Atypical Chemotherapy Complication

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The Case

- 74 year old male
  - Weakness
  - Confusion
  - Hypotension with BP in 60s

- Denied other complaints
- History limited
Exam

- Vitals:
  - T 39.2
  - P 106
  - R 22 and SpO2 91% on 4L
  - BP 80s systolic after 2 L fluid

- Fatigued and confused
- Non-focal exam
Medical History

- CAD with MI in 1994
- AAA – s/p repair in 2009
- HTN
- COPD
- Bladder cancer
  - s/p resection x 2 in 2011
  - Intravesicular BCG therapy
Lab Highlights

14.6
12.8
41.9
83
<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
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<tbody>
<tr>
<td>INR</td>
<td>2.2</td>
<td>(normal 2.0-3.0)</td>
</tr>
<tr>
<td>PTT</td>
<td>45</td>
<td>(normal 12-25)</td>
</tr>
<tr>
<td>Fibrinogen</td>
<td>141</td>
<td>(normal 200-400)</td>
</tr>
</tbody>
</table>
Lab Highlights

INR 2.2
PTT 45
Fibrinogen 141

14.6
12.8
83
41.9

134
96
44

4.1
18
3.09
Lab Highlights

INR 2.2
PTT 45
Fibrinogen 141
T Bili 3.5
AST 262
ALT 109
Alk phos 181
Lab Highlights

INR 2.2
PTT 45
Fibrinogen 141

T Bili 3.5
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UA: >100 WBC, >100 bacteria, 1+ LE, N -, 3+ bld
Initial Assessment and Plan

- Severe Septic Shock
- Aggressive IV Fluids
- Cultures obtained
- Levafloxacin and vancomycin
Hospital Course

- Stabilized over first 24 hours
- Required dialysis
- Further studies into hepatitis and coagulopathy
- Cultures remained negative
Case Reviewed

- Concerned for BCG sepsis
- Supportive history
  - Systemic symptoms with prior treatment
  - Hepatitis prior, etiology undetermined
  - Trauma with catheterization
- Consult to ID
BCG Sepsis Treatment

- Antibiotics targeted to Mycobacterium
  - Continued levaquin
  - + Rifampin
  - + Prednisone
- Planned course of 1-2 months multidrug regimen
- Hepatitis: ischemic and granulomatous
- Overall improved to baseline in 1 month
Bacillus Calmette-Guerin (BCG)

- **Live**, attenuated *Mycobacterium bovis*
- Formulated for intravesicular use

Theracys 81 mg Intravesical Susp. medhelp.org
Complications

Disrupted uroepithelial cells

Vaccine enters blood/lymphatics

Disseminates

Reaction in hours to months
Adverse reactions

- **Local reactions**
  - Dysuria, hematuria
  - Granulomatous inflammation of GU tract

- **Distal reactions**
  - Hepatitis, pneumonitis, osteomyelitis
  - Arthritis

- **Systemic Effects**
  - Mild fever/flu-like: resolves within 48 hours
  - Sepsis
    - 0.4% of treated patients
Controversial Pathogenesis:

- Hypersensitivity reaction
  - Granulomas in the absence of AFB
  - Glucocorticoids therapy
  - Clinical diagnosis

- Active Infection
  - AFB in tissue
  - Difficult to culture
  - PCR identification in tissue
Common minor reactions

Rare but severe distal/systemic reactions

Mechanism likely multifactorial

Retain high index of suspicion for adverse reactions following BCG immunotherapy
Questions?
References