

# Forensic Neuropsychiatry Committee Workshop

## Neurotoxin Exposure in Forensic Assessment

*"Look what my meds made me do..."*

### A Case of Alleged Mefloquine-Induced Criminal Behavior

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# The Case...

- 23 y/o male facing charges of:
  - Sex Asst-Overcome Will-Aid/SBI/Weapon F2
  - Kidnapping 2-Victim Sex Assault/Robbery F2
  - Violent Crime-Used Weapon SE
- Waved down victim, asked for a ride, and produced a knife
- “Don’t make me cut you. I’m not a bad person. I’m not going to hurt you, but somebody is in trouble.”

# The Case...

- Grabbed victim and led her to an apartment
- Removed the victim's pants, "played with himself for a while," put on condom and proceeded with vaginal intercourse, attempted anal intercourse but unable to complete, resumed vaginal intercourse ejaculated onto victim's T-shirt.
- At one point defendant stated he was going shower, changed his mind stating, "No, if I shower you'll leave."

# The Case...

- Long and complicated pre-trial course involving initial claims of NGRI
- But eventually abandoned insanity defense and advanced a different affirmative defense strategy at trial...
- The Mefloquine he was required to take while serving in Iraq, nearly 6 months prior to the incident, caused the behavior at issue

# *Involuntary Intoxication:*

## Colorado Revised Statutes 18-1-804

- A person is not criminally responsible for his conduct if, by reason of intoxication that is not self-induced at the time he acts, he lacks capacity to conform his conduct to the requirements of the law.
- "Intoxication", as used in this section means a disturbance of mental or physical capacities resulting from the introduction of any substance into the body.

# The Defense...

- Defense retained three separate experts in support of this theory, two physicians, including one forensic psychiatrist
- Defense experts produced lengthy and heavily referenced reports, seemingly supporting that Mefloquine can result in severe neuropsychiatric side effects, including the behaviors in question
- Contesting such claims mandates the ability to precisely interpret and communicate actual meaning of relevant literature

# Manipulating the data...

- Epidemiology: 41.6% of patients suffer moderate to severe neuropsychiatric side effects
- Case reports: A number of case reports involving assaults/murders following mefloquine exposure
- Basic Science: mefloquine blocks Cx36 and Cx50 gap junctions in neurons

# Schlagenhauf (2003)

Incidence of adverse events in antimalarial prophylaxis arms according to severity.

Severity of Adverse Event	Mefloquine Group (n=153)
Mild	135 (88, 83-93)
Moderate	64 (42, 34-50)
Severe	6 (11, 6-15)

**Mild = Trivial but some discomfort noted**

**Moderate = Interferes with Daily Activity**

**Severe = Medical advice required**

Proportion of participants in each antimalarial prophylaxis arm reporting adverse events, by type and severity

Neuropsychological	Mefloquine Group
Severe	8 (5, 2-9)
Moderate	56 (37, 29-44)
All Events	118 (77, 70-84)

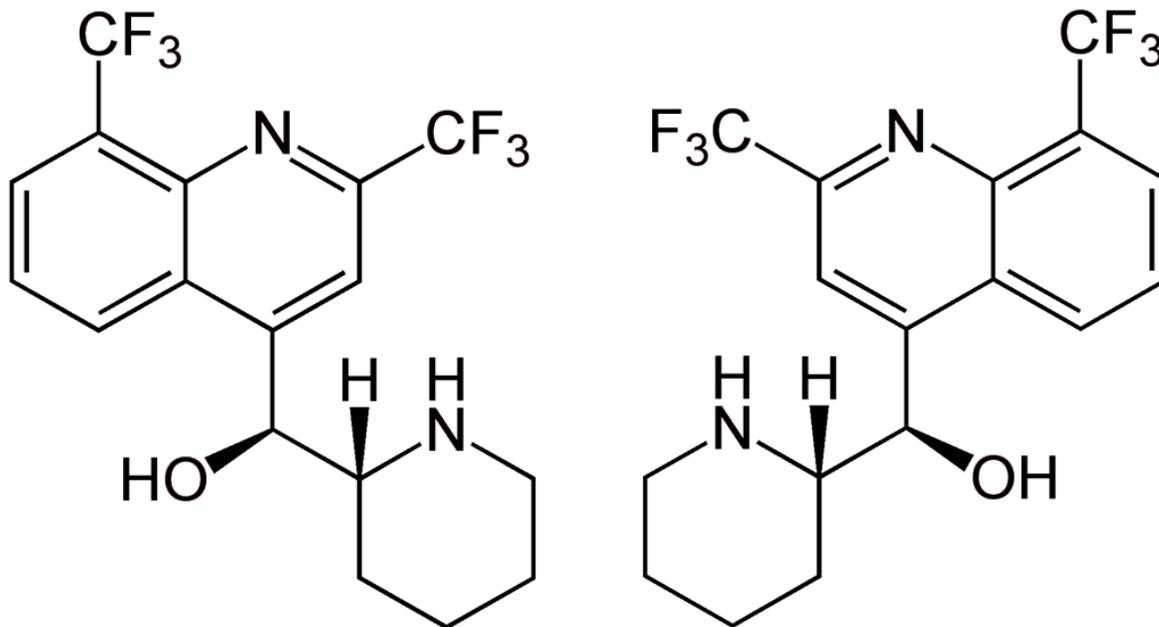
**\*Symptoms include headache, strange or vivid dreams, dizziness, anxiety, depression, sleeplessness, and visual disturbance.**

# “Spectacular Suicide”

- Various case reports offered, only one from the medical literature
- ***Spectacular Suicide associated with mefloquine***, published in French, 2005
- Case report of single suicide associated with mefloquine
- “27 year-old man was discovered at his home, covered with multiple knife wounds... suicide during acute psychosis associated with mefloquine was suggested.”

# “Potent block of Cx36 and Cx50 gap junctions by mefloquine”

- Patch pipettes measuring excitatory postsynaptic potentials from rat brain slices in Petri dishes
- “side effects of mefloquine administration, such as anxiety, confusion, dizziness, dysphoria, and severe neuropsychiatric effects might be due to gap junction blockade”



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Predatory Sexual  
Violence

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# Lessons?

- There's an "expert" for almost everything
- There's a literature for almost everything in this day of electronic publication
- Can't rely on rules of evidence to exclude even the most egregious misapplications of science
- Effective forensic neuropsychiatric witnessing requires the ability and willingness to develop needed expertise in unexpected topics and make sense of the spectrum of literature and/or opinions out there

# Acknowledgements...

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