered GCS, restlessness, confusion
  - Ileus or absent bowel sounds.

Subacute Bacterial Endocarditis

- Risk Factors:
  - Previous IE
  - Prosthetic valve or other known valvular disease
  - IV drug use
  - Immune suppression
  - Long term IVC
  - Recent dental or surgical procedures

SBE

- Manifestations are highly variable

- Low grade fever
- Nonspecific malaise
- Chills
- Anorexia
- Weight loss
- Headaches
- Myalgia
- Arthralgia
- Night Sweats
- Abdominal pain
- Dyspnoea
- Cough
- Pleuritic chest pain
- May have dental pain (if related to dental work)

SBE Signs

- Physical exam can be helpful

- Cardiac murmurs seen in approximately 85% of cases

- Splenomegaly
- Petechiae or splinter haemorrhages
- Janeway lesions (more common in acute)
- Osler nodes
- Roth spots on fundoscopy

What to do?

- Recognition of sepsis and a high suspicion of SBE are key.
- Management will be dependent upon resources and severity
- Many will require hospital review
- Maintenance of perfusion is important
- Early antibiotic therapy is key

A Case study

- 42 Male presents to his GP with a history of worsening low back pain

- PHx:
- Chronic low back pain
- Nil else

- Meds: nil regular

- Social:
- Cantonese origin, but Australian born
- Family lives in Australia, but semi-disconnected
- Lives alone in a private rental
- Vague about work

A Case study

- GP prescribes NSAIDs for back pain
  - Returns a few days later – dosage increased
  - Returns twice more
    - Now has some pain down his right leg
    - added pregabalin for pain and then dosage increased

A Case study

- Returns once more – now approximately 2 weeks into the history of his back pain.

- Severe low back pain, midline approx L2/3
- Low grade temp 37.9
- Pain radiating down both legs
- Sweaty
- Pale
- Vomiting
- Some loose bowel actions

A Case study

- Sent to ED

- WCC 25
- CRP >250

- MRI Spine – epidural abscess

- Treated with IV antibiotics and rifampicin

- History revealed:
  - Pt is IV heroin user (up to 8 times per day) and dealer
  - Occasional ICE use
  - Previously tried OST but never for very long
  - Last used heroin 2 days before last presentation to GP

A Case study

- Going forward:

- Is OST suitable for this patient? If so, which agent?
- Concerns about overdosing?
- Concerns about antibiotics?

- Are there any warning signs with this patient prior to his hospital stay?
- How could it have been managed differently?

Take Home Points

- Sepsis has a high mortality if not treated in a timely fashion
- Have a high index of suspicion and seek assistance if concerned

- Easy scoring system to help in the community – qSOFA (RR, Altered Mentation, Low BP)

- Be concerned about SBE in the IVDU population – can appear to be other things.