

Herbal Drugs of Abuse

Psychology 472

Pharmacology of Psychoactive Drugs

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Some We have Talked About

Peyote MescalineNutmeg MyristinMace Elemicin

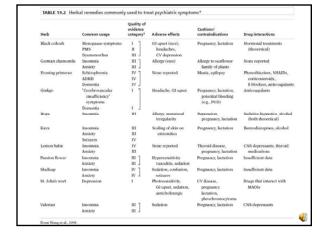
- Anticholinergic Drugs
 - Scopolamine
 - Atropa Belladonna (deadly nightshade)
 - Datura Stramonium (Jamestown weed, stinkweed, Jimsonweed, Thorn Apple)
 - Mandrogona Officunarum (Mandrake)
- Tobacco

All Have Effects

- Some plant drugs are more potent than others
- · Some plant drugs can cause death
- Effects of the drug depend on its biological roots.



- Efficacy of herbal medications difficult to evaluate.
 - Incomplete knowledge of active ingredients
 - No standardization
 - Different purities
 - Variations in plant conditions and parts



Problem with Herbal Medicines

Dietary Supplement Health Education Act (1994)

- Any product can be labeled a "supplement" as long as it claims to effect a cure for a disease.
- Thus, a product does not "alleviate depression," rather, it "promotes emotional balance."
- Often it is semantics and the wording must be legally precise

St. John's Wort

Hypericum Perforatum

- · Named after St. John the Baptist
- · Active ingredients
 - Hypericin
 - Pseudohypericin and/or hyperforin
- · Ancients believed it warded off evil spirits.
- · Licensed for treatment of anxiety, depression, and insomnia (Germany)
- In U.S. No support for effectiveness in treating anxiety disorders
- Question: Biologically, how can it treat both anxiety and depression

Liver Issues

- · Contains bioflavinoids
- Inhibits liver drug metabolizing enzymes
 - May result in adverse interactions with other drugs.
 - Reduces codeine effectiveness.
 - Increases blood levels of caffeine, antipsychotics, and tricyclic antidepressants.
- · Increases other drug-metabolizing enzymes.
 - Causes reductions of some cardiac and anti-inflammatory drugs.

Some Side Effects

- Photosensitivity
- Hypomania
- Sedation
- Lethargy
- Gastrointestinal upset
- Drug interactions

Serotonin Syndrome

- · Agitation or restlessness
- Confusion
- Rapid or irregular heart rate
- Dilated pupils
- Loss of muscle coordination or twitching muscles
- Heavy sweating
- Diarrhea
- Headache
- Shivering / Goose bumps
- Signs and symptoms include:
- High fever
- Seizures / Unconsciousness

Issues

- When combined with other drugs it can be dangerous.
- · Can be fatal

Ginkgo Ginkgo biloba

- One of the oldest deciduous tree species on earth.
- Used in Europe to treat dementia and other cognitive disorders.
- Promoted in U.S. to provide "mental sharpness," antioxidant protection, and maintain healthy circulatory perfusion.

Active Ingredients

- · Not completely known.
- Effects
 - Flavonoid antioxidant effects
 - · Scavenge free radicals
 - Reduces effects of cell damage assoc with Alzheimer's
 disease
 - Inhibits liver enzymes
 - Create drug interactions.
 - Inhibits platelet binding and blood clotting.
 - Similar to aspirin

Side Effects

- · Mild headache
- · Mild gastrointestinal upset
- · Blocks platelet function.
 - Increases bleeding
 - Can be bad when taken with other drugs
 - Creates interactions with aspirin and other anticoagulants
 - · Can be fatal if interactions cause a stroke

Kava

Piper methysticin

- Root used by people in South Pacific for millennia for social and ceremonial purposes.
- · Effects similar to Ethanol
 - Low doses = relaxation, improved social interaction; promotes sleep.
 - Higher doses produce sleep and stupor.

Kava

- Extracts widely used in Western countries to therapeutically treat:
 - Anxiety
 - Tension
 - Restlessness
 - Insomnia

Pharmacodynamics/ Pharmacodynamics

- Oral ingestion
- Mechanisms of ingredients poorly understood.
- Appears to bind to GABA receptors at BZ binding site.
- Blocks sodium channels with anesthetic effect.
 - Has muscle relaxant and anticonvulsant properties

Side Effects

- · Mostly mild
 - Drowsiness
 - Nausea
 - Muscle weakness
 - Blurred vision
 - Yellow skin (with chronic use)
 - Sedative/intoxicant effects
 - Hepatotoxicity May causes liver failure

Ma-huang

Ephedra silica

- Discussed Earlier
- Ephedrine
 - Potent psychostimulant
 - Releases catecholamine neurotransmitters.
 - Resembles amphetamines
 - · Has shorter duration
 - Causes increases in cardiovascular activity.
 - Banned in U.S. since 2004.

Salvia Divinorum

- · Perennial herb found in Mexico
- · Used for a long time
- · Leaves contain Salvinorin A
 - Is extremely potent.
 - Used as a divinatory psychedelic
 - Primarily smoked
 - Effects are often unpleasant

Kinnikinnick

Uva Ursi Bearberry

- Has numerous spellings
 - kinnikinnic, kinnikinnik, killegenico, kanickanick, kanikanik, killickinnick
- · Means mixture
 - Used like tobacco in the past by Native Americans
 - Often in mixtures of numerous plants
- Currently used for ground cover in gardens



Conclusions

- Lots of plants used for use / abuse
- Look at websites for many other plants