Teaching about Medical Complications of Drug Abuse in the Clinical Setting

Jeffrey H. Samet, MD, MA, MPH
Chief, Section General Internal Medicine
Boston Medical Center
Professor of Medicine and Public Health
Boston University Schools of Medicine and Public Health

CRIT 2012
Overview

• Medical Complications Case Scenarios
  1. The Febrile Injection Drug User (IDU)
  2. Chest Pain and Cocaine in the ED
  3. Patient-Physician Interactions in the Setting of Pain and Opioid Addiction

• Physician and Patient Relationship

• Conclusions
A 31 year old man presents to the ED “feeling sick”

- 10 year history of injection heroin use
- 6 month history of increasing cocaine use
- Symptoms - myalgias, weakness, cough
- No history of TB or HIV
- PE - T-101.2, fresh and old track marks
- No cardiac murmur, non-tender abdomen
- Labs - WBC 12000 with normal differential
- Urine-trace protein
Case Presentation 1

Should the patient be hospitalized?

• What clinical diagnoses are likely based on this presentation?
• Which of these diagnoses merit hospitalization?
Febrile IDUs-Presentation to Boston City Hospital ED 1/88-1/89

296  Total # of presentations of Febrile IDUs to ED

283  Total # evaluated

180 (64%) Febrile IDUs with apparent major illness

Major Illness at Presentation

n=180

- Cellulitis (37%)
- Pneumonia (34%)
- Infective Endocarditis (6%)
- Abscess (6%)
- Other apparent major illness (17%)

Febrile IDUs-Presentation to Boston City Hospital ED 1/88-1/89

296

Total # of presentations of febrile IDUs to ED

283

Total # evaluated

180 febrile IDUs with apparent major illness

103 (36%) with no apparent major illness

Febrile IDUs-Presentation to Boston City Hospital ED 1/88-1/89

103 (36%) with no apparent major illness

11 (11%) major illness

92 (89%) minor illness

<table>
<thead>
<tr>
<th>Patient</th>
<th>Diagnosis</th>
<th>Bacteremia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infective Endocarditis</td>
<td>Group G β-hemolytic streptococcus</td>
</tr>
<tr>
<td>2</td>
<td>Infective Endocarditis</td>
<td>Staphylococcus aureus</td>
</tr>
<tr>
<td>3</td>
<td>Infective Endocarditis</td>
<td>Staphylococcus aureus</td>
</tr>
<tr>
<td>4</td>
<td>Infective Endocarditis</td>
<td>Staphylococcus aureus</td>
</tr>
<tr>
<td>5</td>
<td>Infective Endocarditis</td>
<td>Staphylococcus aureus</td>
</tr>
<tr>
<td>6</td>
<td>Infective Endocarditis</td>
<td>Staphylococcus aureus</td>
</tr>
<tr>
<td>7</td>
<td>Infective Endocarditis</td>
<td>Staphylococcus viridans</td>
</tr>
<tr>
<td>8</td>
<td>Pneumonia</td>
<td>None</td>
</tr>
<tr>
<td>9</td>
<td>Pneumonia</td>
<td>None</td>
</tr>
<tr>
<td>10</td>
<td>Disseminated intravascular</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>coagulation</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Deep venous thrombosis</td>
<td>None</td>
</tr>
</tbody>
</table>
# Significant Univariate Predictors of Major Illness

<table>
<thead>
<tr>
<th>Predictors</th>
<th>RR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Historical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last use of Injection drugs &lt;5 Days</td>
<td>6.30*</td>
<td>1.05-37.79</td>
</tr>
<tr>
<td><strong>Symptoms and signs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cough</td>
<td>2.32</td>
<td>0.56-9.52</td>
</tr>
<tr>
<td>Headache</td>
<td>0.40</td>
<td>0.13-1.30</td>
</tr>
<tr>
<td>Sore Throat</td>
<td>1.09</td>
<td>0.30-3.93</td>
</tr>
<tr>
<td>Temperature &gt;38.8 °C (102.0 F)</td>
<td>4.76*</td>
<td>1.52-14.89</td>
</tr>
<tr>
<td>Meningismus</td>
<td>0.66</td>
<td>0.04-10.13</td>
</tr>
<tr>
<td><strong>Laboratory Results</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White blood cell count &gt; 10⁴/mm³</td>
<td>1.69</td>
<td>0.53-5.36</td>
</tr>
<tr>
<td>Neutrophils &gt; 70%</td>
<td>1.40</td>
<td>0.42-4.64</td>
</tr>
<tr>
<td>Creatinine &gt; 1.3 mg/dL</td>
<td>3.33</td>
<td>0.53-20.97</td>
</tr>
<tr>
<td>Albumin &lt; 3.5 g/dL</td>
<td>2.44</td>
<td>0.79-7.52</td>
</tr>
<tr>
<td>Proteinuria &gt; trace</td>
<td>4.44*</td>
<td>1.27-15.5</td>
</tr>
</tbody>
</table>

* significant at <0.05
Febrile IDUs-Recommendations

• No combination of clinical characteristics effectively identified the febrile IDU with inapparent major illness.
• The hospitalization decision in febrile IDUs rests primarily on the need for patient follow-up after blood culture results are known.
• If follow-up is not possible, the patient should be hospitalized.
Case Presentation 1
Outcome

• Tests
  – Chest x-ray-normal
  – Blood cultures negative after 24-hrs.

• Assessment/Plan
  – Diagnosis-Viral Syndrome
  – Patient discharged home
  – Referred for addiction counseling
28 year-old Latino man presents to ED with chest pain

- Crushing substernal chest pain lasting two hours resolved with O2 alone in ambulance
- 6 year history of regular (2-3x/wk) crack or intranasal cocaine use
- 10 year history of smoking (2 packs/day)
- Negative HTN, DM, history of coronary artery disease
- Family history of MI (father, 48 years)
EKG normal
Cocaine-Related Myocardial Infarction (MI)

- One of every four MIs in people aged 18 to 45 years linked to cocaine use\(^1\)
- Most are young, male cigarette smokers without other risk factors for MI\(^2\)
- Approximately half of patients with cocaine-related MI have no evidence of atherosclerotic coronary artery disease on subsequent angiography\(^2\)
- Cocaine use is a strong predictor of coronary artery aneurysm\(^3\)
- Occurrence of MI with cocaine is unrelated to amount ingested, route of administration, or frequency of use\(^3\)

---

\(^3\) Lange RA. Adv Stud Med. 2003. 3(8); 448-454.
How Cocaine May Induce MI

Observation Period

• Prospective evaluation patients w/ cocaine-associated chest pain (n=302)
• Detailed follow-up available on 256 (85%)
• 4/256 (1.6%) patients had nonfatal MI (95% CI, 0.1 to 3.1)
• All patients with MI continued cocaine use during the 30-day follow-up period
• Low risk of death or MI during 30 days post discharge

Clinical Management

Cocaine-associated Chest Pain

ASA
Benzodiazepines

IV NTG, Nitroprusside for persistent Hypertension
(alternative: Phentolamine)

High Risk

STEMI
Primary PCI
Avoid B-blockers acutely
Antithrombotic and Antiplatelet therapy
(as indicated by existing guidelines)

Discharge Therapy
ASA, clopidogrel, Statin, ACE I (as indicated by existing guidelines)
Consider B-blockers especially if high risk features (systolic dysfunction, dysrhythmia)
Drug Abuse Counseling

Low-moderate Risk

NSTE ACS
Cardiac Catheterization

Observe in CPU
Drug Abuse Counseling
Stress Test Optional
Inpatient or Outpatient
Clinical Management

Cocaine-associated Chest Pain
- ASA
- Benzodiazepines
- IV NTG, Nitroprusside for persistent Hypertension (alternative: Phentolamine)

High Risk
- STEMI
  - Primary PCI
- NSTE ACS
  - Cardiac Catheterization

Avoid B-blockers acutely
Antithrombotic and Antiplatelet therapy (as indicated by existing guidelines)

Low-moderate Risk
- Observe in CPU

Drug Abuse Counseling
Stress Test Optional
Inpatient or Outpatient

Discharge Therapy
- ASA, clopidogrel, Statin, ACE I (as indicated by existing guidelines)
- Consider B-blockers especially if high risk features (systolic dysfunction, dysrhythmia)
- Drug Abuse Counseling
Beta-Blockers, Cocaine, & Chest Pain

Controversy
Beta-Blockers and Cocaine in the Setting of Chest Pain

• In current AHA clinical guidelines, β-blockers were contraindicated for chest pain in a patient actively using cocaine
  – May worsen vasospasm through unopposed α-receptor stimulation

Beta-Blockers and Cocaine in the Setting of Chest Pain

• More recent research challenges this conventional wisdom
• Retrospective cohort study, patients with recent cocaine use admitted with chest pain, 2001-2006 (n=331)
  – 46% received β-blocker
  – No significant difference in EKG changes, troponin levels, LOS, intubation, VTach, VFib, or death
  – Patients who received β-blocker had 8.6mmHg reduction in systolic BP (p=.0006) and reduction risk of CV death (HR 0.3, 0.1-1.0)

Case Presentation 2

Outcome

• Admission - chest pain, rule out MI
• No further symptoms
• Discharge after 24 hours with discussion of health consequences of cocaine & tobacco use
Case Presentation 3

36 year-old male with active IDU and right arm cellulitis and abscess

• Presents with chief complaint of “terrible pain” 10/10
36 year-old male with active IDU and right arm cellulitis and abscess

- Presents with chief complaint of “terrible pain” 10/10
- Given methadone for opioid dependence; little relief of pain. 9/10
Case Presentation 3

36 year-old male with active IDU and right arm cellulitis and abscess

• Presents with chief complaint of “terrible pain” 10/10
• Given methadone for opioid dependence; little relief of pain 9/10
• Abscess I&D; Still reports 6/10 pain and wants narcotics meds for pain relief
Physician Management of Opioid Addiction

METHODS

• Study conducted June - December 1997 on the inpatient internal medical service of a public urban teaching hospital

• Participants: 8 inpatient physician teams and 19 patients actively engaged in illicit injection drug or crack cocaine use (primarily opioid use).

• Exploratory qualitative analysis of data on the relationship from direct observation of patient care interactions and interviews with illicit drug-using patients and their physicians.
Physician Management of Opioid Addiction: 4 Themes

1. Physician Fear of Deception
Physicians question the “legitimacy” of need for opioid prescriptions (“drug seeking” patient vs. legitimate need).

“When the patient is always seeking, there is a sort of a tone, always complaining and always trying to get more. It’s that seeking behavior that puts you off, regardless of what’s going on, it just puts you off.”

-Junior Medical Resident

CRIT 2012
Physician Management of Opioid Addiction: 4 Themes

2. No Standard Approach
The evaluation and treatment of pain and withdrawal is extremely variable among physicians and from patient to patient. There is no common approach nor are there clearly articulated standards.

“The last time, they took me to the operating room, put me to sleep, gave me pain meds, and I was in and out in two days... This crew was hard! It’s like the Civil War. ‘He’s a trooper, get out the saw’...”

-Patient w/ Multiple Encounters
CRIT 2012
3. Avoidance
Physicians focused primarily on familiar acute medical problems and evaded more uncertain areas of assessing or intervening in the underlying addiction problem-particularly issues of pain and withdrawal.

Patient/Resident Dialog
Resident: “Good Morning”
Patient: “I’m in terrible pain.”
Resident: “This is Dr. Attending, who will take care of you.”
Patient: “I’m in terrible pain.”
Attending: “We’re going to look at your foot.”
Patient: “I’m in terrible pain.”
Resident: “Did his dressing get changed?”
Patient: “Please don’t hurt me.” CRIT 2012
Physician Management of Opioid Addiction: 4 Themes

4. Patient Fear of Mistreatment
Patients are fearful they will be punished for their drug use by poor medical care.

“I mentioned that I would need methadone, and I heard one of them chuckle. . .in a negative, condescending way. You’re very sensitive because you expect problems getting adequate pain management because you have a history of drug abuse. . .He showed me that he was actually in the opposite corner, across the ring from me.”

-Patient
Physician Management of Opioid Addiction

• Medical care of opioid withdrawal requires physicians to simultaneously:

  – Treat acute medical problems
  – Manage pain and withdrawal
  – Recognize that the addiction has often caused physical and psychosocial devastation

CRIT 2012
Addressing Medical Complications of Drug Abuse: Conclusions

- Case-based discussions of drug abuse related disorders can be both evidence-based & provide an opportunity to address the systems and individual approaches to the medical care of drug users.