Overview of Opioid Epidemic in the US: Approach to Diagnosis and Treatment

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ConnectionsAZ
*Papaver Somniferum
“Opium poppy”
* Lacrima Papavirus
“The tears of the poppy”
"Opium teaches only one thing, which is that aside from physical suffering, there is nothing real."
André Malraux
MAN'S FATE
"God's Own Medicine"
Sir William Osler
Opium poppy cultivated 3400 BC Lower Mesopotamia
“Poppy Fields” of Thebes, Egypt
1300 BC
Opium introduced to India, Persia and China
330 BC-460 AD
"...had a happy thought. Into the bowl in which their wine was mixed, she slipped a drug that had the power of robbing grief and anger of their sting and banishing all painful memories. No one who swallowed this dissolved in their wine could shed a single tear that day, even for the death of his mother or father, or if they put his brother or his own son to the sword and he were there to see it done..."

Homer, The Odyssey
"...resists poison and venomous bites, cures chronic headache, vertigo, deafness, epilepsy, apoplexy, dimness of sight, loss of voice, asthma, coughs of all kinds, spitting of blood, tightness of breath, colic, the lilac poison, jaundice, hardness of the spleen stone, urinary complaints, fever, dropsies, leprosies, the trouble to which women are subject, melancholy and all pestilences."

Galen

c. 130AD
‘Give him milk of the poppy”

Game of Thrones
China’s Opium Wars
1837-1951
* Morphine Sulfate
  c.1803
Addiction to morphine
“Soldier’s Disease”
Diacetylmorphine "Heroin"
c. 1874
MODERN MEDICINE HAD TO START SOMEWHERE.

Clive Owen

THE KNICK

FRI 8/8, 10p

CINEMAX
Methadone “Dolophine”
c. 1937
The relentless marketing of pain pills. Crews from one small Mexican town selling heroin like pizza. The collision has led to America’s greatest drug scourge.

The True Tale of America’s Opiate Epidemic

DREAMLAND

SAM QUINONES
* Acute Pain Management
* Joint Commission guidelines 2000
* “5th vital sign”
* ‘If they still have pain, give more’
* Average dose at steady state 200-300mg ‘morphine equivalence’ per day
* 274 million scripts in 2014

**Chronic pain management**
Figure 1. How epoxides affect the hypothalamic-pituitary-adrenal and gonadal axes.
* May take days to months
* Average doses 100-300mg ‘morphine equivalent’/day
* Chronic degrees of withdrawal
* Opiate hyperalgesia

Opioid Dependency Syndrome
ENDORPHIN
endogenous opioid peptides
that function as neurotransmitters

Chemical structure of α-Neoeendorphin

C$_{60}$H$_{89}$N$_{150}$O$_{13}$
- Euphoria
- Wellness
- Happiness
- Joy
- Satiety
- Analgesia
- Relief of pain
- Comfort
- Anxiolysis

Effects of Endorphins
* Generalized pain
* Severe anxiety/insomnia
* Nausea/vomiting
* Diarrhea
* Chills-Sweats
* Days to weeks
* COWS/SOWS

Acute Withdrawal Symptoms
Endorphin Deficiency Syndrome
* Deep mesolimbic brain function
* Craving (Hunger, thirst, sex)
* Survival
* Constant thoughts and dreams of using
* Months to years

Chronic late withdrawal
- 4 out of 5 addicts start with Rx pills
- Snorting, smoking, injecting, rectal
- Average 0.5-1 gram/day up to 3-5 gm/day
- Short half-life requiring frequent use

**Progression to heroin**
* 165,000 overdose deaths 1999-2014
* -14,000 from pills 2014
* -Average age 25-54
* -heroin overdose deaths tripled since 2010
* Fentanyl overdose deaths up 500%
* -probably underestimated
2009-2012 Incidence increased 75% 
2-5% of active injection drug users are infected each year 
Average cost for AVR $165,000 
High risk of re-infection

*Infective Endocarditis*
- Affecting rural communities with higher mortality rates
- Deaths highest among non-Hispanic white males and native Americans
- Many events are resuscitated by bystanders

Overdose
Prince Rogers Nelson
1958-2016
Philip Seymour Hoffman
1967-2014
* Jacqueline Teutonico
Medication Assisted Treatment "MAT"
- Complete agonist
- Half-life 10-60 hrs
- Peak effect @2hrs
- Average effective dose **80-120mg/day**
- 75% of MAT
- Higher retention in treatment

**Methadone**
* Mixed agonist/antagonist
  - Buprenorphine/naloxone
  - Suboxone, Subutex, Subzolv, Buprenex,
  - Average dose 16mg/day

**Buprenorphine**
- Implanted buprenorphine
- Lasts 6 months
- $6000/dose
- Risks w/ implantation/de-implantation

Probuphine
* Complete antagonist
* **-50mg/day** oral, **380mg IM** Q 30 days
* -7-10 days opioid free prior to induction
* 6-12 months of treatment
* -Side-effects
* $1000/dose

**Naltrexone**
Special populations
Clean Needle Exchange
- Counseling, Groups, IOP
- Support in housing and work, legal affairs
- Lower rates of relapse, Retention in treatment (82% relapse w/out MAT)
- Less involvement w/ law, DCS, family trauma

Outcomes
UNITED STATES SURGEON GENERAL
Vivek H. Murthy, M.D., M.B.A.

August 2016

Dear Colleague,

I am asking for your help to solve an urgent health crisis facing America: the opioid epidemic. Everywhere I travel, I see communities devastated by opioid overdoses. I meet families too ashamed to seek treatment for addiction. And I will never forget my own patient whose opioid use disorder began with a course of morphine after a routine procedure.

It is important to recognize that we arrived at this place on a path paved with good intentions. Nearly two decades ago, we were encouraged to be more aggressive about treating pain, often without enough training and support to do so safely. This coincided with heavy marketing of opioids to doctors. Many of us were even taught – incorrectly – that opioids are not addictive when prescribed for legitimate pain.

The results have been devastating. Since 1999, opioid overdose deaths have quadrupled and opioid prescriptions have increased markedly – almost enough for every adult in America to have a bottle of pills. Yet the amount of pain reported by Americans has not changed. Now, nearly two million people in America have a prescription opioid use disorder, contributing to increased heroin use and the spread of HIV and hepatitis C.

I know solving this problem will not be easy. We often struggle to balance reducing our patients’ pain with increasing their risk of opioid addiction. But, as clinicians, we have the unique power to help end this epidemic. As cynical as times may seem, the public still looks to our profession for hope during difficult moments. This is one of those times.

That is why I am asking you to pledge your commitment to turn the tide on the opioid crisis. Please take the pledge at www.TurnTheTideRx.org. Together, we will build a national movement of clinicians to do three things.

First, we will educate ourselves to treat pain safely and effectively. A good place to start is the enclosed pocket card with the CDC Opioid Prescribing Guideline. Second, we will screen our patients for opioid use disorder and provide or connect them with evidence-based treatment. Third, we can shape how the rest of the country sees addiction by talking about and treating it as a chronic illness, not a moral failing.

Years from now, I want us to look back and know that, in the face of a crisis that threatened our nation, it was our profession that stepped up and led the way. I know we can succeed because health care is more than an occupation to us. It is a calling rooted in empathy, science, and service to humanity. These values unite us. They remain our greatest strength.

Thank you for your leadership.

[Signature]