Summary
“Designer” Drugs: Update on Synthetic Cannabinoids, Cathinones, and Hallucinogen/Stimulants

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Overview of Designer Drugs

- Designer drug use is rapidly increasing around the world.
  - Designer drug use can be difficult to identify.
- Designer drugs are not detected by routine drug screening tests.
- Intoxication and withdrawal syndromes may be difficult to distinguish from those of other psychoactive substances.
- Designer drug intoxication and withdrawal syndromes may be difficult to treat.
  - Syndromes may be longer and more intense than those of other psychoactive substances.
  - There are no currently available antidotes, except for opioids.

Synthetic Cannabinoids: History, Chemistry, and Pharmacology

- Synthetic cannabinoids activate the cannabinoid CB1 receptor much more strongly than THC, the primary psychoactive component of plant cannabis.
- Intoxication and withdrawal syndromes may be more intense and longer lasting than those associated with plant cannabis.
- Synthetic cannabinoids are typically smoked or inhaled after vaporization (known as vaping).

Synthetic Cannabinoids: Epidemiology, Clinical Manifestations, and Practical Diagnostic Aspects

- Diagnosis often made by history and/or presence of typical cannabis intoxication signs (e.g., conjunctival redness) in the absence of a drug test positive for THC.
  - Synthetic cannabinoids are not detected by routine drug screening tests.
- Diagnosis is suggested by sudden onset of unexplained psychosis; cognitive impairment; or kidney, neurological, or cardiovascular problems.

Synthetic Cannabinoids: Management of Intoxication and Withdrawal

- Intoxication and withdrawal syndromes often resemble those from plant cannabis but may be more intense and longer lasting.
- Treatment of intoxication and withdrawal is supportive and symptomatic, as no specific antidotes are available.

Synthetic Cathinones: Definition, History, and Pharmacology

- Synthetic cathinones, or bath salts, are chemical analogues of the naturally occurring stimulants cathinone and methcathinone that are found in the khat plant.
- Synthetic cathinones have chemical structures resembling those of amphetamines and exert similar actions on biogenic amine neurotransmitters.
**Synthetic Cathinones: Clinical Manifestations, Diagnosis, and Treatment**

- Synthetic cathinones have stimulant-like clinical manifestations similar to, but often more intense and longer lasting than, those of conventional stimulants, such as cocaine and amphetamines.
- Treatment of intoxication and withdrawal is supportive and symptomatic, as no specific antidotes exist.

**Novel Synthetic Opioids: Definition, Pharmacology, and Epidemiology**

- Novel synthetic opioids are powerful activators of the mu-opioid receptor, producing intoxication and withdrawal syndromes similar to, but often more intense and longer lasting than, those of conventional opioids.

**Novel Synthetic Opioids: Clinical Manifestations, Diagnosis, and Treatment**

- Overdose can cause life-threatening coma and respiratory depression, thus requiring immediate treatment.
- Intoxication can be distinguished from other designer drug intoxication by papillary constriction and prompt response to naloxone.
- Naloxone (initial dose 2 mg [injected] or 4 mg [intranasal]) is the indicated treatment for overdose.
- Novel synthetic opioid withdrawal or use disorder may be treated with buprenorphine or methadone.

**Novel Synthetic Mixed Hallucinogen/Stimulants: Definition, Pharmacology, and Clinical Manifestations**

- Intoxication results in a mixture of hallucinogenic and stimulant signs and symptoms, including anxiety, depression, paranoia, hallucinations, agitation, confusion, nausea, abdominal discomfort, tachycardia, hypertension, muscle clonus, and pupillary dilation.
- Life-threatening medical complications include excited delirium, seizures, hyperthermia, and pulmonary edema.
- Toxic serotonergic syndrome may result from combining with a serotonergic agent.

**Novel Synthetic Mixed Hallucinogen/Stimulants: Diagnosis and Treatment**

- Synthetic mixed hallucinogen/stimulants combine the clinical manifestations of a conventional hallucinogen with those of a conventional stimulant.
- Intoxication may produce severe neuropsychiatric complications, including psychosis, delirium, and seizures.
- Clinical effects can last for several days, much longer than with conventional hallucinogens or stimulants.
- Treatment is supportive and symptomatic, as there is no specific antidote.