Epidemiology of Comorbid Pain and Substance Abuse

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Analgesic solutions, Natick, MA
Key Questions

• How many people have both pain and substance abuse?
• Why does it matter?
Comorbidity Model

**Pain**
- Acute
- Subacute
- Chronic

**Substance Abuse**
- Non-disordered vs. disordered
- Illicit vs. prescription
- Opioid vs. nonopioid
Comorbidity Model: Negative Association

Pain
- Acute
- Subacute
- Chronic

Substance Abuse
- Non-disordered vs. disordered
- Illicit vs. prescription
- Opioid vs. nonopioid
Comorbidity Model: Positive Association

Pain
• Acute
• Subacute
• Chronic

Substance Abuse
• Non-disordered vs. disordered
• Illicit vs. prescription
• Opioid vs. nonopioid
## The Nuprin Pain Report

<table>
<thead>
<tr>
<th></th>
<th>% of Americans with Pain</th>
<th>% with pain &gt;31 days/yr</th>
<th>Number with pain &gt;31 days/yr</th>
<th>% severe or unbearable</th>
<th>No. with severe or unbearable pain &gt;31 days/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEADACHE</td>
<td>73</td>
<td>18</td>
<td>32,850,000</td>
<td>36</td>
<td>11,826,000</td>
</tr>
<tr>
<td>BACKACHE</td>
<td>56</td>
<td>27</td>
<td>37,800,000</td>
<td>48</td>
<td>18,144,000</td>
</tr>
<tr>
<td>MUSCLE PAIN</td>
<td>53</td>
<td>18</td>
<td>23,850,000</td>
<td>25</td>
<td>5,962,500</td>
</tr>
<tr>
<td>JOINT PAIN</td>
<td>51</td>
<td>32</td>
<td>40,800,000</td>
<td>36</td>
<td>14,688,000</td>
</tr>
<tr>
<td>STOMACH</td>
<td>46</td>
<td>10</td>
<td>11,500,000</td>
<td>38</td>
<td>4,370,000</td>
</tr>
<tr>
<td>MENSTRUAL</td>
<td>40</td>
<td>9</td>
<td>9,000,000</td>
<td>47</td>
<td>4,230,000</td>
</tr>
<tr>
<td>DENTAL</td>
<td>27</td>
<td>7</td>
<td>4,725,000</td>
<td>59</td>
<td>2,787,750</td>
</tr>
</tbody>
</table>

Louis Harris & Assoc, 1985
Chronic Pain in America

- National survey of 500,000 US households
- 9% of adult U.S. population estimated to have chronic moderate-to-severe pain (17,482,410)
- Most have had it for over 5 years
Prevalence of Substance Use Disorders

Adapted from Kessler RC, McGonagle KA, Zhai S et al. Lifetime and 12 month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. Arch Gen Psychiatry 1994; 51:8-19
Physical Pain, Common Psychiatric and Substance Use Disorders, and the Non-Medical Use of Prescription Analgesics in the United States

Scott P. Novak¹,*, Mindy Herman-Stahl², Barbara Flannery³, and Mark Zimmerman⁴
Prescription Opioid Abuse Increases with Increasing Pain

Pain Intensity, SF-12

Novak SP et al, Drug Alc Dep, 2009
## Pain and Prescription Opioid Abuse

<table>
<thead>
<tr>
<th>Non-Medical Prescription Analgesic Use</th>
<th>Moderate or High Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>69,856,000</td>
</tr>
<tr>
<td>Non-disordered</td>
<td>1,375,000</td>
</tr>
<tr>
<td>Disordered</td>
<td>450,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>71,682,000</td>
</tr>
</tbody>
</table>

Novak SP et al, Drug Alc Dep, 2009
How many opioid addicts have pain?

Take-Home Messages
- 63% of opioid addicts on methadone had chronic pain
- Chronic pain and opioid addiction are highly comorbid
Summary

• About 2 million Americans have both moderate-to-severe pain and abuse prescription opioids
• A higher number than that have moderate-to-severe pain and other types of substance abuse problems
• So what?
Importance of co-morbid pain and substance abuse

- Substance abuse history is the major risk factor for prescription opioid OD
- Pain patients prescribed opioids do worse if they are substance abusers
- They do better with special management
- Are certain pain medications safer in these patients than others?
- Pharmacotherapy for addictive disorders complicates pain management
Liver Damage Warning

The package label for adult TYLENOL acetaminophen products states:

Liver warning: This product contains acetaminophen. Severe liver damage may occur if:

* Adult takes more than 4000 mg in 24 hours, which is the maximum daily amount
* Child takes more than 5 doses in 24 hours
* Taken with other drugs containing acetaminophen
* Adult has 3 or more alcoholic drinks every day while using this product.
Studies have shown that patients with a prior history of peptic ulcer disease and/or gastrointestinal bleeding and who use NSAIDs, have a greater than 10-fold risk for developing a GI bleed than patients with neither of these risk factors. In addition to a past history of ulcer disease, pharmacoepidemiological studies have identified several other co-therapies or co-morbid conditions that may increase the risk for GI bleeding such as: treatment with oral corticosteroids, treatment with anticoagulants, longer duration of NSAID therapy, smoking, alcoholism, older age, and poor general health status.
Drug Selection Depends on Comorbidities

- When hypertension is accompanied by diabetes………ACE inhibitors
- When osteoarthritis is accompanied by history of GI bleeding…acetaminophen
- Depression in context of bipolar disorder………avoid tricyclics
- When pain is accompanied by substance abuse………???
Conclusions

- Comorbid chronic pain and substance use disorders occur in millions of Americans and result in significant morbidity and mortality.
- Standard medical practice incorporates tailored pharmacotherapy based on medical and psychiatric comorbidities.
- We need to consider how substance abuse influences management of pain and vice-versa, from clinical practice and drug development perspectives.
BACKUP
1990s: Pain specialists advocating opioid expansion while practitioners see opioid problems

Original Article

Chronic Opioid Therapy for Nonmalignant Pain in Patients with a History of Substance Abuse: Report of 20 Cases

Stuart A. Dunbar, MB, and Nathaniel P. Katz, MD
Department of Anesthesia (S.A.D); and Pain Clinic, Department of Anesthesia (N.P.K.), Brigham and Women’s Hospital, Boston, Massachusetts
Chronic opioid therapy for patients with history of substance abuse (n=20)

<table>
<thead>
<tr>
<th>Good Outcome (11)</th>
<th>Bad Outcome (9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Primarily alcohol</td>
<td>• Polysubstance</td>
</tr>
<tr>
<td>• Good family support</td>
<td>• Poor family support</td>
</tr>
<tr>
<td>• Membership in AA or similar groups</td>
<td>• No membership in support groups</td>
</tr>
</tbody>
</table>

Take-Home Messages

• Some patients do well…….others do not.
• Even “high risk” patients can be stratified.
• Assessing risk…..and outcome…..is not easy.

Dunbar & Katz, 1996
How many chronic pain patients have substance abuse problems? Can doctors tell?

Behavioral Monitoring and Urine Toxicology Testing in Patients Receiving Long-Term Opioid Therapy

Nathaniel P. Katz, MD*, Summer Sherburne, BA*, Michael Beach, MD, PhD†‡, Robert J. Rose, MD†, Janet Vielguth, RN†, Joyce Bradley, RN§, and Gilbert J. Fanciullo, MD, MS†

*Pain Trials Center, Brigham and Women’s Hospital, Boston, Massachusetts; Departments of †Anesthesiology and ‡Community and Family Medicine, Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire; and §Pain Management Center, Brigham and Women’s Hospital, Boston, Massachusetts
The Role of Urine Toxicology Monitoring in Patients on Opioids for Chronic Pain

<table>
<thead>
<tr>
<th>URINE TOX</th>
<th>BEHAVIOR ISSUES</th>
<th>YES</th>
<th>NO</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITIVE</td>
<td>YES</td>
<td>10</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>26</td>
<td>70</td>
<td>96</td>
</tr>
<tr>
<td>NEGATIVE</td>
<td>YES</td>
<td>17</td>
<td>69</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>10</td>
<td>57</td>
<td>67</td>
</tr>
<tr>
<td>TOTAL</td>
<td>YES</td>
<td>27</td>
<td>95</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>36</td>
<td>22</td>
<td>58</td>
</tr>
</tbody>
</table>

53/122 (43%) of patients had compliance problems (positive urine screen or behavioral issues)

Katz & Fanciullo, 2001
# Top MD Specialties Prescribing Immediate-Release Opioids, 1998 vs. 2002

(WITH Hydrocodone & Oxycodone Combination Products)

<table>
<thead>
<tr>
<th>MD Specialty</th>
<th>% Prescriptions</th>
<th>1998</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>DENTISTRY</td>
<td>15.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAMILY PRACTICE</td>
<td>13.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORTHOPEDIC SURGERY</td>
<td>11.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERNAL MEDICINE</td>
<td>11.1%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>OSTEOPATHIC MEDICINE</td>
<td>6.7%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>EMERGENCY MEDICINE</td>
<td>5.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENERAL SURGERY</td>
<td>4.2%</td>
<td></td>
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<tr>
<td>OBSTETRICS/GYNECOLOGY</td>
<td>3.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ALL OTHERS</strong></td>
<td><strong>28.9%</strong></td>
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</table>

<table>
<thead>
<tr>
<th>MD Specialty</th>
<th>% Prescriptions</th>
<th>2002</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>FAMILY PRACTICE</td>
<td>14.6%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>DENTISTRY</td>
<td>12.2%</td>
<td></td>
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<td></td>
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<tr>
<td>INTERNAL MEDICINE</td>
<td>12.2%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ORTHOPEDIC SURGERY</td>
<td>10.2%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>OSTEOPATHIC MEDICINE</td>
<td>7.8%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EMERGENCY MEDICINE</td>
<td>6.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENERAL SURGERY</td>
<td>3.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBSTETRICS/GYNECOLOGY</td>
<td>3.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ALL OTHERS</strong></td>
<td><strong>30.2%</strong></td>
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</tbody>
</table>

*Source: IMS Health, National Prescription Audit Plus™, Year 1998 to 2002, Excluding Long-Term Care & Mail Order Channels, Data Extracted August 2003.*
Historical Perspectives

• “It is better to suffer pain than to become dependent upon opium”
  – Diagoras of Melos, 3rd Cent. B.C.

• “Opium should be completely avoided [due to risk of dependence]”
  – Eristratus of Chios, 5th Cent. B.C.

- 7 studies found defining and measuring addiction in chronic pain patients
- Prevalence of abuse, dependence, and addiction 3.2-18.9%
- Studies plagued with methodologic challenges
Aberrant drug-taking and undertreatment of pain in cancer and AIDS

- 73 HIV pts with SUD; 100 cancer pts without SUD
- High prevalence of aberrant drug-taking behaviors among HIV pts:
  - Dose escalation (26%)
  - Using someone else’s pain meds (46%)
  - Seeing multiple MDs without their knowledge (11%)
  - Obtaining opioids from the street (14%)
  - Use of alcohol to control pain and associated sx (51%)
- Addictions worsened as a result of increased pain (32%)

Pain in Methadone Maintenance Patients

- 61.3% (of 250) reported chronic pain
- Average pain duration: 10 years
- Avg. time on methadone: 8.5 years
- This represents a cohort of 153 chronic pain patients with a 100% prevalence of substance abuse
- However, even these patients can be managed successfully with opioids in the right setting