



Pharmacologic Interventions for Substance Use Disorders

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Disclosures

I have no relevant disclosures





Learning Objectives

Describe available medication interventions for the treatment of substance use disorders

Identify drug therapy that is FDA-approved for use in adolescents

Discuss effectiveness and side effects associated with medication therapy



Opioid Use Disorder

- Oral medications
 - Methadone – opioid agonist
 - Buprenorphine – opioid partial agonist
 - Naltrexone – opioid antagonist
- Long-acting injectable medications
 - Buprenorphine subcutaneous
 - Naltrexone intramuscular
- Rescue medications
 - Naloxone intranasal and intramuscular (emergency public use)
 - Naloxone intravenous and subcutaneous (EMS)
- Opioid withdrawal
 - Lofexidine tablets
 - Clonidine tablets





Methadone

- Available in oral dosage forms in opioid treatment programs
- Illegal to prescribe for OUD outside of licensed treatment programs
- Tablet and liquid formulations
- Daily observed dosing with opportunity to earn “take-home” bottles
- Is an opioid; side effects include sedation, respiratory depression, cardiac arrhythmias
- Drug interactions are possible and should be monitored
 - Some antidepressants and antibiotics
- Long half-life which makes it attractive for once-daily dosing
- May not be found in usual urine drug screening tests – synthetic
- To be eligible for an opioid treatment program, adolescents must have two documented unsuccessful attempts at detoxification within a 12 month period; must have parent/guardian written consent



Buprenorphine

- Available in sublingual/transmucosal dosage forms for office-based prescription if the prescriber is DATA-waivered
- Only sublingual dosage forms due to a lack of absorption of buprenorphine in the stomach
- Partial agonist with a decreased risk of respiratory depression
- Decreased risk of significant misuse due to dose ceiling effect
- Once-daily dosing (usually, frequency may be increased in pregnancy – faster metabolism)
- Injectable subcutaneous long-acting dosage form – patient must take 7 days of sublingual buprenorphine first
- FDA-approved for ages 16 and older



Naltrexone

- Opioid antagonist – blocks opioid receptors – called the “abstinence drug”
- Oral dosage form is available, but not recommended for long-term use due to risk of non-adherence
- Long-acting injectable dosage form
 - Must be free of opioids for at least 7 – 10 days to avoid withdrawal
 - Risk of overdose if patient does not return for injections because of decreased opioid tolerance
- Patients must be aware of decreased or lack of effectiveness of pain management
- Liver function tests should be monitored routinely; usually well-tolerated
- Naltrexone is not FDA-approved for use in adolescents, although small trials show some effectiveness



Alcohol Use Disorders

- Oral medications
 - Acamprosate
 - Disulfiram
 - Naltrexone
- Injectable medication – naltrexone
- Alcohol withdrawal
 - Benzodiazepines – short-term, usually inpatient only
 - Anticonvulsants – if needed depending on risk of seizures/delirium tremens (valproic acid, carbamazepine, gabapentin)





Oral Medications for AUD

- Acamprosate
 - Indirect effects on GABA and NMDA receptors
 - Oral dosage form – 2 tablets three times daily (adult dosing)
 - Warning for suicidal ideation and depression
 - Diarrhea and insomnia are the most common side effects
 - Dose adjustment in renal disease
 - Not FDA-approved for use in adolescents
- Disulfiram
 - Irreversibly inhibits aldehyde dehydrogenase
 - Causes significant illness if alcohol is ingested (nausea/vomiting, dizziness, increased heart rate, decreased blood pressure)
 - Rare liver damage, fatigue, drowsiness side effects
 - Not FDA-approved for use in adolescents



Tobacco Use Disorder

- Nicotine replacement therapy:
 - Transdermal patches
 - Gum
 - Lozenge
 - Nasal spray
 - Cartridge for inhalation
- Varenicline
- Bupropion SR
- Clonidine
- Nortriptyline





Varenicline and Bupropion

- Varenicline
 - Partial nicotinic receptor agonist
 - Oral dosage form with a short dose titration for tolerability
 - Dose adjustments in renal impairment
 - Risk for neuropsychiatric and cardiovascular events – should not necessarily preclude use – risk vs benefit
 - FDA-approved for use age 16 and older
- Bupropion SR
 - Dopamine and norepinephrine reuptake inhibitor (antidepressant)
 - Contraindicated in seizure and eating disorders
 - Insomnia and decreased appetite are the most common side effects
 - Limited evidence for effectiveness in adolescents
 - Suicidal ideation risk in patients 24 years of age or younger
 - Not FDA-approved for smoking cessation in adolescents



Nicotine Replacement Therapy

- Transdermal patch
 - 7 mg, 14 mg, 21 mg – dosed based upon daily cigarette use
 - > 10 cigarettes/day = 21 mg; ≤ 10 cigarettes/day = 14 mg
 - Change patch daily
- Gum/Lozenge
 - 2 mg, 4 mg
 - Dosed based upon time to first cigarette in the morning
 - Within 30 minutes of waking = 4 mg; after 30 minutes = 2 mg
 - One piece of gum or one lozenge every 1 – 2 hours initially with decreasing use over time (weeks)
 - Patient counseling for gum: chew until bitter taste, park in cheek until bitter taste goes away, repeat until gum no longer has bitter taste



Nicotine Replacement Therapy

- Intranasal spray
 - 0.5 mg nicotine per actuation
 - 1 or 2 doses/hour (1 dose = 1 mg = 1 actuation in each nostril)
 - 8 – 40 doses per day for 12 weeks
 - Maximum recommended dose = 5 doses/hour, 40 doses/day
- Cartridge for inhalation (oral inhaler)
 - 10 mg/cartridge (4 mg total is delivered)
 - At least 6 cartridges/day for first 3 – 6 weeks of treatment
 - 6 – 16 cartridges/day for 12 weeks with gradual reduction
- No dosage form of NRT is FDA-approved for use in adolescents
- Some evidence of effectiveness in small clinical trials

