ORIGINAL ARTICLE

Descriptive Analysis of Recorded Phone Calls to Iran Drug and Poison Information Centers during 2011-2012

TALAT GHANE[1,*], SOHEILA SABERI[2], MASOOMEH DAVOODABADI[1]

[1] Central Division of Iran Drug and Poison Information Centers, Tehran, Iran
[2] Addiction Research Centre, Mashhad University of Medical Sciences, Mashhad, Iran

Abstract

Background: Poisoning is one of the main causes of visits to emergency departments and hospitals in Iran. Drug and Poison Information Centers (DPIC) are reliable sources to guide poisoned patients and provide information about pharmaceutical agents. This study was designed to analyze recorded phone calls to Iran DPICs during 2011-2012.
Methods: This was a retrospective study on phone calls to DPIC in Tehran between January 2011 and November 2012. Data including demographic features, type of poison (in case of poisoning) and intention of poisoning were collected by reviewing the reported phone calls to central division of Iran DPICs in Tehran.
Results: It was found that 98.5% of the phone calls were inquiries about pharmaceutical products and only 1.5% of them were associated with poisoning. 49% of poisonings reported from the DPICs in 2011was intentional, while this rate increased to 67% in 2012. Regarding toxic agents responsible for poisonings, pharmaceuticals were the most common consisting of 68.6% and 70.9% of cases in 2011 and 2012, respectively.
Conclusion: Pharmaceutical products are the main causes of poisonings in Iran. Public education on safety and storage issues and also strict terms of sale should be implemented. In addition, the majority of poisonings occurred intentionally while the rate showed an increasing trend. Predisposing factors of this high rate should be studied.

Keywords: Drug and poison information center; Poisoning; Pharmaceutical products; Iran

INTRODUCTION

Poisoning has been reported as the ninth most common cause of death in the young adult population worldwide (1). It also puts a large financial burden on the society which is of great importance in countries with limited sources. As the result of high mortality and morbidity rates due to poisoning, prevention and early treatment of poisonings should be regarded as a high priority in each country. In developed countries such as the United States, the experience of establishing poison control centers (PCCs) has revealed great advantages (2-4). One of the benefits of PCCs is the significant decrease in health-care expenses due to reduction in both emergency department (ED) visits and the length of hospitalization for poisoning (2,3). Another beneficial role of PCCs is improvement of the public knowledge on safety issues and poisoning precautions (5). Furthermore, employing an efficient system of recording the contacts and inquiries by PCCs has provided a valuable source of information for research and large scale studies (4).

It has been shown that rate of poisoning and exposure to toxic substances in each community can be affected by social awareness, educational status and availability of over-the-counter (OTC) medications and illicit drugs (6-8). In the contemporary world, both health professionals and general public have access to vast sources on health related information, however; there are serious concerns regarding the reliability of this information, particularly commercial web sites. In the United States, organizations such as the US Food and Drug Administration Organization (FDA) provide people with online information (9). Moreover, 57 poison control centers (PCC) throughout the US overseen by American Association of Poison Control Centers provide 24hour service to public and health professionals about drug safety issues, poison exposures and education (10).

Considering the easy availability of OTC medications and lying in the middle of transit route for opioids, poisoning has been a great concern in Iran. Therefore, the Ministry of Health and Medical Education (MHME) decided to establish the first Drug and Poison Information Center (DPIC) in Tehran in 1995 to provide information regarding appropriate use, dosage, interactions and adverse effects of pharmaceutical agents and to guide public and health professionals about all kind of poisonings (10-12) The establishment of Tehran DPIC led to decreased incidence of poisonings (12). As a result of this success, 33 other DPICs have been established in the major cities of Iran until 2011, under the supervision of regional medical universities and the MHME. In each center, a team consisting of physicians, pharmacists, and pharmacology and toxicology technicians are responsible to answer the drug and poisoning inquiries on phone calls

*Correspondence to: Talat Ghane, MD. Central Division of Iran Drug and Poison Information Centers, Enghelab avenue, Fakhr Razi street, 1st Building of Food and Drug Organization, Tehran, Iran.
Tel: +98 21 6192 7704, E-mail: t_ghane@yahoo.com
Received 17 April 2013; Accepted 11 May 2013

(11). A single phone number (1490) has been allocated for all DPICs in every city. All DPICs are connected to central division of Iran DPICs in Tehran. They are required to report their annual statistics to the central division at the end of each year. This study was designed to analyze recorded phone calls to Iranian DPICs during 2011 to 2012.

METHODS

This was a descriptive retrospective study by reviewing reported phone calls of DPICs in Iran to central division in Tehran between January 2011 and December 2012. The calls were categorized into poisoning and drug information calls. Data including demographic features, intention of poisoning, type of poison were collected. The implicated agents were categorized into seven main types. Cases with incomplete data were excluded. Data were entered into a database and analyzed using Microsoft Excel (Microsoft Corp., Redmond, WA, USA).

RESULTS

General findings

In total, 249873 calls in 2011 and 224368 calls in 2012 were registered in all DPICs around Iran. The number of reported calls was lower in 2012 due to change of contact numbers and repairing phone lines in some centers for a limited period. Majority of the callers were female both in 2011 and 2012 (Table 1). In each year, most callers were 18 to 30 years. The majority of clients (98.5%) in both years sought drug information such as the therapeutic effects, appropriate dosage, indications, contradictions, interactions with other drugs and adverse effects (Figure1).

Characteristics of poisonings

In 2011, 3872 calls (1.5%) and in 2012, 3365 calls (1.5%) were related to poisoning which shows similar rate of poisoning in both years. In 2011, 49% of poisonings were intentional while this figure increased to 67% in 2012 (Figure 2). According to type of toxic agents, pharmaceutical products were responsible for 68.6% and 70.9% of reported poisoning cases in 2011 and 2012, respectively (Figure 3). Industrial chemicals were the second common cause of poisoning (8.3%) in 2011 but dropped to the third position in 2012 (7.9%). On the other hand, illicit drug (opioids) overdose was the third common cause of poisoning (8%) in 2011 but rose to 10.9% in 2012 and thus achieved the second position among the causes of poisoning. Natural intoxications (envenomation, plants, mushrooms) accounted for the lowest number of poisonings (Figure 3).

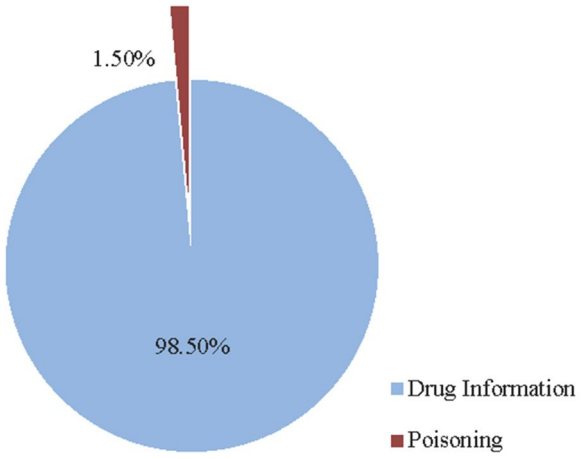

Figure1. Distribution of phone calls to Iran DPICs during 2011-2012 according to type of inquiry.

Table 1. Demographic features of the callers to Iran DPICs in 2011-2012

	2011; No. (%)	2012; No. (%)
Gender		
Female	165416 (66.2)	146737 (65.4)
Male	84457(33.8)	77631(34.6)
Age Group (years)		
0-2	24737 (9.9)	22661 (10.1)
3-12	24238 (9.7)	22437 (10)
13-18	11744 (4.7)	10994 (4.9)
19-30	66966 (26.8)	52951 (23.6)
31-40	53223 (21.3)	51380 (22.9)
41-60	47226 (18.9)	43079 (19.2)
> 60	21739 (8.7)	20866 (9.3)
0-2	249873 (100)	224368 (100)

DISCUSSION

In this study, it was found that only a very small proportion (1.5%) of the inquiries received by the Iranian DPICs were associated with poisoning. This pattern has almost remained constant as during 1997 to 2000, Nikfar et al. showed that minor fraction of calls was related to poisoning (11). However, poisoning related calls to the US PCCs are much higher (63-67%) (13,14). This may show that DPICs in Iran are not well introduced by media to public as reliable sources of information and guidance for poisonings.

Data collected from DPICs in Iran revealed that pharmaceuticals were the most common cause of poisoning. This differs from a study in Thailand which indicated that pesticides were the most frequent agents involved in poisonings (15). In addition, opioid overdose and recreational abuse of illicit drugs were uncommon causes of poisoning in Thailand (15); while in Iran, this type of poisoning accounted as the second common. At the same time, food poisonings was among the least number of poisonings in Iran. This may reflect increased social awareness and better supervision of health organizations on restaurants and food factories.

A remarkable finding of this study was the changed pattern of poisoning intent which showed a significant increase in intentional poisonings (18%) in 2012 compared to 2011. In 2012, intentional poisonings allocated the greatest proportion of calls. Conversely, in the United States the pattern of intentional poisoning has remained stable, showing approximately 15% of calls (13,14). This high intentional nature of poisonings in Iran should be regarded as a health concern and its predisposing factors should be studied.

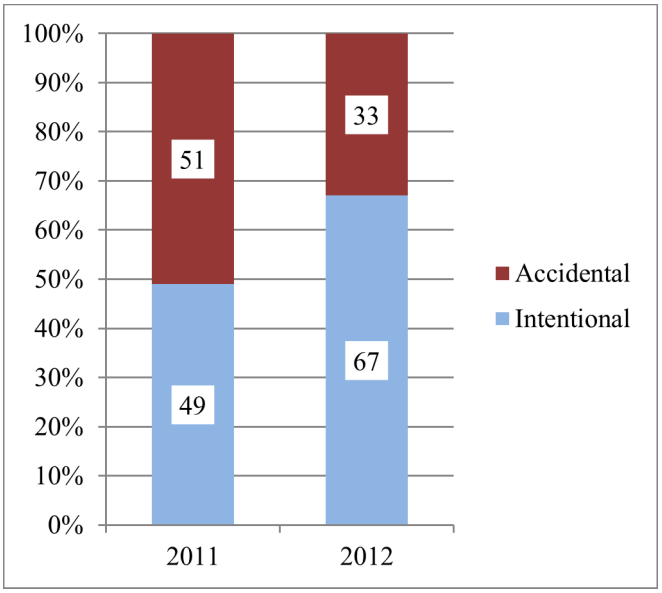

Figure 2. Distribution of poisoning cases according to intention of poisoning in 2011 and 2012

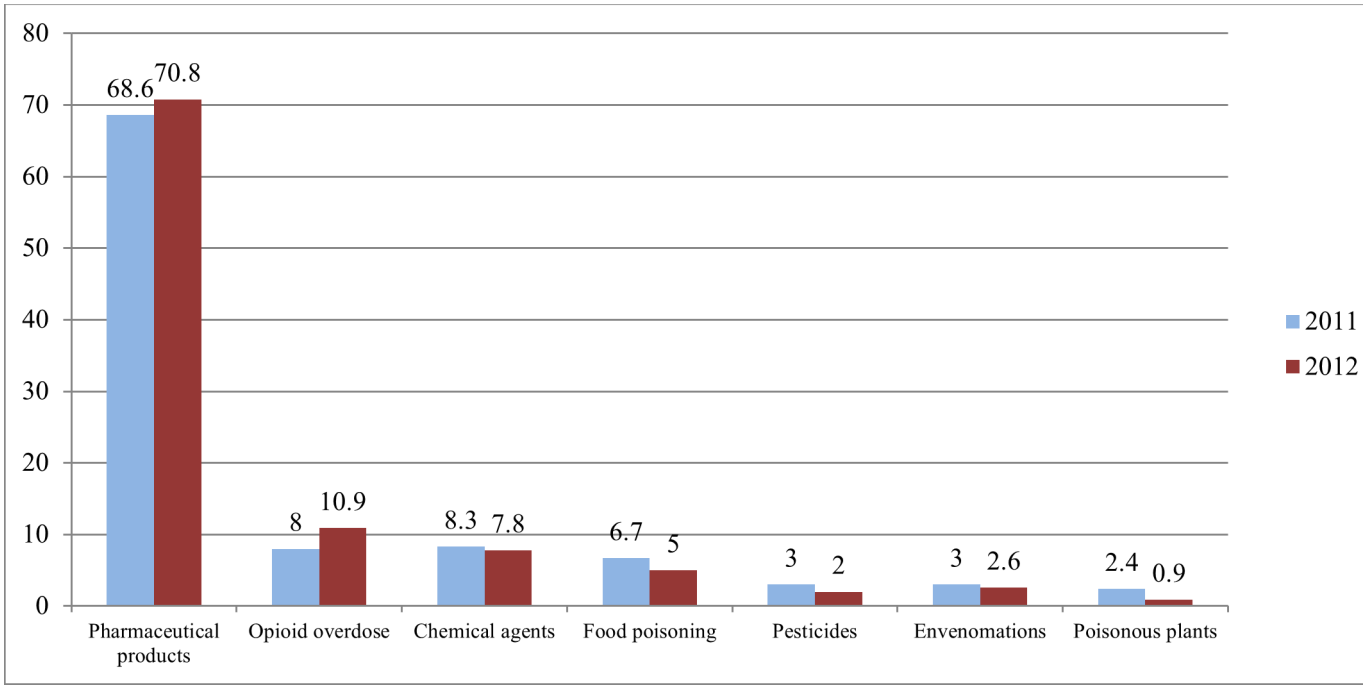

Figure 3. Distribution of poisoning cases according to type of poison in 2011 and 2012

LIMITATIONS

Most DPICs in Iran are newly established. Their inquiry datasheet and documentation database are still not completely developed. Therefore, some centers only sent raw data to central division of Iran DPIC in Tehran. In this regard, demographic features of poisoning related calls could not be analyzed since some centers only reported gender and age of all calls, and not according to type of inquiry. Besides, poisoning with pharmaceutical products included the highest proportion of poisonings. However, details of these medications could not be analyzed. Hence, we were not able to show which group of medications were more involved in poisonings. Moreover, most poisoned cases were not followed and their outcome (hospital admission, complications, recover and death) were not available.

CONCLUSION

The professional service of Iran DPICs should be introduced to Iranian population. Pharmaceutical products are the main causes of poisonings in Iran. Public education on safety and storage issues should be provided and also strict terms of sale should be implemented. In addition, the majority of poisonings occurred intentionally while the rate showed an increasing trend. Predisposing factors of this high rate should be studied.

ACKNOWLEDGMENT

The authors would like to thank staff of the central division of Iran Drug and Poison Information Centers for their kind cooperation.

Conflict of interest: None to be declared
Funding and support: None

REFERENCES

1. Peden M, McGree K, Krug E. Injury: A Leading Cause of the Global Burden of Disease, 2000. Geneva: World Health Organization (WHO) Press; 2002.
2. Bunn TL, Slavova S, Spiller HA, Colvin J, Bathke A, Nicholson VJ. The effect of poison control center consultation on accidental poisoning inpatient hospitalizations with preexisting medical conditions. J Toxicol Environ Health A. 2008;71(4):283-8.
3. Vassilev ZP, Marcus SM. The impact of a poison control center on the length of hospital stay for patients with poisoning. J Toxicol Environ Health A. 2007 Jan 15;70(2):107-10.
4. Spiller HA, Griffith JR. The value and evolving role of the U.S. Poison Control Center System. Public Health Rep 2009 May-Jun;124(3):359-63.
5. Krenzelok E, Mrvos R, Mazo E. Combining primary and secondary poison prevention in one initiative. Clin Toxicol (Phila). 2008 Feb;46(2):101-4.
6. De Silva WDAS. Effectiveness of Tobacco Control Measures in Reducing Tobacco Use among Adolescents and Young Adults in Anuradhapura, Sri Lanka. Asia Pac J Med Toxicol 2012 Dec; 1(1): 22-6.
7. Sarkar D, Shaheduzzaman M, Hossain MI, Ahmed M, Mohammad N, Basher A. Spectrum of Acute Pharmaceutical and Chemical Poisoning in Northern Bangladesh. Asia Pac J Med Toxicol 2013 Mar; 2(1): 2-5.
8. Centers for Disease Control and Prevention (CDC). Unintentional Poisoning in the United States. Atlanta: CDC Publications; 2010.
9. Grossman S, Zerilli T. Health and medication information resources on the world wide web. J Pharm Pract 2013 Apr;26(2):85-94.
10. Pourmand A, Wang J, Mazer M. A survey of poison control centers worldwide. Daru 2012 Aug 28;20(1):13.
11. Nikfar S, Abdollahi M, Cheraghali A. Going from strength to strength; a drug and poison information center. Essent Drugs Monit 2000;28-29:30-1.
12. Mehrpour O, Abdollahi M. Poison treatment centers in Iran. Hum Exp Toxicol 2012 Mar;31(3):303-4.
13. Bronstein AC, Spyker DA, Cantilena LR Jr, Green JL, Rumack BH, Dart RC. 2010 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 28th Annual Report. Clin Toxicol (Phila) 2011 Dec;49(10):910-41.
14. Bronstein AC, Spyker DA, Cantilena LR Jr, Rumack BH, Dart RC. 2011 Annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 29th Annual Report. Clin Toxicol (Phila) 2012 Dec;50(10):911-1164.
15. Wananukul W, Sriapha C, Tongpoo A, Sadabthammarak U, Wongvisawakorn S, Kaojarern S. Human poisoning in Thailand: The Ramathibodi Poison Center's experience (2001-2004). Clin Toxicol (Phila) 2007 Jun-Aug;45(5):582-8.