BATH SALTS: Not Intended For Human Consumption.... Seriously!
Brought to you by:

Neisha D’Souza, MD
Daniel Towns, MD
Jennifer Creedon, MD
Andrea Moore, MD
Annette Matthews, MD

All of whom have nothing to disclose.
Objectives

- Review a Case
- Describe the Background of Bath Salt Use
- Identify and Treat Acute Intoxication
- Discuss Epidemiology and Demographics of Use
- Speculate on the Effects and Possible Treatment of Chronic Use
- Identify, Implement, and Support Efforts to Prevent Further Use
Case

50 y/o veteran with a history of methamphetamine dependence in full sustained remission and current cannabis abuse.

Presents to ED endorsing paranoia, resolving hallucinations, and suicidal ideation after injecting “bath salts.”
Admission # 1

• Admitted to Psychiatry on 7/8/11: disorganized history, poor hygiene, ↑psychomotor agitation, ↑rate of speech, labile affect, paranoia, resolving hallucinations, resolved SI
• Physical signs: tachycardia, dilated pupils
• Labs: CBC nl, chem7 nl, normal LFTs, UDS + for THC only
• Managed w/ lorazepam for anxiety/agitation
• Discharged on 7/14/11 – length of stay 7 days
Admission #2

- Admitted to Psychiatry on 7/16/11 with vague SI after injecting bath salts in hotel room in Portland (within hours of discharge from psychiatry unit on 7/14/11)
- Overly animated, increased psychomotor activity, increased rate of speech, mild paranoia, denies AH/VH, denies active SI, denies HI
- Physical exam normal, vitals normal
- “just like meth”
- Labs: CBC nl, chem7 nl, UDS negative
- Managed w/ lorazepam prn anxiety/agitation
- Discharged on 7/20/11 – length of stay 5 days
Admission #3

• Admitted to ICU on 7/22/11 after suicide attempt in setting of intoxication with bath salts
• Disheveled, agitated, yelling at nursing staff, profane language, pacing floors, threatening, pressured speech, tangential, +paranoia, denied current AH/VH/SI/HI
• Tachycardic, hypertensive, physical exam normal
• Labs: CBC nl, chem7 nl, EtOH negative, UDS negative, AST 71, ALT/AP nl, CPK 1830 -> 1278
• Management: lorazepam prn anxiety/agitation/AI
• Discharged on 8/3/11 – length of stay 12 days
What are Bath Salts?
What Bath Salts are not!
MDPV (Methylenedioxypyrovalerone)
Mephedrone (4-methylenemethcathinone)
Methylone (3,4-methylenedioxy- n-methylcathinone)
Fuurormethcathinone
Pharmacology

Pyrovalerone  MDMA  MDPV

Structurally related to pyrovalerone, FDA approved in 1960s for treatment of chronic fatigue and as an anorectic.

Structurally related to schedule I hallucinogenic substances (MDA, MDEA) and schedule I stimulants (cathinone, methcathinone).
CNS site of action

NE reuptake blockade → stimulant action

DA reuptake blockade → pleasure centers & addiction
MDPK
MTV
Magic
Charlie Sheen
Black Rob
Super Coke
Blue Silk
Bonzai Grow
White Girl
White Dove

Charge Plus
Euphoria
Hurricane Charlie
Ivory Wave
Lovey Dovey
Ocean
Pixie Dust
Red Dove
Scarface
Vanilla Sky
White Lightening
Appearance
Routes of Ingestion

Injecting

Smoking (Vaporizing)

Insufflating (Snorting)

Eating or Drinking

Inserting (Rectal, Vaginal)

Effects occur with doses as low as 3 - 5mg, and the average dose is 5 - 20mg
Where do they come from?

Difficult to tell
Likely manufactured in Asia
Imported through UK
How are they obtained?
Why Use Bath Salts?

“I got some of the white diamond and have to say WWWWOOOOOOOOOWWWW.... I have two full time jobs and six kids. For the first time in a long time i spent the hole weekend off and up.... YARD WORK DONE, DISHES DONE, LAUNDRY DONE, PICS, WITH KIDS CAMPING PRICELESS Thanks again “

“It is much stronger than I imagined, with a stout stimulation presence and a really interesting tingly feeling throughout my extremities. To be honest it felt wonderful, and I suddenly got the urge to jam out to some music and dance, so I did. An hour past and the energy was still flowing through me, needing to be let out. “
Physiological Effects of Bath Salts

Tachycardia
Hyperthermia
Hypertension
Chest pain
Myoclonus
Mydriasis
Elevated CPK
Seizures
Myocarditis (1 case report)
Psychological Effects of Bath Salts

Agitation
Combative behavior
Hallucinations
Paranoia
Confusion
Delusions

Depressed Mood
Prolonged Delusions
Suicide
Early Case Reports

• One individual jumped from a window to escape imagined pursuers. He was tased and required 8 emergency responders to subdue him.

• Another woman left her 2-year old daughter in the middle of a highway because she believed her to be possessed by demons.

• A 21-year old male fatally shot himself during a witnessed delusional event.
Initial Evaluation

History

Safety

- Fleeting SI, Aggression, Delusions, Paranoia, Impulsivity
- Cautious approach
- Sitter
- Public safety/police

Physical Exam

Labs

- Little evidence, clean UDS
- Non-specific findings: Elevated CPK? leukocytosis?
Treatment of Sympathomimetic Toxidrome

No specific treatment, supportive symptom management
Call poison control for latest recommendations

Agitation
  Manage surroundings! Talk down
  Public safety/police

Medications
  – First-line: benzodiazepines (may require high dosages)
  – Second-line: antipsychotics
  – Third-line: Propofol

Hypertension
  – Labetolol
  – Phentolamine
  – Calcium Channel Blockers IV
Drug-Drug Interactions?

Medical risks may be increased by concurrent use of some medications

Of particular concern are medications that enhance catecholamine activity

- MAOI’s, other stimulants, tricyclics, possibly SSRI’s

- Antidepressants may potentiate stimulants by enhancing GI absorption and slowing hepatic metabolism
Role for Psychiatry?

Acute management: Establishing safety

- Meds (antipsychotics, benzos, monitoring potential drug-drug interactions)
- Supportive environment

Subacute: Maintaining safety

- Addressing dysphoria/suicide risk
- Refinement of diagnosis (underlying axis I disorders?)
- Management of lingering symptoms

Long-term: Treatment options/relapse prevention?
Looking Ahead...

Geographical Patterns?
Demographic Factors?
Consequences of Chronic Use?
Dissociatives
- PCP

Stimulants
- Cocaine
- Meth
- Khat

Psychedelics
- LSD
- MDMA
GEOGRAPHIC PATTERNS: Where Will Bath Salts Pose the Greatest Threat?

CALLS TO POISON CONTROL:
2010 Total: 303
Jan-Sept 2011 Total: 4,720

Red = Methamphetamines
Blue = Cocaine
DEMOGRAPHICS: Who will Bath Salt Users Be?

Gender
Race
Age
Socioeconomics
CHRONIC USE: What are the Long Term Effects?

Addictive Potential
Cognitive Effects
Psych Comorbidities
Medical Comorbidities
Children
Criminal Behavior
Looking Further Ahead......

Care for Chronic Users?
Prevention
CARE FOR CHRONIC USERS: What may we do?

Adapt existing treatment models
  • MATRIX

Refer to drug courts
  • How to monitor?

Develop better drug screens
  • Worth investing in?
PREVENTION: How may we fight the spread?

Education and community outreach

Support Legislation to Ban

- Illegal in European Union, Australia, Israel, Canada
- Made illegal in many individual states starting in Jan 2011
DISCUSSION!
References

- Antonowicz JL, Metzger AK, Ramanujam SL. “Paranoid psychosis induced by consumption of methylenedioxypyrovalerone: two cases”. *Gen Hosp Psychiatry*. 2011 May 13;.

GET FROM MEDLINE.