New drugs of abuse: synthetic cannabinoids, stimulants, and more...

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Objectives

• Describe several “new” drugs of abuse
  – How they are used
  – Symptoms
  – General treatment

Why new drugs?

• Aren’t the old ones pretty good?...
Why new drugs?

• Generational culture
• Fine tune effects
• False sense that these are safe...or they wouldn’t be so readily available...
• Access = internet
  – Easier to find
  – No “dealer”
Overview

- Synthetic Cannabinoids
- Bath salts
- Hallucinogenic stimulants
- “LSD”
- Butane hash oil / new marijuana products

Common themes

- Readily available via head shops, internet or local dealer
- Many synthesized in China and first used in Europe
- Often labeled
  - “Research chemical”
  - “Not for human consumption”
- Marketed as “Legal highs”
- No quality assurance
- Variable regulation
- No antidotes

Synthetic Cannabinoids

- Synthetic cannabinoid receptor agonists
- >200 compounds
- Sold as:
  - herbal incense
  - plant fertilizer
  - potpourri

- Spice, K2, Mr. Nice Guy
Synthetic cannabinoids

What do synthetic cannabinoids do?

• Mimic endogenous and natural occurring cannabinoid agonists (THC)
• Two naturally occurring receptors
  – CB 1
  – CB 2
    • Affect glutamine and GABA
      – Enhance mood
      – Increase appetite
      – Alter perception
      – Modulate pain

Figure 2: Synthetic cannabinoids fall into three distinct structural patterns.
Why use them?

• Synthetic cannabinoids do not show up on conventional drug screens
  – Military
  – Employees who take random drugs tests
  – ‘Legal’ and readily available
• $15-$40 a bag (3g-5g)
• Perception that it is “just like pot” and therefore harmless

Effects

• May be THC-like euphoric high
• But some patients exhibit sympathomimetic effects:
  – Anxiety
  – Sinus tachycardia and SVT
  – Seizures
  – Rhabdomyolysis
  – Psychosis

• 9 cases in Oregon and SW Washington
  – 18-27 yo
  – Acute renal failure
    • Peak Cr 2.6-17.7 mg/dL
Why are there such different effects?

- Individual differences in CB density
- Different potencies
- Differing densities of active substances in the product
- Unanticipated adulterants or contaminants

“Legal highs”...or not

- October 2010. OR Board of Pharmacy
  - Synth cannabinoids listed as schedule 1
- July 2012. Synthetic Drug Abuse Prevention Act
  - Any “cannabimimetic agent” = schedule 1
  - “intended for human consumption”

“Legal highs”...or not

- State and federal schedule 1 drugs:
  - Individual chemicals are listed
    - 2012: CP-47,497 CB-homolog; JWH-018 (AM678); JWH-073; JWH-019, JWH-200; JWH-250; JWH-081; JWH-122; JWH-398; AM2201; AM694; SR-19 (RCS-4); SR-18 (RCS-8); JWH-203
    - Immediate change in content of packets
    - UR-144, XLR11, and AKB48...which were then listed in 2013...
  - Just when we think we understand K2...
Bath Salts

- Mephedrone
- MDPV
- Methylenedioxymethamphetamine (MDMA)
- Butylone
- Dimethylcathinone
- Ethcathinone
- Ethylone
- 3- and 4-fluoromethcathinone
- Vanilla sky, Ivory Wave, White Rush, et. al

Pharmacology for Bath Salts

- Amphetamine-like compounds
  - ‘Substituted’
  - ‘Designer’

Bath Salts - stimulants

- Agitation (mild agitation to severe psychosis)
- Tachycardia, chest pain, cardiac ischemia
- Bruxism
- Hyperthermia
- Seizures
- Rhabdomyolysis
Bath Salts

- 1 g costs approximately $20–35
- Usually white powder
- Methods of use:
  - Insufflated
  - Smoked
  - Ingested (pills)
  - Injected
Bath Salts and the Law

• April 2011:
  – Mephedrone and similar cathinone-type chemicals are now listed as Schedule 1 drugs in Oregon
• October 2011:
  – 3 synthetic stimulants listed as federal schedule 1
  • Mephedrone
  • 3,4 methylenedioxyxymethamphetamine (MDPV)
  • Methylone
• July 2012:
  – Amendment to the Federal Drug Policy of the US – banned “bath salts”

“New bath salts”

• Flakka / Gravel
  – Alpha-PVP
Hallucinogenic stimulants

- Old new hallucinogens
  - Phenylethylamines
  - Tryptamines
Hallucinogenic stimulant effects

**Hallucinogenic**
- Euphoria
- Visual and auditory hallucinations
- 5-HT2A Agonist
- Serotonin toxicity

**Stimulant**
- Sympathomimetic
  - Agitation
  - Psychosis
  - Tachycardia
  - Hyperthermia
  - Seizures

“LSD” - 25i-NBOMe

- Sold as “synthetic LSD” or simply “LSD”
Marijuana

- Legal for recreational use in OR
- Active ingredient: tetrahydrocannabinol (THC)
- Usually mild poisoning
- Mild: euphoria, somnolence, increased appetite
- Moderate: memory loss, poor concentration, mood alteration
- Severe: decreased coordination, ataxia

Marijuana edibles

Association of Unintentional Pediatric Exposures With Decriminalization of Marijuana in the United States

- Respiratory depression
- Intubation
- Seizure

Figures 1. Comparison of unintentional marijuana exposure rates between nonlegal, transitional, and decriminalized states.
Conclusions

- Lots of new illicit drugs
- Important to understand the use of these drugs, the perceived advantages, and the potential dangers in order to be able to counsel your patients.

Questions?