



## K7 An Unusual Case of Suicide by Fluvoxamine Poisoning

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**Learning Overview:** After attending this presentation, attendees will be aware of a particular case of fluvoxamine fatal poisoning.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing blood concentrations of fluvoxamine and other drugs in a fatal intoxication case; these data could be useful in the interpretation of further cases of death.

This case regards a 48-year-old woman with psychiatric disorders, who died in the protected community where she lived. She suffered from obsessive-compulsive disorder, personality disorders, and mild mental retardation.

The patient was treated daily with: haloperidol 2mg/mL (10 drops twice a day); fluvoxamine tablets (150mg); clonazepam (2.5mg/mL; 20 drops three times a day); gabapentin tablets (300mg twice a day); propranolol hydrochloride tablets (40mg); and, when needed, clonazepam (100mg/mL; 20 drops) was also administered.

The woman was found unconscious by the paramedical staff of the protected community at about 3:00 p.m. in the bathroom of her room, where she was heard alive through the closed door at 11:30 a.m. of the same day. After trying to call the woman several times, the health care workers opened the door using a special key. They found the patient sitting on the toilet, her mouth smeared with pink-colored vomit. In her mouth, in her hands, and on the floor there were also many sheets of toilet paper, pink in color. Resuscitation attempts were in vain, and the woman's death was recorded at 3:45 p.m. The appropriate authorities were not notified, and the room was cleaned up and the corpse was prepared for the funeral.

Later, an autopsy was ordered to assess the cause and manner of the death and was performed nine days after the death. External examination was essentially negative with no significant findings, except for some marks caused by resuscitation attempts. Green discoloration of the lower abdomen was present. Pink fluid, with pieces of material similar to the one present in the stomach, were observed in the entire respiratory tract. Smooth material, pink-violet in color, was found in the esophagus. All the viscera were congested. Sporadic subpleural petechiae could be observed. Histological investigations revealed pulmonary edema and the presence of vegetable matter in the bronchioles as well as in the alveoli. In many places, the alveoli were expanded with broken septa.

Blood and urine were collected for toxicological analysis. Quantitative determination of ethanol and systematic toxicological analysis to detect acidic, neutral, and basic drugs was performed on peripheral blood sample. They were conducted using Gas Chromatography/Mass Spectrometry (GC/MS), preceded by a solid phase extraction with mixed-mode cartridges. The analyses allowed the identification of the following drugs: fluvoxamine, clonazepam, 7-aminoclonazepam, propranolol, gabapentin, and haloperidol. Quantification of the detected drugs in the blood was performed by means of a validated Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) analytical procedure and the following results were achieved: fluvoxamine (4.3mg/L), gabapentin (41mg/L), 7-aminoclonazepam (0.24mg/L), clonazepam (0.07mg/L), haloperidol (<0.01mg/L), and propranolol (0.24mg/L). Contributory causes of death, due to multiple drugs use, cannot be excluded. However, the fluvoxamine concentration in the blood exceeded approximately 20 times the upper limit of therapeutic blood levels (0.23mg/L) and was consistent with literature data about fatal poisoning.

Fluvoxamine is a Selective Serotonin Reuptake Inhibitor (SSRI) that is used in the management of depression and obsessive-compulsive disorders. Few cases of fluvoxamine intoxication are described in literature, since this drug is considered relatively safe in overdose. Nevertheless, at therapeutic and supratherapeutic concentrations, fluvoxamine might affect cardiac conduction, prolong QTc interval, cause hypotension and obtundation, and increase the risk of seizures.

In the described case, toxicological analyses were essential to determine the cause of death: poisoning with fluvoxamine, complicated by acute mechanical asphyxia due to regurgitated food. The manner of death was deliberate self-poisoning, since further investigations allowed the discovery that the woman probably stole several tablets of fluvoxamine from the clinic.

### Fluvoxamine, Overdose, Postmortem Blood Concentration