Crystal Methamphetamine: The Neurological Basis, the Clinical Conundrums, and the Public Health Approach

Detroit, MI

October 30, 2008
7:45 AM – 9:00 AM
Session 1: Crystal Methamphetamine: The Neurological Basis, the Clinical Conundrums, and the Public Health Approach

Learning Objectives

- Identify 2 similarities and 2 differences between cocaine and crystal methamphetamine.
- List 3 components of the MATRIX model of treatment for crystal methamphetamine addiction.

Faculty

Petros Levounis, MD, MA
Director
The Addiction Institute of New York
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Petros Levounis, MD, MA, is the director of The Addiction Institute of New York (formerly Smithers) and chief of addiction psychiatry at St. Luke’s and Roosevelt Hospitals in New York City. Dr Levounis is a board-certified psychiatrist and addiction psychiatrist; he is a Fellow of the American Psychiatric Association (APA) and a Fellow of the American Society of Addiction Medicine (ASAM). He currently teaches at Columbia University College of Physicians and Surgeons, New York University School of Medicine and School of Nursing, and Hazelden Foundation. His academic interests include the psychotherapy and psychopharmacology of addiction, the teaching of psychiatry and addiction medicine, gay and lesbian mental health, and the behavioral addictions.

Dr Levounis graduated from Columbia receiving the National Institute of Mental Health Outstanding Resident Award before completing a 2-year clinical and research fellowship in addiction psychiatry at New York University. He has authored several articles, has lectured extensively on addiction topics throughout the United States and abroad, and has been interviewed by many media outlets. He is a Betty Ford Scholar, a member and Laughlin Fellow of the American College of Psychiatrists, and a recipient of several awards including the 2008 Coalition Leadership Award. Dr Levounis serves as chair of the Committee on Addiction Treatment of the APA and vice-chair of the APA Council on Addiction Psychiatry, among other positions.

Faculty Financial Disclosure Statement

The presenting faculty reports the following:

Dr Levounis is on speakers bureaus for AstraZeneca LP; Cephalon, Inc.; Forest Pharmaceuticals, Inc.; Pfizer Inc., and Takeda Pharmaceuticals North America, Inc.

Drug List

<table>
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<th>Generic</th>
<th>Trade</th>
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<tr>
<td>baclofen</td>
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<td>bupropion</td>
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<td>Viagra</td>
</tr>
<tr>
<td>modafinil</td>
<td>Provigil</td>
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Suggested Reading List


CRYSTAL METHAMPHETAMINE: The Neurobiological Basis, the Clinical Conundrums, and the Public Health Approach

Pri-Med – Updates for Pharmacists
Detroit, Michigan
Thursday, October 30, 2008

Petros Levounis, MD, MA
Director, The Addiction Institute of New York
Chief, Division of Addiction Psychiatry at St. Luke’s and Roosevelt Hospitals
www.AddictionInstituteNY.org

Courtesy of www.streetdrugs.org.
OUTLINE
1. The Biology of Methamphetamine
2. Psychiatric Consequences
3. Other Medical Consequences
4. Treatment
5. Public Health
6. Future Directions
7. Summary

1. THE BIOLOGY OF METHAMPHETAMINE

METHAMPHETAMINE

PSEUDOEPHEDRINE
2. PSYCHIATRIC CONSEQUENCES

COCAINE vs. METH 1

- COCAINE
  - Inhibits the reuptake of synaptic dopamine

- METH
  - Inhibits the reuptake of synaptic dopamine
  - Promotes direct dopamine release

COCAINE vs. METH 2

- COCAINE
  - Metabolizes rapidly
  - Effects typically last 1-2 hours
  - Withdrawal can last 1-2 days

- METH
  - Metabolizes slowly
  - Effects typically last 10-20 hours
  - Withdrawal can last several days

SENSITIZATION

- Seizures
- Psychosis
  - Paranoia
  - Visual, auditory and tactile hallucinations
  - Virtually indistinguishable from schizophrenia
  - Stereotypical behaviors


TOLERANCE
- “First Dose” effect
- Cardiovascular Effects
- Euphoria, mastery, sexual arousal
- But no longer-term tolerance
- Anorexia


NEUROTOXICITY
- Decreased dopamine transporters
- Neuroadaptation vs. Terminal degeneration
- Protective factors
  - SSRIs
  - Antioxidants
  - Glutamate antagonists, e.g., memantine
- Meth is significantly more neurotoxic than cocaine, but cocaine also results in brain injury through vascular events.


REQUIEM FOR A DREAM (2000)
Directed by Darren Aronofsky

After learning that she will make an appearance on a TV game show, Sara Goldfarb (Burstyn) tries to lose weight so that she can fit into her prized red dress.


OTHER MEDICAL CONSEQUENCES

1. Skin Infection
2. Dentition
3. Burns
4. Injuries (motor vehicle accidents, assaults, altercations)
5. HIV Transmission

THE BIG FIVE

- Skin Infection
- Dentition
- Burns
- Injuries (motor vehicle accidents, assaults, altercations)
- HIV Transmission
THE METH MOUTH

THE HIV PATHWAY

1. Crystal intoxication
2. Extreme sexual arousal
3. Decreased inhibitions/judgment
PLUS
Increased sensation seeking
4. Unsafe sex
5. HIV transmission

THE OLD CHICKEN AND THE EGG

Is hypersexuality the result of crystal methamphetamine use?

OR

Is crystal methamphetamine use the result of hypersexuality?

CRYSTAL & SILDENAFIL

Erectile dysfunction, i.e., the "crystal dick" problem

In 1998, sildenafil became commercially available.

Since 1999, new diagnoses of HIV in men having sex with men have increased almost 18%.

CRYSTAL & THE INTERNET

Sex, both virtual and real, both safe and unsafe, is only a click away.

Lingo:
- PNP = Party (drugs) and Play (sex)
- Chem Friendly = Drugs
- Barebacking = BB = Unprotected anal sex
- In the Raw = Unprotected anal sex
4. TREATMENT

NIDA RECOMMENDATIONS
- Cognitive Behavioral Therapy (CBT)
- The Matrix Model
- Relapse Prevention
- Methamphetamine Support Groups
- Motivational Interviewing
- CSAT TIP #33, available from www.samhsa.gov or (800) 729-6686

THE MATRIX MODEL
- Group Psychotherapy
- Individual Counseling
- Family Therapy
- Contingency Management (CM)
- Crystal Methamphetamine Anonymous (CMA)
- Treatment of Co-occurring Disorders

STAGES OF RECOVERY
- Withdrawal
- Honeymoon
- The Wall
- Adjustment
- Resolution

Dr. Jeffrey Guss: Sex Like You Can’t Imagine

CRYSTAL PSYCHOTHERAPY
- There is pressure to show how life can be exciting in sobriety. Sobriety for the patient becomes a dreary foreign land, to which he feels exiled, sent away from the marvelous party by his own doing, and resenting the look of the new landscape. He wonders if the therapist’s life is one worth identifying with.
PSYCHOPHARMACOLOGY

- There are no proven pharmacological interventions that reduce cravings associated with stimulants.
- Psychopharmacology is limited to the treatment of co-occurring psychiatric disorders—with caution!
- Cocaine research principles are applied to crystal methamphetamine.

PROMISING AGENTS UNDER INVESTIGATION

- Modafinil
- Bupropion
- Topiramate
- Baclofen
- Disulfiram

MODAFINIL

- Glutamate-enhancing, “wake-promoting” agent
- Approved for the treatment of narcolepsy
- Promising agent on three counts:
  - Brightens mood
  - Promotes attention and wakefulness
  - Ameliorates cognitive deficiencies

THE CASE OF SERTRALINE

- The largest randomized, placebo-controlled medication trial for methamphetamine (n=229).
- The sertraline (50 mg BID) group used significantly more methamphetamine than the placebo group (p<0.05).
5. PUBLIC HEALTH

METHAMPHETAMINE USE IN PAST YEAR (2002-2005 Data)

From the National Survey on Drug Use and Health, www.drugabusestatistics.samhsa.gov.

PRIMARY PREVENTION

we had a few drinks...tasted a blurh, popped my 2 and
then did some crystal...
...then we were biassed
and hittin' it hard...
Now I'm trippin'... I have HIV.

Alone or in a mile-
Crystal and other drugs can be dangerous,
Know the risks.


Si estas volando en drogas...

...harás cosas que normalmente no harías...


CRISTAL MÉTH
MAKES ME SEXY

HOW TO MAKE CRYSTAL METH


SECONDARY PREVENTION


GOALS OF THE PROJECT

1. Provide state of the art addiction treatment for crystal methamphetamine.
2. Create an environment where gay and bisexual men can openly discuss issues of drug use, sex, sexuality, and identity.
3. Integrate men who want to be abstinent with men who want to address (e.g., cut down, examine) their use.
4. Educate, train, network, and collaborate with other agencies to improve both treatment and prevention.


CRYSTAL GUIDE BOOK


HARM REDUCTION

- Harm Reduction as: Moderation Management
- Harm Reduction as: Reduction of Medical Consequences
- The curse of the word “Abstinence”


CRYSTAL SELF-HELP BOOK

Courtesy of Steven J. Lee, MD, Columbia University College of Physicians and Surgeons, New York.
6. FUTURE DIRECTIONS

TREATMENT

- Psychopharmacology Research
  - Anti-craving agents
  - Vaccine
- Families of Origin vs. Families of Community Research

PREVENTION

- Federal and State laws to restrict access to pseudoephedrine.
- Educate both professionals and the general public.
- Integrate the grass-root HIV and crystal methamphetamine movements with the medical community.

7. SUMMARY

1. Crystal Meth is the turbo cocaine.
2. Meth use is associated with increased risk of unsafe sex and HIV transmission in gay men.
3. The Matrix Model and Contingency Management are effective treatments.
4. There are no FDA-approved medications for Crystal Meth.
5. Public Health efforts focus on community-sensitive education.