Death by aspiration after consumption of the hallucinogen dipropyltryptamine (DPT) – a case report

Merja A. Neukamm, Vanessa Thoma, Susanne Vogt, Volker Auwärter

Institute of Forensic Medicine, Medical Center – University of Freiburg, Germany

UNIVERSITÄTS KLINIKUM FREIBURG
Institute of Forensic Medicine
Forensic Toxicology

Background

Tryptamine-type hallucinogens
- Global drug survey (drug users): 4.2% Tryptamine use
- Serotonin-receptor agonists (5-HT_{2A} receptor)
- Non-toxic to organ systems in hallucinogenic doses
- „considerable morbidity" – due to overreporting?

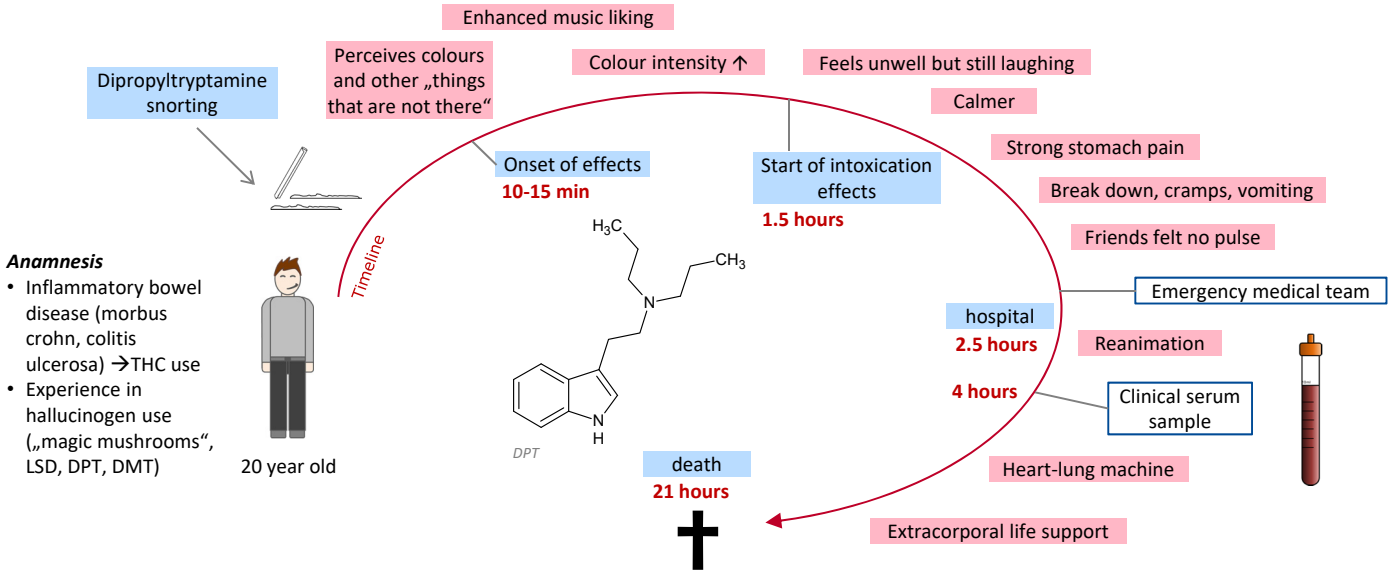
Dipropyltryptamine
- Adjunct to psychotherapy in 60s / 70s
- Religious sacrament of the "Temple of the True Inner Light"
- Scheduled under the NpSG in 2019
- Typical insufflated dose: 20 to 200 mg

Effects

Tryptamine-type hallucinogens (in general)
- Psychedelic
- Paranoia, psychosis, anxiety,
- Nausea, vomiting
- Hypertension, tachycardia, hyperthermia
- Stimulation (agitation), general tremor

Dipropyltryptamine
- Intensity of music and color
- Intense visual and auditory experiences

Case report



Anamnesis
- Inflammatory bowel disease (morbus crohn, colitis ulcerosa) →THC use
- Experience in hallucinogen use („magic mushrooms", LSD, DPT, DMT)

Analytical results

Heart blood
- DPT ~ 110 ng/ml
- Sufentanil*, lidocaine*, trometamol*, THC-COOH

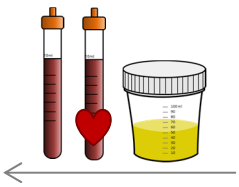
Clinical serum
- DPT 210 ng/ml

Urine
- DPT ~ 180 ng/ml (detector saturated)
- Lidocaine*, piperacilline*

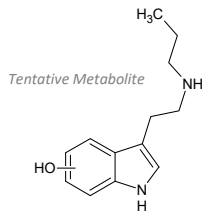
Clinical medication

Stomach
- DPT negative

All matrices
- Indications of DPT-metabolite Hydroxy-mono-propyltryptamine
- Negative for other drugs, alcohol, synthetic cannabinoids, designer stimulants, other hallucinogens



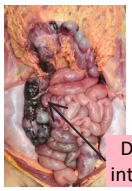
Clinical and postmortem samples



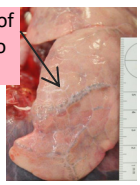
MRM of 4-OH-methyl-ethyl-tryptamine but different retention time

Autopsy
6 days after death

Autopsy results



Hyperinflation of the lung due to aspiration



- Tongue bites (due to cramps)
- Renal hypoperfusion (shock)
- No needle punctures
- Brain edema (due to oxygen deprivation)

Discussion

In contrast to most tryptamine overdose reports, there was no agitation, hyperthermia or tachycardia reported in the here presented case. Aspiration of vomit led to blocking of airways, hyperinflation of the lungs and finally to oxygen deprivation of the brain as terminal cause of death.

Conclusion

Although the young man was reportedly experienced with tryptamine use and although tryptamines usually are relatively non-toxic, death can most likely be attributed to the nasal ingestion of an elevated dose of DPT.

References

Malaca et al. *Int. J. of Mol. Sci.* 2020, 21, 9279: Toxicology and Analysis of Psychoactive Tryptamines.

The authors wish to thank Christina Grumann for analysis of DPT in body fluids.

Artwork: commons.wikimedia.org/wiki/File:Psychedelic_Art_2022_The_Dream_Entity.png

Contact

Merja A. Neukamm, Institute of Forensic Medicine,
Forensic Toxicology, Albertstr. 9, D-79104 Freiburg, Germany
Fon +49 761 203 6827
merja.neukamm@uniklinik-freiburg.de