ACCIDENTAL TRAMADOL EXPOSURE AND APNOEA IN CHILDREN

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Objectives: The toxicity of medicines in children is different to that seen in adults. There are limited case reports describing tramadol overdose in children. The current study was done to determine the prevalence and clinical manifestation for tramadol intoxication in the children who had referred after its overdose or use of its therapeutic dose.

Methods: All <12-year-old children referring to Loghman-Hakim Hospital (March 2010 to April 2012) due to tramadol exposure were included by reviewing hospital records. The patients' data including age, weight, gender, ingested dose by history, seizure, apnoea occurrence and lab data were recorded. Statistical analysis was done using SPSS software and application of Mann-Whitney U-test, Pearson's chi square or Fisher's exact test, and Student's t-test. A p -value less than 0.05 was considered to be statistically significant.

Results: A total of 20 patients out of 1363 poisoning (1.47%) case were included in the study. Of them 16 (80%) had decreased level of consciousness, 3 (15%) experienced apnoea, while 4 (20%) had nausea and vomiting. Seizure was not occurred in these cases. All patients referred before 10.5 hours after ingestion in an accidental poisoning (4.7± 2.9 hours, range 1-10.5). The mean dose/kg ingested by the history was 9.6±5.5 mg/kg (Min 3.3, Max 25.5). There was no significant relation regarding apnoea occurrence in terms of dose/kg but apnoea was occurred more frequently in those patients who had a respiratory acidosis component on their arrival blood gases ($p<0.01$). Pupils were miotic in 6 (30%), mydriatic in 2 (10%) and normal in the rest (60%) on admission time (Table 1). Apnoea was more common in miotic pupils (33% vs. 7%), in accordance with μ effects of tramadol, but insufficient patients and limited apnoea doesn't revealed any significant correlation. There was no electrolyte disturbance in patients. All patients were discharged without complication.

Conclusions: It seems that the rate of respiratory acidosis and apnoea are more common in children compare to adults. In contrast, seizure is less common in paediatric groups. All patients recovered without intubation and mechanical ventilation while the main treatment was noloxone administration and supportive cares.

Table 1. Characteristics of 20 children with accidental tramadol poisoning

N	Age(y) & Gender	Elapsed hours (ingestion-admission)	Dose (mg/kg)	Clinical Manifestation	Naloxone Dose (mg)	Acid-Base Disturbance	Pupil	Apnoea Time (h)
1	1M	1.0	8.8	neuro	0.4	mix-acid	normal	no
2	1M	3.0	9.6	neuro-GI	0.4	met-acid	normal	no
3	10F	ND	6.7	neuro-GI-resp	20	resp-acid	miotic	Yes/2
4	3M	7.5	8.7	neuro-GI	0.8	mixed-acid	normal	no
5	4F	6.0	6.7	neuro-GI	2	–	normal	no
6	2F	1.5	16.4	neuro	0.8	met-acid	normal	no
7	10F	1.0	25.5	normal	1.6	resp-alk + met-acid	mydriasis	no
8	5M	9.0	5.9	neuro	0.8	–	normal	no
9	1.5F	2.0	ND	neuro	1.6	normal	miotic	no
10	0.7M	6.5	ND	neuro-resp	5.6	mixed-acid	miotic	Yes/3
11	5M	4.0	9.5	normal	0.8	mixed-acid	normal	no
12	2F	6.0	ND	neuro	0	met-acid	miotic	no
13	3F	6.5	10.5	neuro	1	resp-alk + met-acid	normal	no
14	1M	5.0	ND	neurologic	1	meta-acid	miotic	no
15	4M	ND	5.9	normal	4.8	resp-alk	normal	no
16	3M	4.0	6.3	neuro	4.8	resp-alk + met-acid	normal	no
17	4F	2.0	3.3	normal	0	resp-alk	normal	no
18	5M	ND	ND	neuro	2.4	normal	mydriasis	no
19	1M	10.5	10.0	neuro-resp	14.4	mixed-acid	normal	Yes/2
20	9F	1.0	8.8	neuro-resp	4	resp-acid	miotic	no