Sepsis occurs when microorganisms initiate a systemic inflammatory response often resulting in organ dysfunction and hypotension. It exists as a continuum of conditions ranging from SIRS to sepsis to severe sepsis to septic shock. It is a leading cause of death in critical care units.

SEPSIS

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L

How will your patient LOOK?

- SIRS = Two or more of the following: Temp > 38 or < 36, HR > 90, RR > 20, PaCO2 < 32. WBC > 12 or < 4 or > 10% bands. This can be subtle, so vigilance is key!
- Sepsis = SIRS + confirmed or suspected infection (do they have a source?)
- Severe Sepsis = Sepsis + organ dysfunction, hypotension, hypoperfusion. May see drop in BP, low urine output, change in LOC, elevated lactate...basically any sign of organ damage
- Septic Shock = Hypotension that does not respond to fluid resuscitation

A

How will you ASSESS this patient?

- Assess RR, HR, BP, cap refill, urine output, mental status, respiratory status, temp
- Hypotension is a sign of CV dysfunction; P/F ratio of < 300 indicates respiratory dysfunction
- Assess skin color and temp...may initially be warm and flushed d/t massive vasodilation
- Trend your BP...the pulse pressure will widen initially, followed by hypotension
- Listen to lung sounds. Crackles indicate membrane permeability
- Monitor mental status...patient may become confused, disoriented, lethargic or even combative as cerebral hypoxemia ensues

T

What TESTS will be ordered?

- Labs to assess: WBC, glucose, CRP, hgb, hct, serum lactate, creatinine, coags, PLTS, bilirubin
- ABG...will usually show respiratory alkalosis (low $PaCO_2$) metabolic acidosis (low HCO_3^-) and hypoxemia (low PaO_2)
- VBG or $SCVO_2$ monitoring to assess for the mixed venous oxygenation. It may increase due to shunting or may decrease due to poor oxygen delivery to the tissues.
- Pan cultures to find the source: blood, sputum, urine, wound, stool if C-Diff is suspected
- Chest X-ray to assess for pneumonia

T

How will this condition be TREATED?

- Fluids, fluids, fluids! Give fluids until your CVP is 8-12 mm Hg (or 12-15 mm Hg if vented). The general rule is 30ml/kg if hypotension is present or lactate > 4.
- Broad-spectrum antibiotics within one hour of a positive screen for sepsis! Common ones include Amoxicillin, Imipenem, Levaquin, Zosyn, Cephalexin.
- If hypotension persists after fluid resuscitation, start pressors....pt is in SEPTIC SHOCK!
- Patient will need a central line if pressors are to be given. Get an $SCVO_2$ line in there, too!
- Arterial line would be lovely, but isn't always done as it's another source of infection
- If $SCVO_2$ < 70% and CVP goals have been reached, pt may need PRBCs to achieve hct of 30%. If $SCVO_2$ remains low after hct goal reached, add inotropes such as dobutamine.
- Usually the patient in severe sepsis or septic shock will require intubation and mechanical ventilation... appropriate sedation is very important!
- Pt will probably need an insulin gtt due to consistently high blood glucose levels
- PLTs to correct coagulopathy and monitor for DIC
- If intubated, daily spontaneous awakening and breathing trials. WEAN THAT VENT!
- Start nutrition early...get that OGT in there and get an X-ray to confirm placement ASAP!

E

How will you EDUCATE the patient/family?

- Explain reason and need for frequent interventions so patient/family know what to expect and are not alarmed by the amount of attention received
- Explain need for sedation and restraints as necessary
- As patient improves, educate regarding signs of infection and when to seek medical treatment in the future (many people come to ED in full-blown sepsis!)
- Educate regarding infection prevention strategies: VAP bundle, oral care, chlorhexadine baths, mobility, ABCDE bundle, positioning. Some find these frequent interventions annoying, but often participate willingly if they understand it keeps them from getting even more ill!

Source: Urden, L. D., Stacy, K. M., & Lough, M. E. (2010). Critical care nursing: diagnosis and management (6th ed.). St. Louis, Mo.: Mosby/Elsevier. Surviving Sepsis Campaign | Surviving Sepsis Campaign. (n.d.). Surviving Sepsis Campaign | Surviving Sepsis Campaign. Retrieved September 25, 2013, from http://survivingsepsis.org