

Psychotropic Agents Poisoning: Analysis of Cases Reported to Shahid Beheshti Drug and Poison Information Center

Esmaily A¹, Alavian G¹, Afzal G¹, Ghane T^{2*}

¹ Department of Clinical Pharmacy, Faculty of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran

² Drug and Poison Information Center, Ministry of Health and Medical Education, Iran

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ABSTRACT

Background: Antidepressants, antipsychotics and benzodiazepines overdose events are the most reported poisoning each year from Shahid Beheshti Drug and Poison Information Center (DPIC) (a branch of Iran Drug and Poison Information Center in Tehran), which clearly shows the necessity of providing prevention program and instruction plan in taking psychotropic agents.

Methods: This survey was a descriptive retrospective study by reviewing 390 reported phone calls from Shahid Beheshti Drug and Poison Information Center (DPIC), in Tehran, through 2010 to 2012.

Results: 390 reported cases of psychotropic agents including overdoses, medical errors such as extra dose, accidental exposure of medications, especially in children, cases of suicide, and intentional use (were) recorded. The main causes of poisoning calls to the DPIC, were included intentional and suicidal actions (40%), accidental events (27%), drug abuse (26%) and, medical errors (7%), respectively. Up to 50% of calls were about benzodiazepines (BZD) poisoning and the most adverse effects were Central Nervous System (CNS) effects followed by gastrointestinal side effects.

Conclusion: According to the results, in order to achieve the proper effect of psychotropic agents and preventing related poisoning, providing pharmaceutical services and awareness of patients are necessary. It should be about the therapeutic effects and side effects of their medications by pharmacists and poison centers and limiting the accessibility of patients to large amounts of these medications by regulatory organizations.

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► *Implication for health policy/practice/research/medical education:* Psychotropic Agents Poisoning

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1. Introduction:

Poisoning is one of the significant public health problems in Iran and the rest of the

world which may results deaths, disabilities, and major health care outlays. Although it is difficult to provide a strict definition of poison, in its broadest definition the term denotes any substances that have the capability to harm a living organism either the plant or animal (1).

Corresponding author: Ghane T, MD. Head of National Drug and Poison Information Center, Ministry of Health and Medical Education, Iran.
E-mail: t_ghane@yahoo.com

Poison centers are the frontline responders to the poison emergencies and are useful in the surveillance of adverse effects of medications, marketed products, and improvement the poison prevention (2).

Although the benefits of poison centers have proven, many poison control centers are unstably funded and financially strapped, in part because of their outlays (3).

Different reports of poisoning display that the principal causes of poisoning or chemical injury in Iran are included accidental cases followed by drugs poisoning and pesticides exposure, respectively (4, 5).

Analysis of questionnaire data on 3258 poisoned patients who had attended emergency departments of the main hospitals of Khuzestan province displayed that drug poisoning was significantly due to antidepressants with 24.3% (except TCAs), followed by sedative-hypnotics in 19%, tricyclic antidepressants (TCAs) in 14.7% cases, cardiovascular drugs in 11.4% cases, gastrointestinal agents in 7%, antibiotics in 6% cases and undefined medications in 17% cases (6).

Unintentional poisoning leads to significant mortality and morbidity in children and adolescents (7).

Psychotropic medications are more likely associated with poisonings in the 15-19 year age group (8).

Deliberate self-harm is common among young people, especially in certain subpopulations. It may be associated with depression, suicide attempt and some other psychiatric disorders (9).

Antidepressants, antipsychotics and benzodiazepines overdoses events are the most reported poisoning each year, which showed the importance of providing prevention programs and instruction plan to educate patients, psychiatrists and other health care staff.

Antipsychotic drugs, originally termed major tranquilizers and subsequently neuroleptics, dramatically reduced hallucination, delusion, and paranoid manifestations of psychiatric disease such as schizophrenia and mania.

Suicidal behavior is considered as one of the important health problems and has a strong

relation with psychiatric disorders such as mood and anxiety disorders (10).

Limiting access to means has been shown to be one of the most impressive strategies in both self-harm and suicide prevention (11).

Self-poisoning is one of the widespread methods have been used for attempting suicide. It seems attempted suicide among children is more usual than estimated. Recent studies report that the suicide rate among children aged 5–14 years is 1–2 deaths per 100,000 and among youth aged 15–19 years, it is 11 deaths per 100, 000 (12).

The goal of this study was to acquire a clinical picture of the Drug and Poison Information Centre (DPIC) of poisoning cases who takes an overdose of any psychotropic agents, to classify medications which needed to receive more attention.

2. Materials and Methods:

The study was a descriptive retrospective study by reviewing 390 reported phone calls of Shahid Beheshti Drug and Poison Information Center (SBDPIC) in Tehran through 2010 to 2012. The calls were categorized into accidental and intentional exposure of antidepressants, anti-anxiety agents, antipsychotic agents, mood Stabilizers, sedative-hypnotics and smoking cessation medications at different DPICs around the country.

All of the cases were documented on the medical center software database of DPIC including the voice of each call, profile data sheet, a poisoning recording form documented by DPIC experts and in some cases follow-up and additional information recorded by supervisors of the center. Cases with incomplete data were excluded. Data were collected and analyzed using Microsoft Excel® 2010 (Microsoft Corp., Redmond, WA, USA).

The epidemiology of 390 cases of poisoning occurred with psychotropic medications referred to the emergency calls in Shahid Beheshti Drug and Poison Information Center was described from 2010 to 2012. The incidence rate of emergency events has been estimated, also the occurrence of

childhood poisoning was described according to time trends, age and gender of the child, route of exposure, and symptoms at the time of reporting, role of the child or others, intention, and substance involved in the poisoning.

3. Results:

390 reported cases of psychotropic agents including overdoses, medical errors such as extrasdoses, accidental use of medications especially in children and cases of suicides was collected.

68% of cases were related to women and 32% of them were men.

4 cases had the episode of seizure after oral ingestion of these agents. Death reported in 2 cases of intentional overdose with Imipramine and Clozapine. As it is recognized in Fig 1, the cause of poisoning calls to the DPIC during 2010 to 2012, were included suicidal (40%), accidental (27%), drug abuse (26%) medical error (7%) respectively.

As it illustrated in fig 2, up to 50% of calls were about benzodiazepines poisoning and the most adverse effect reported from the calls, was Central Nervous System (CNS) effects (up to 42%) such as sedation and dizziness. After CNS adverse effects, the most reported adverse effects were gastrointestinal events such as abdominal pain, nausea and vomiting.

Also we detected 15 cases of severe, dizzy feeling, cases of blurred speech, tremor and palpitation and severe cases with respiratory problems such as shortness of breath and panting.

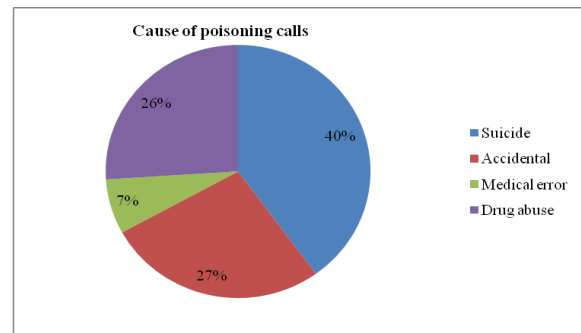


Fig. 1. Cause of poisoning calls to the NDPIC during 2010 to 2012.

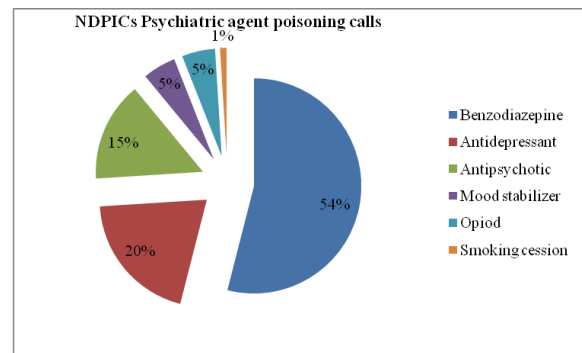


Fig. 2. Psychiatric agent poisoning calls to the NDPIC during 2010 to 2012.

In table 1, we have collected 63 cases under 5 years who have exposed to some psychotropic agents. The most cases in this group were unintentional (accidental) (93.7%) and the most prevalent class of involved medications was Benzodiazepine (BZD) (44.4%). Furthermore the most adverse effects observed in this group were CNS effects such as sedation and dizziness. The most gastrointestinal (GI) adverse effects reported in this group were abdominal pain, nausea, vomiting, and diarrhea. Also 2 cases of severe shortness of

Table 1: Exposures reported with psychiatric agents in 0-5 year-old group

Age	Cases	Medical error	Psychiatric agent				Adverse Drug EffectS			Symptoms	
			BZD	AD	AP	Opioids	CNS	GI	Respiratory	No symptom	Mi
0-5	93.7%	6.3%	44.4%	26.9%	22.3%	6.4%	75%	15%	10%	74.6%	14.

Note: Benzodiazepine (BZD), Antipsychotic agent (AP), Antidepressant agent (AD), Central Nervous System (CNS), Gastrointestinal (GI)

Table 2: Exposures reported with psychiatric agents in 5-18 year-old group

Age	Cases	Psychotropic agent				Adverse Drug Effect				Symptoms							
	Intentional	Accidental	Medical errors	Drug abuse	BZD	AD	AP	Opioids	Mood stabilizer	CNS	GI	Musculoskeletal	Cardiovascular	No symptom	Mild	Moderate	Severe
5-18	44%	44%	9.3%	2.7%	44%	20%	26.6%	6.66%	2.66%	44.4%	20%	20%	15.6%	52%	5.3%	5.3%	37.3%

Note: Benzodiazepine (BZD), Antipsychotic agent (AP), Antidepressant agent (AD), Central Nervous System (CNS), Gastrointestinal (GI)

Table 3: Exposures reported with psychotropic agents in >60 year-old group

Age	Cases	Psychiatric agent				Adverse Drug Effects				Symptoms			
	Accidental	Intentional	BZD	AD	AP	Opioids	Sedation	SOB	Dizzy feelings	No symptoms	Mild	Moderate	Severe
>60	66.7%	33.3%	50%	16.7%	16.7%	16.6%	66.7%	16.7%	16.6%	0	0	66.7%	33.3%

Note: Benzodiazepine (BZD), Antipsychotic agent (AP), Antidepressant agent (AD), Central Nervous System (CNS), Gastrointestinal (GI), Shortness of breath (SOB)

breath and panting with benzodiazepine oral exposure were recorded. Only 3 cases led to hospital admission and the others managed and recovered at home. The least poisoning cases were related to medical errors (6.3%), opioids (6.4%) (Table 1).

Without (74.6%) and moderate symptoms (4.7%) were the highest and lowest symptoms of psychotropic agents adverse effects of the patients, respectively (Table 1). Based on the results, 75 cases of poisoning was recorded with psychotropic agents in 5-18 year-old group, in a way that the most poisonings were related to intentional (44%) and accidental (44%) and the most frequent poisoning cases through psychotropic agents were related to BZD (44%). Furthermore the greatest adverse drug effects were relevant to CNS (44.4%) (Table 2). It has been recognized that the least poisoning cases

were related to drug abuse (2.66%), and mood stabilizer (6.66%) (Table 2).

Based on the results, the most poisoning events in geriatric group, occurred accidental (66.7%) including misuse of these agents, extradoses of medication and forgetting the correct dose. Unfortunately these incidences lead to severe adverse drug effects such as severe sedation and dizziness and subsequent fall. Also the most of the patients who has been poisoned were related to BZD (50%) and furthermore the maximum adverse drug effect was in connection with sedation (66.7%) (Table 3).

4. Discussion:

In this report we described and discussed the causes and results of psychotropic medications poisoning which was top 10 poisoning for 3 consecutive years in Shahid Beheshti Drug and Poison Information

Center. According to the results, in order to achieve the proper effect of psychotropic agents and preventing related poisoning, it is recommended providing pharmaceutical services and awareness of patients about the effects and side effects of their medications by pharmacist and poison centers. Based on these findings, we should concern about the dimension of offenses in adolescents.

The importance of prevention plans and awareness of the pathology of these occurrences are clear. The most essential plan we should launch is parents education for perception the norms of their adolescents. Our master plan for this group should be seniors training for taking medications and family awareness to tendency their parents on these agents.

The real cause of this high range of intentional poisoning with these agents is psychiatric patients' high potential risk for suicide. Also suicidal ideas increase in using most of these medications.

5. Conclusion:

In purpose to decrease the range of poisoning with these drugs, we should run an educating plan for patients, parents and health care professionals in contact with psychiatric patients and especially psychiatrists' astuteness for example limiting the number of prescribed drugs for short intervals and powerful monitoring of the patients, to decrease treatment disbursement, hospital admission, mortality, and morbidity range.

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