

# Delayed Arrhythmia after Amisulpride Overdose

## Objective

Amisulpride is an atypical antipsychotic indicated for the treatment of acute and chronic schizophrenia. In overdoses, amisulpride primarily causes cardiotoxicity.<sup>1</sup> Especially amisulpride is associated with a very high risk of QT prolongation and torsade de pointes (TdP).<sup>2</sup>

Overdoses are rarely reported to the Poisons Information Centre Erfurt as well as cardiac symptoms in these cases. We are presenting a case with arrhythmia occurring not until 27 hours after ingestion.

## Case Report

**Patient:** 50-year-old woman

**Exposure:** Ingestion of 10 g amisulpride (125 mg/kg) in suicide attempt

**Anamnesis:** No other comedications

### Clinical feature:

Initially unconscious with appropriate response to pain

On arrival: somnolent with hypotensive circulation without cardiac arrhythmia

27 h post ingestion: ventricular arrhythmias with QT prolongation of 500 ms and TdP (Figure 1), Heart rate 89 bpm

### Treatment and Course:

Intensive care monitoring, infusion, diuretics, and noradrenaline

Magnesium infusion over 24 hours

No further cardiac events

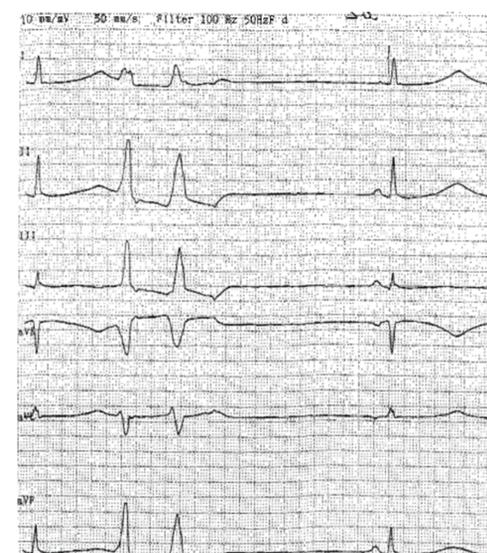
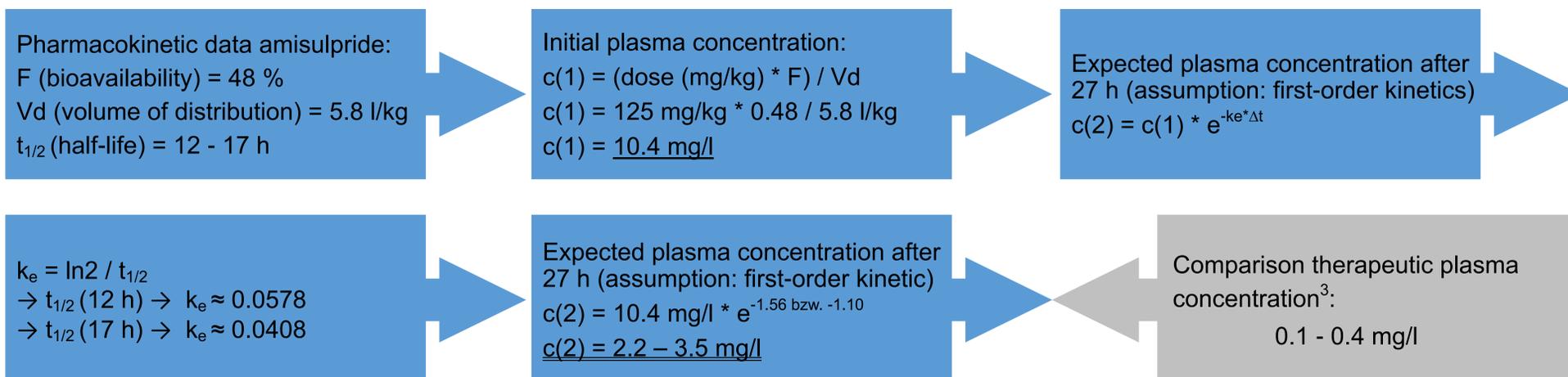


Figure 1: ECG after 27 h

## Calculation of theoretical plasma concentration after 27 h



## Discussion

To date, there are only few cases describing delayed cardiac symptoms. However, in these cases the first onset of cardiac symptoms appeared in less than 24 hours.<sup>1,3</sup> Until now, there are limited information about the cause of cardiotoxicity of amisulpride, and also about the delayed effects. In our case, we assume that delayed arrhythmia has occurred due to the high dose and the half-life of 12 to 17 hours. Considering the pharmacokinetic data of amisulpride, the plasma level may still be in the toxic range 27 hours after the ingestion of 10 g.

## Conclusion

This case shows that amisulpride overdoses have a high risk for developing cardiac effects. Cardiac symptoms can occur late and very spontaneously, even after CNS depression resolved. It should be considered to extend the previously recommended observation time for cardiac monitoring and serial ECGs from 16 hours up to 36 hours in case of overdoses.<sup>4,5,6</sup> Therefore, further investigation is necessary to evaluate the frequency and severity of delayed cardiac arrhythmia in amisulpride overdose.

### References:

<sup>1</sup> Isbister GK, Balit CR, Macleod D, Duffull SB. Amisulpride Overdose Is Frequently Associated With QT Prolongation and Torsade de Pointes. J Clin Psychopharmacol 2010;30: 391-395.

<sup>2</sup> Wenzel-Seifert K, Wittmann M, Haen E. QTc Prolongation by Psychotropic Drugs and the Risk of Torsade de Pointes. Dtsch Arztebl Int. 2011 Oct; 108(41):687-693.

<sup>3</sup> Schulz M, Iwersen-Bergmann S, Andresen H, Schmoldt A. Therapeutic and toxic blood concentrations of nearly 1,000 drugs and other xenobiotics. Crit Care. 2012 Jul 26;16(4):R136

<sup>4</sup> Isbister GK, Murray L, John S, Hackett LP, Haider T, O'Mullane P, Gosselin S, Daly F. Amisulpride deliberate self-poisoning causing severe cardiac toxicity including QT prolongation and torsades de pointes. Med J Aust 2006 Apr 3; 184 (7): 354-6.

<sup>5</sup> Micromedex – Poisindex, Amisulpride Update: August 14, 2018

<sup>6</sup> TOXINZ, National Poisons Centre, New Zealand, Update 25.09.2018