Prescription Opiates

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Background on Opiates

- Opiates
  - derived from poppy
- Some types of Opiates
  - Heroin
  - Morphine
  - Codeine
- Uses
  - Some are medically prescribed as a long-term pain killer
  - Some are non-medically used as a drug to get high
Background on Prescribed Opiates

- Prescribed opiates bind receptors $\rightarrow$ reduced pain signaling to brain $\rightarrow$ pain relief
- Faster relief than over-the-counter
- Some uses
  - Labor
  - Post-operation
  - Traumatic injury
Background on Oxycodone

- Discovered in 1916 in Germany
- Some drugs with Oxycodone you may have heard of
  - OxyContin
  - Percocet
Legality

- Oxycodone is currently legal in the U.S.
- However it is intended to be controlled
  - Schedule II
- So what’s the problem?
  - Prescription drug use epidemic
  - Easy access relative to other drugs
  - Doctor’s ability to overprescribe until 2010
The majority of oxycodone abusers get their drug from relatives or friends
- Doctors would sell and overprescribe drugs
- In 2010, enactment of the Prescription Drug Monitoring Program
  - Led Florida oxycodone purchases to decline 97%
If you’re prescribed oxycodone after surgery, are you at risk of becoming addicted?

- Possibly.
- Tolerance $\rightarrow$ increasing doses
- Abrupt cessation $\rightarrow$ withdrawal symptoms
- Hypersensitivity to pain $\rightarrow$ relapse

So it’s important to gradually lessen the dose as the pain lessens.
**Acute Effects**

- **Therapeutic/Direct Effect**
  - Euphoria
  - Analgesia
  - Full body relaxation

- **Side Effects**
  - Constipation
  - Respiratory Depression
  - Confusion
  - Fast or slow heart beat
Pharmacokinetics

- Administration
  - Orally (pill)
    - Regular
    - Extended release
  - Nasally (snorting)
  - Intravenously (injecting)
  - Rectally (uhh?)

- Metabolism
  - Liver converts oxycodone to oxymorphone
Mechanism of Action

Inhibitory GABA

NO DOPAMINE IN SYNAPSE
Mechanism of Action

- Inhibitory GABA
- Oxymorphone
- Dopamine
- DOPAMINE IN SYNAPSE
Effects of withdrawal

- Withdrawal is extremely painful though not fatal.
  - Feeling horrible physical and psychological pain
  - Anxiety
  - Increased sensitivity to pain
  - Diarrhea
  - Runny nose
Antagonist Therapy

- Overdoses are treated with a drug called **Naloxone** which blocks the receptor to which oxymorphone binds
- Later, patients are maintained with **Naltrexone**
Substitution Therapy

- Given a medication that binds to the same receptor but induces a milder effect
  - Methadone
  - Buprenorphine
- So it’s less harmful and reduces horrible withdrawal

\[ B = \text{buprenorphine} \]