Post Sepsis Syndrome & Post Sepsis Care

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Surviving Sepsis

- In Hospital Mortality has declined from 35% in 2000 to 18% in 2012
- Accounts for 12.2% of US hospital readmissions
- Worldwide, 19.4 million patients with sepsis, 14.1 million survive to hospital discharge
- In US, 1.3 million survivors (56% over 65)
  - 1/2 have complete recovery
  - 1/6 have cognitive impairment
  - 1/3 die within a year (50% from sepsis, 50% from complications)
Post Sepsis Syndrome

- Similar to Post ICU Syndrome
- Post-sepsis syndrome is a condition that affects up to 50% of sepsis survivors. They are left with physical and/or psychological long-term effects, such as:
  - Insomnia, difficulty getting to sleep or staying asleep
  - Nightmares, vivid hallucinations and panic attacks
  - Disabling muscle and joint pains
  - Extreme fatigue
  - Poor concentration
  - Decreased mental (cognitive) functioning
  - Loss of self-esteem and self-belief

Post ICU Syndrome

- Described more extensively in literature (BRAIN-ICU Study, multicenter cohort study followed pts at 3 months and 12 months)
- 3 components
  - Cognitive impairment
  - Physical impairment
  - Psychological impairment
Quality Post Sepsis Care

• Reduce readmission:
  – Reduce recurrent sepsis
  – Carefully manage pre-existing chronic disease

• Evaluate for post-sepsis syndrome
  – Connect patients with appropriate therapy

• No validated tools to determine likelihood of recovery.

Your immune system on sepsis

• Initial response: Pro-inflammatory pathways and anti-inflammatory innate immune pathways

• Changes in the immune system response based on location, pathogen, medical events, and timing of antibiotics

• Resolution of the immune response is complex and prolonged with inflammatory changes and/or immune suppression.

• The severity of all responses is influenced by the presepsis health and quality of early treatment!
Recurrent Sepsis

- Immune system dysfunction
- Incomplete treatment or deescalating treatment
- Injured organ/tissue at risk for infection
- Catheter associated infections
- Healthcare associated infections
New vs Relapsed Infection

• Retrospective cohort study, single center
• Reviewed 472 readmissions within 90 days of sepsis
  – 65% had same infection at the same site
  – 19% had confirmed infection with same site and organism
  – 34% unclear (initial organism not identified)
  – 50% had new infections

Post sepsis management: from head to toe...

• Encephalopathy, prolonged delirium
• Visual changes
• Dysphagia, sinusitis
• Vocal cord injury/trachea abnormalities
• Endocrine changes, thyroid, adrenal, calcium/bone, hair
• Prolonged lung recovery
• Heart failure, higher rates of CAD
• Resolving hepatitis
• Impaired glucose control, pancreatic insufficiency
• Impaired glucose control, pancreatic insufficiency
• Adrenal insufficiency
• Resolving acute kidney injury
• Diarrhea/constipation
• Anemia
• Edema
• Myopathy
• Neuropathy
• Paralysis
• Amputation
• Pressure ulcers
Avoiding Chronic Disease Exacerbation

- Medication (pre)
- Medication (post)
- Medication (dose)
- Patient education
- Close follow-up with outpatient team
- Clear communication

- Teach fluid management
- Signs and symptoms of sepsis
- When to call and who to call
- Vaccinate

Recognizing Post Sepsis Syndrome
Physical Debility

- Critical illness myopathy
- Critical illness neuropathy
- Cardiopulmonary limitations in mobility
- Functional limitations
  - In Medicare patients, develop an average of 1-2 new limitations in ADLs
- Dysphagia
  - Risk for aspiration
Cognitive Impairment

- Etiology multifactorial
- Delirium seems to be more predictive of cognitive impairment long-term
- In Medicare patients rates of cognitive impairment rates increased from 6.1 to 16.7%, not increased in non-sepsis hospitalized pts.
- Even with normal testing, patients report impairment.
Psychological Impairment

• Increase in anxiety (32%), depression (29%), and PTSD (32%)
• Somatic symptoms are reported higher in patients with psychologic impairment
• Not clear if presepsis state
• Quality of life reduction
  – Often do not return home or work

Identify Post Sepsis Syndrome

• Assess functional limitations: PT/OT referral
• Screen for aspiration risk
• Screen for depression/anxiety/PTSD
  - encourage ICU diary
• Patients benefit from knowing the what happened.
Prevention of Post Sepsis Syndrome

• Higher quality sepsis care
• Manage pain, agitation, delirium
  – Opiates preferred, minimize benzos
  – Lighten sedation
• Early mobilization to reduce muscle atrophy
  – Early therapy referrals.

5 Strategies to Improve Recovery After Sepsis

1. Raise awareness of the long-term consequences of sepsis
2. Plan for hospital discharge
3. Follow-up with primary care clinician
4. Work to get stronger & increase activity
5. Seek medical attention for signs and symptoms of infection
More work to be done

- Using predictive models using SOFA
- Outcomes in non-Medicare patients
- Mid-German Sepsis Cohort
  - Enrolling 3000 ICU sepsis survivors for mid and long-term follow-up.

References