

Citalopram overdose in children and adolescents

Dagmar Prasa (1), Sonja Gros (2), Simone Just (1), Elke Färber (3), Sabine Stoletzki (3), Uwe Stedtler (4), Carola Seidel (5), Andreas Vagt (6), Elja Heistermann (6), Dieter Genser (7), Gabriele Dostal (8)

1) Poisons Information Centre Erfurt, Germany, 2) Poisons Information Centre Mainz, Germany, 3) Poisons Information Centre Göttingen, Germany, 4) Poisons Information Centre Freiburg, Germany, 5) Poisons Information Centre Bonn, Germany, 6) Poisons Information Centre Berlin, Germany, 7) Poisons Information Centre Vienna, Austria, 8) Poisons Information Centre Munich, Germany

Objective

Information on the toxicity of citalopram in paediatric patients is limited especially in children > 6 years. Furthermore, studies are needed to reconfirm the suggested triage guideline for the treatment of children < 6 years as safe and reliable (1). The aim of this study is to provide more data on this topic.

Method

A multicentre retrospective analysis of acute overdoses of citalopram in children and adolescents was performed. Inclusion criteria were single substance ingestion, defined dose, and documented follow-up for at least 10 hours. Severity of symptoms was assessed according to the Poisoning Severity Score.

Case series

Patients and dose

A total of 109 cases met the inclusion criteria. Patients involved were 51 babies/toddlers (0.08 - 5 years), 18 schoolchildren (6 - 13 years), and 40 adolescents (14 - 17 years).

Doses ranged between 5 - 100 mg (0.4 - 6.7 mg/kg) in babies/toddlers, 10 - 1600 mg (0.5 - 22.7 mg/kg) in schoolchildren, and 60 - 1600 mg in adolescents (Table 1).

Table 1: Cases of poisoning by citalopram in children and adolescents

Age group	Number of cases	Age (years) median (range)	Dose (mg) median (range)	Dose (mg/kg) median (range)
Baby	4	0.42 (0.08 - 0.75)	20 (20)	3.2 (2.3 - 5.0)
Toddler	47	2 (1 - 5)	20 (5 - 100)	1.5 (0.4 - 6.7)
Schoolchild	18	12 (6 - 13)	120 (10 - 1600)	2.6 (0.5 - 22.7)
Adolescent	40	16 (14 - 17)	400 (60 - 1600)	6.7 (1.2 - 27.1)

Severity of poisoning (1)

36.7 % of all patients remained asymptomatic. More than half of the children and adolescents (52.3 %) developed only mild symptoms. The lowest dose causing mild symptoms was 10 mg (0.67 mg/kg), 20 mg (0.49 mg/kg), and 60 mg in babies/toddlers, schoolchildren and adolescents, respectively.

In children < 6 years no moderate toxicity was observed. However, a 13-year-old child and 11 adolescents suffered from moderate symptoms after ingestion of 260 mg (3.3 mg/kg) and 100 - 1600 mg, respectively. Otherwise, adolescents tolerated up to 400 mg without any signs of toxicity (Figure 1, Table 2).

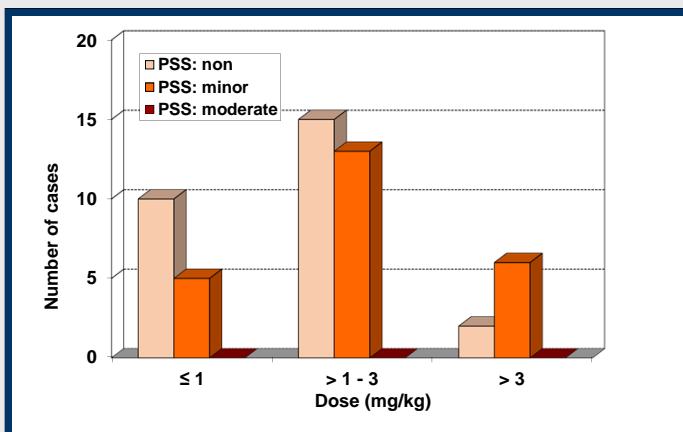


Figure 1A: Doses ingested and severity of poisoning (PSS) caused by citalopram in children < 6 years

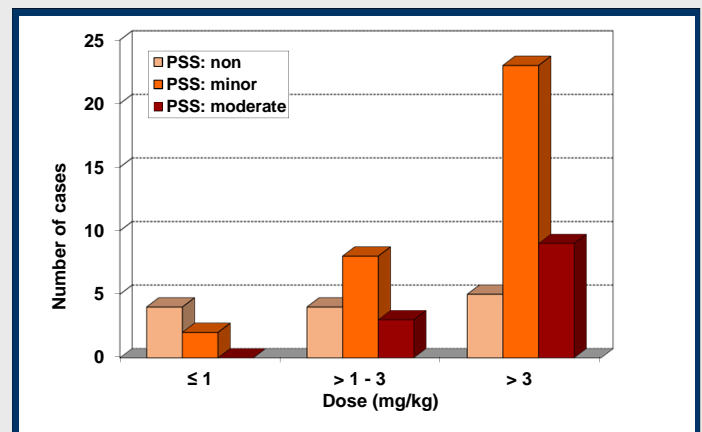


Figure 1B: Doses ingested and severity of poisoning (PSS) caused by citalopram in children 6 years and older

Case series

Severity of poisoning (2)

Table 2: Dose of citalopram which causes no, mild or moderate effects in children and adolescents

Age group	Dose which causes effects (range in mg/kg)		
	PSS: none	PSS: minor	PSS: moderate
Baby	2.50	2.27 - 5.00	-
Toddler	0.42 - 6.67	0.67 - 4.17	-
Schoolchild	0.53 - 3.05	0.49 - 22.7	3.29
Adolescent	2.74 - 7.69	1.15 - 17.9	1.82 - 27.1

Clinical effects

The clinical feature of citalopram poisoning is particularly characterised by neurologic symptoms like fatigue (17.4 %), dizziness (17.4 %), tremor (11.6 %), somnolence (8.7 %), tachycardia (18.8 %), and nausea/vomiting (33.3 %) (Table 3). Infrequently, QT prolongation (5.8 %) was observed. Seizures (11.6 %) only occurred in adolescents at doses of 400 mg or above. In isolated cases the following symptoms were observed: confusion, extrapyramidal symptoms, bradycardia, prolonged QRS complex, hypotension, mild hypertension, tachypnoea, xerostomia, elevated liver enzymes and bilirubin, muscle fasciculation, elevated lactate, hypocalcaemia, flush, pallor, and sensation of heat.

Conclusion

Most cases of citalopram overdose in this study resulted in no or only mild effects (89 %). Severe symptoms were not observed. There is no correlation between dose and severity of symptoms.

Results of the present study confirm the assumption of Herrington et al. (1) that citalopram < 5 mg/kg is not likely to cause serious toxicity in children < 6 years. Nevertheless, further investigations are necessary to assess the toxicity of citalopram especially in children > 6 years.

References

1. Herrington L, Miller JL, Geller RJ, Hon SL. Pediatric ingestion of citalopram: What is a safe dose for home management? Clin Toxicol 2015;53:723-4

Table 3: Most frequent symptoms caused by poisoning with citalopram – Case number and frequency in % of all symptomatic cases (n = 69)

Symptom	Case number (frequency)
Central nervous system	
Fatigue	12 (17.4 %)
Dizziness	12 (17.4 %)
Seizure	8 (11.6 %)
Tremor	8 (11.6 %)
Somnolence	6 (8.7 %)
Drowsiness	6 (8.7 %)
Agitation	6 (8.7 %)
Sleep disturbances	2 (2.9 %)
Cardiovascular system	
Tachycardia	13 (18.8 %)
QT-prolongation	4 (5.8 %)
Chest pain	3 (4.3 %)
Extrasystoles	2 (2.9 %)
Palpitations	2 (2.9 %)
Gastrointestinal tract	
Vomiting	14 (20.3 %)
Nausea	9 (13.0 %)
Abdominal pain	3 (4.3 %)
Others	
Mydriasis	11 (15.9 %)
Sweating	4 (5.8 %)
Asthenia	3 (4.3 %)
Creatine kinase elevated	3 (4.3 %)
Acidosis	2 (2.9 %)