Surviving puerperal Group A Sepsis: A case presentation

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In the news... and close to home

‘Blood Infection warning for new mums’ July 2014

17 year old with puerperal sepsis, group A with septic shock
17 day LOS

Early Recognition cont....

- Listen to your patient. If they say “I don’t feel right”, “Something is wrong”, “I’m dying”.....They could be right!
- Listen to relatives - They are often the first to recognize the patients’ deterioration.
  Example: Mother commented repeatedly that this was not her daughter’s typical response to pain or stress.
- Trust your Instinct. If the patient doesn’t look good, probably right
- RED FLAG no improvement or getting worse despite interventions....

What the Strep?

Group A Streptococcus (GAS): Streptococcus pyogenes is an aetiology group-positive cocci

- Same organism that causes strep throat & skin infections
- Leading pathogen linked to maternal mortality from Sepsis
- When associated with Sepsis 30-50% mortality rate
- Once shock develops mortality approaches 60%

Virulence Factor: Can form protective capsule, slime layers, and evades phagocytosis, confusing the immune system. Toxins thought to cause liquidification of purulent material that evade abscess formation and allow spread of infection across tissue planes.

M protein virulence factor

Cell surface - resistant to phagocytosis by leukocytes, increasing the ability to multiply in blood and cause disease
**Inflammatory Response**

- Profound hypotension
- Diffuse capillary leaking
- Release of bradykinin – powerful vasodilator of both systemic and pulmonary vascular system
- Widespread organ failure

- Liquefy purulent matter to prevent abscess formation and allow spread of streptococci along tissue planes

### Incidence Postpartum

- **INCREASED 20-fold** among postpartum population
  - Septic shock: 0.002-0.01% of all deliveries
  - 0.3-0.6% of all septic patients are pregnant
  - Has increased over the last decade

Regard suspected Group A infection as an **obstetrical emergency**

### Incidence

**Increased 20 fold among postpartum women**

**Postpartum sepsis common in the distant past, rare in the recent past, but emerging in the last 15 years.**

**WHY? Theories include:**

- Changing demographics
  - Older women
  - Obesity
  - Diabetes
  - Multiple births
- Invasive interventions
- Damage to skin barrier during birth
- Altered vaginal pH from amniotic fluid exposure
- Enhanced bacterial virulence

*Increased risk related to pregnancy suggests that there something related to an altered host immunity that allows for invasive GAS*

### Early Recognition is Key

- **Barriers?**
  - Subtle symptoms often fly under the radar
  - Presentation of GAS is atypical
  - Postpartum nurses not exposed to many sepsis cases
  - Reluctance to sound alarm because of false positive
  - We are extremely busy!

- **Listen to your patient.** If they say “I don’t feel right”, “Something is wrong”, “I’m dying”….They could be right!

- **Listen to relatives.** They are often the first to recognize the patients’ deterioration.

  *Example: Mother commented repeatedly that this was not her daughter’s typical response to pain or stress.*

- **Trust your Instinct.** If the patient doesn’t look good, you’re probably right

- **RED FLAG no improvement or getting worse despite interventions.**

### Early Recognition cont....

**Presentation GAS Symptoms**

<table>
<thead>
<tr>
<th>Chorioamnionitis/Endometritis</th>
<th>GAS (Typical Symptoms)</th>
<th>GAS (Atypical Symptoms)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fever or Rigors</strong></td>
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<tr>
<td><strong>Vaginal Tenderness or Pain</strong></td>
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<tr>
<td>• Swollen or pain in extremities or joints</td>
<td>• Breast pain</td>
<td>• Myalgia</td>
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<tr>
<td>• Internal or vaginal pain</td>
<td>• Increased or vaginal pain</td>
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<tr>
<td><strong>Malodorous Lochia</strong></td>
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<tr>
<td>• Copious non-mucoid, malodorous vaginal discharge</td>
<td>• Confusion or combativeness, H/O, headache, rash</td>
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<tr>
<td></td>
<td>• Marked leukocytosis or leukopenia</td>
<td>• Marked leukocytosis or leukopenia greater than 12,500; hypoglycemia, early DIC, increased serum lactate, low serum pH, increased urine ketones</td>
</tr>
</tbody>
</table>

**Endometritis is the most common cause postpartum infection, 1-4% vaginal birth, but 15-85% cesarean births.**

**GAS more common in VAGINAL BIRTHS, 85% occur within 1st 4 days**
Recommendation:

Pregnant and postpartum pts. presenting with atypical symptoms should first be evaluated with consideration of eliminating GAS infection from the differential before seeking other causes, because identification is so difficult but can be lifesaving.

Regard suspected Group A infection as an obstetrical emergency

Implications for Practice

» If we can work to improve awareness, recognition and then provide rapid treatment, lives can be saved!

» A standardized approach should be formulated for pregnant women with suspected sepsis
  ◦ Screening Tool
  ◦ Admission disposition protocol e.g. ICU, labor and delivery
  ◦ Early diagnosis procedures
  ◦ Management protocol Prevention strategies

Resources


