Septic Shock

The Latest Evidence

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Definitions

Updates in 2016

qSOFA/SOFA

Definitions

No more SIRS
No more "severe" sepsis

ICU

- Sepsis: … life-threatening organ dysfunction caused by a dysregulated host response to infection. An increase in SOFA score of 2 or more constitutes organ dysfunction.
- Septic shock: … a subset of sepsis in which particularly profound circulatory, cellular, and metabolic abnormalities are associated with a greater risk of mortality than with sepsis alone, defined as sepsis with both:
  - Persistent hypotension requiring vasopressors to maintain MAP ≥65 mmHg, and
  - Serum lactate level >2 mmol/L (>18 mg/dL) despite adequate volume resuscitation

Outside ICU

- … the 'quick' (q)SOFA criteria are recommended for use outside of the ICU setting to promptly identify patients with suspected infection who are likely to have a poor outcome. Patients with 2 or more qSOFA criteria are likely to have poor outcomes.

The Third International Consensus definitions for sepsis and septic shock (Sepsis-3), 2016

Resources

References

Clinical Scores

References

- Surviving Sepsis Campaign
  - International Guidelines for Management of Sepsis and Septic Shock 2016
  - Bundles
  - Pocket Guide
- BMJ Best Practices
- www.mdcalc.com

Clinical Scores

- qSOFA/SOFA
- APACHE-II
- LRINEC

Diagnosis

- Blood Cultures
- Imaging

Blood Cultures

- Do not delay antibiotics for more than 45 min [1C]
- Aerobic + Anaerobic x 2 sets [1C]
- 1 x Vein, 1 x Vascular device [1C]

Imaging

- Locate source [UG]

Management

Initial Resuscitation

Haemodynamic Support

Supportive Therapy

Initial Resuscitation

Sepsis-induced hypoperfusion (persistent hypotension or lactate ≥ 4mmol/L) [1C]

- Within 6 hours
  - CVP 8-12
  - MAP 65
  - Urine 0.5ml/kg/h
  - $S_{CV}O_2$ 70%

Antimicrobial Therapy

- IV antibiotic/antifungal/antiviral
  - within 1 hour [1B]
  - for 7- 10 days typically [2C]
- Reassess daily for de-escalation [1B]
- Procalcitonin (if no evidence of infection) [2C]

Source Control

- Anatomical diagnosis
- Intervention within 12 hours [1C]

Haemodynamic Support

Fluid therapy

- Crystalloids [1B]
  - no hydroxyethyl starches [1B]
- Albumin [2C]
- 30ml/kg crystalloids minimum [1C]
- Continue as long as there is haemodynamic improvement (UG)

Vasopressors

- Target MAP 65 [1C]
- Noradernaline first line [1B]
- Adrenaline next [2B]
- Vasopressin next [UG]
- Dopamine alternative (some patients) [2C]
- No phenylephrine [1C]
- No low dose dopamine [1A]

Haemodynamic support

Inotropic support

- Dobutamine if myocardial dysfunction [1C]
- Do not use cardiac index targets [1B]

Steroids

- Only if still hypotensive despite above
- IV hydrocortisone 200mg/day infusion [2C, 2D]
- No Synacthen test [2B]
- No steroids if not in shock [1D]

Supportive therapy

- Transfuse if Hb < 7, target 7 – 9 g/dl [1B]
- Aim for higher Hb if ACS, haemorrhage, IHD [1B]
- No EPO [1B]
- No FFP even if abnormal labs
  - unless bleeding or invasive procedure planned [2D]
- Platelets if < 10,000 (or 20K if risk of bleeding) [2D]

Supportive therapy

- No IVIG [2B]
- Venous/arterial blood glucose ≤ 10 with insulin [1A]
- No bicarbonate for haemodynamics or lactic acidosis [2B]
- DVT prophylaxis [1B]
    - LMWH [1B]
    - Pneumatic compression devices [2C]

Supportive therapy

- Stress ulcer prophylaxis
  - H2RA/PPI only if risk factors [1B]
  - PPI preferred [2D]
  - Not required if no risk factors [2B]
- Nutrition
  - Start oral/enteral feeding within 48 hours [2C]
- Goals of care
  - Discuss goals of care and prognosis [1B]
  - Incorporate into treatment and EOL planning [1B]

Controversies

Latest evidence

Conclusion?

- Evidence is variable and topical
- One large trial can skew results forever
- Read with caution!

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