Pain Medicine and Adolescents: Special Considerations

Sharon Levy, MD, MPH
Assistant Professor of Pediatrics
Boston Children’s Hospital
Harvard Medical School
Director, Adolescent Substance Abuse Program
Division of Developmental Behavioral Pediatrics

Disclosure
Sharon Levy, MD, MPH has no relationships with commercial companies to disclose.

Learning outcomes
• Understand the neurobiology of opioids action on the brain
• Discuss appropriate use of medication assisted therapy for opioid use disorders
• Identify the role of parents and medical providers in prevention of opioid addiction

Opioid Pharmacology
• Mimic endorphins
• Bind to mu-opioid receptors
• Well-being, satisfaction, pleasure

Opioid Neurobiology
PREFRONTAL CORTEX: Executive Functions
LIMBIC SYSTEM: Pleasure, reward
BRAIN STEM: Respiration
SPINAL CORD: Analgesia
Increase in Opiate Rx, 1991-2013

Rates of opioid misuse by 12th graders
• Misuse/Non-medical use

• Substance Use Disorder

• Addiction

11.1% of 12th graders have misused opioids in their lifetime. There are two main reasons for misuse
• Self-medication for pain
• "Recreationally" (for euphoria)

11.1% of 12th graders have misused opioids in their lifetime. There are two main reasons for misuse
• Self-medication for pain
• "Recreationally" (for euphoria)
**Addiction:** A chronic, relapsing medical condition resulting from neurological changes in the brain’s reward system leading to compulsive use of a substance.

**Heroin:**
- Very rapid delivery of morphine to the central nervous system
- Potent and relatively inexpensive
- Snorting or smoking as practical alternatives to injecting

**Heroin Epidemiology**

<table>
<thead>
<tr>
<th>Year</th>
<th>Americans Addicted (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>70</td>
</tr>
<tr>
<td>2006</td>
<td>150</td>
</tr>
<tr>
<td>2008</td>
<td>200</td>
</tr>
<tr>
<td>2009</td>
<td>350</td>
</tr>
<tr>
<td>2010</td>
<td>400</td>
</tr>
<tr>
<td>2011</td>
<td>400</td>
</tr>
</tbody>
</table>

**Treatment for Opioid Use Disorder**

<table>
<thead>
<tr>
<th>Non-pharmacologic</th>
<th>Pharmacologic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outpatient individual or group</td>
<td>Detox methadone, buprenorphine, clonidine, &quot;comfort meds&quot;</td>
</tr>
<tr>
<td>Intensive outpatient/partial</td>
<td></td>
</tr>
<tr>
<td>Family therapy and parent support</td>
<td>Antagonist therapy naltrexone PO or IM</td>
</tr>
<tr>
<td>Recovery High School</td>
<td></td>
</tr>
<tr>
<td>Acute or Long Term Residential</td>
<td>Agonist therapy methadone, buprenorphine</td>
</tr>
<tr>
<td>Sober home/half-way house</td>
<td></td>
</tr>
</tbody>
</table>

**Detoxification**

Adult studies have recurrently found high relapse rates after detoxification without subsequent treatment. An NIH consensus statement regarding treatment of opioid dependent adults indicated detoxification alone is insufficient treatment.
Medication Assisted Treatment

Agonist Therapy: Buprenorphine

- Partial agonists form an imperfect fit
- Less reinforcing and less commonly abused than full agonists.
- The potential for misuse is not zero

2014 Buprenorphine Summit Report of Proceedings

- MAT is first line therapy for patients with opioid use disorders.
- Expanding access to MAT is a top priority.
AMA Opioid Task Force

5 goals of the task force:
• Increase physicians’ registration and use of effective PDMPs
• Enhance physicians’ education on effective, evidence-based prescribing
• Reduce the stigma of pain and promote comprehensive assessment and treatment
• Reduce the stigma of substance use disorder and enhance access to treatment
• Expand access to naloxone in the community and through co-prescribing

Research Trials with Adolescents

Comparison of pharmacological treatments for opioid-dependent adolescents: A randomized controlled trial

Study design
• buprenorphine vs. clonidine for 28-day detox
• Randomized controlled trial; double-blind, double-dummy design
• Participants 13-18 years old, N=36
• All participants received counseling in addition to meds
  – Individual and family therapy
  – Contingency Management
  – Outreach component

Study design
– Participants 15-21 years old with opioid dependence via DSM-IV, N=152
– Randomly assigned to 1 of 2 groups:
  • 2-week detox w/ max dose of 14 mg/day buprenorphine (n=78)
  • 12-week treatment buprenorphine-naloxone w/ max dose of 24 mg/day for 5-7 days/week for 12 weeks (n=74)
– All participants received group and individual counseling each week for 12 weeks

Study design

Buprenorphine Waiver Training: The Half and Half Course – specifically for Pediatricians and Family Physicians in addressing adolescent specific issues

http://www.cvent.com/d/14q2mj
Antagonist Therapy

- Block euphoric effect
- Suppress cravings
- Monthly injectable dosing can help with compliance
- Patients who used naltrexone had less opioid use, better treatment retention and fewer cravings.
- Efficacy or adverse effects profile in children?


Psychosocial Support

Encourage Abstinence

I agree to stop using all drugs.
I understand that it is dangerous to mix buprenorphine with alcohol or other sedatives
I agree to cooperate with urine drug testing whenever requested.

PATIENT SIGNATURE AND DATE: 10/23/2015

Ancillary Treatment

Monitor

Advice for parents
Alcohol and Marijuana use precede opioid use

- Teens that use alcohol or marijuana are more likely to misuse opioids
- Much more likely to misuse opioids for recreational purposes.


Teenagers Are Right—Parents Do Not Know Much: An Analysis of Adolescent–Parent Agreement on Reports of Adolescent Substance Use, Abuse, and Dependence

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Child Report</th>
<th>Parent Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumed at least I drink</td>
<td>54%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Have been intoxicated</td>
<td>23.6%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Tobacco Use</td>
<td>44%</td>
<td>27%</td>
</tr>
<tr>
<td>Marijuana Use</td>
<td>22.9%</td>
<td>13.2%</td>
</tr>
</tbody>
</table>


Reasons for Misusing Opioids

- Easy to get from medicine cabinet: 62%
- Available everywhere: 52%
- Not illegal: 51%
- Easy to get through other people’s prescription: 50%
- Can claim you have a prescription if caught: 49%
- Cheap: 43%
- Safer to use than illegal drugs: 35%
- Less shame attached to using: 33%
- Easy to purchase over the Internet: 32%
- Fewer side effects than street drugs: 32%
- Parents don’t care as much if you get caught: 21%

Anticipatory Guidance

- Set a good example
- Speak to teens frequently about ALL drug use including “pills”
- Take alcohol and marijuana use seriously.
- Get rid of left over medications

© Children’s Hospital Boston 2010. All Rights Reserved. For permissions contact SBIRT project manager at www.CeASAR.org.
Screen before prescribing

Assess

If using alcohol and marijuana, be cautious prescribing

If using opioids or other drugs, be extremely cautious