

MASSIVE VENLAFAXINE OVERDOSE SUCCESSFULLY MANAGED WITH HIGH-DOSE INSULIN EUGLYCEMIC THERAPY AND EXTRACORPOREAL MEMBRANE OXYGENATION

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Objective

Overdose with venlafaxine – a serotonin/noradrenaline reuptake inhibitor – may result in severe toxicity and potentially life-threatening serotonin syndrome. Heart failure and serotonin syndrome resulted in death at a dose as low as 2.25 g venlafaxine, according to experiences of the poisons information centre. In the following case report the patient survived a massive intake of 22.5 g venlafaxine due to treatment with high-dose insulin euglycemic therapy (HIET) and extracorporeal membrane oxygenation (ECMO) in conjunction with Impella CP® left ventricular assist device.

Case report

Patient female, 22 years old, 78 kg
Exposure 22.5 g venlafaxine, 288 mg/kg (100 x 225 mg venlafaxine, sustained-release)
Anamnesis ingestion with suicidal intent

Clinical feature	day 1 (1,5 h)	day 1 (8 h)	day 3	day 4	day 5
	mydriasis tachycardia	ventricular fibrillation circulatory failure poor biventricular function	sinustachycardia light QRS widening stable blood pressure		patient awake
Treatment	intubation gastroscopy activated charcoal	resuscitation magnesium and lidocaine high-dose catecholamines ECMO Impella CP® left ventricular assist device HIET hemodialysis and CytoSorb®		removal of Impella®	extubation termination of ECMO

Course During gastroscopy, only a small amount of the ingested tablets could be removed from the stomach. ECMO-controlled body temperature was normal at all times and the patient did not show signs of neurological damage. On day 5, the patient had stable blood pressure and no longer required catecholamines, ECMO and cardiac support. The cardiac function as well as kidney and other organ functions returned to normal.

Discussion

The amount of 22.5 g seems to be one of the highest non-fatal venlafaxine ingestions in the literature [1]. As hemodialysis is unlikely to be effective in venlafaxine overdose due to its high volume of distribution, we assume HIET and ECMO were life-saving treatments in this case. HIET was tolerated without significant side effects, however ECMO was unavoidable.

Conclusion

In massive venlafaxine overdose early treatment with ECMO should be considered [2]. Early ECMO may possibly also prevent the patient from developing a serotonin syndrome-associated hyperthermia because body temperature is continuously regulated due to this treatment.

References

- [1] Stefani M, Roberts DM, Brett J. High-dose insulin euglycemic therapy to treat cardiomyopathy associated with massive venlafaxine overdose. Clin Toxicol (Phila). 2020;58(4):299-300.
- [2] Murphy L, Rasmussen J, Murphy NG. Venlafaxine overdose treated with extracorporeal life support. CMAJ. 2021;193(5):E167-E170.