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Original Research Article

A profile of acute self drug poisoning: Our experience in a Tertiary Care Medical College Teaching Hospital

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Abstract

Background: Drug overdose can be accidental or deliberate posing a significant source of morbidity, mortality and health care burden. Drug over doses may be seen at any age and is particularly common among teenagers. It is estimated that approximately 2-3 million drug poisonings occur every year in the United States. In India the true incidence of self drugpoisoning is unknown due to under diagnosis and under reporting. Acute self drug poisoning is mostly due to benzodiazepines, antidepressants, antiepileptics and polypills containing NSAIDs. There is scarcity of data from the Indian subcontinent regarding the profile and outcome of patients presenting with acute self drug poisoning. We undertook this retrospective analysis to assess the course and outcome of such patients admitted in our tertiary care teaching hospital.

Methods: This retrospective study was conducted between Jan 2008- Dec 2011 in the Department of medicine, Sri Devaraj Urs Medical College, Kolar. The data retrieved from the medical records section was analyzed for 155 patients who were admitted with acute self poisoning for, type of poisoning, time of presentation, reason for the consumption of drugs, ICU admission if required and outcomes.

Results: The majority were females 103 (66.4%) patients and 52 were males and majority 90 (58 %) of admissions were from age group 21 to 30 years. The most common drugs consumed was benzodiazepines 54(34.8%), followed by antiepileptics 41(26.4%), and poypills 33(21.3). Thirty (19.4%) consumed two or more drugs. Commonest cause for drug consumption was suicidal (90%), and was mainly oral. The highest incidence of toxicity was due to benzodiazipines (34.8%) followed by antiepileptics (26.4%). Ten patients (15.5%) required ICU management for ventilatory support and average stay was seven days. None of our patients in the study required ionotropes or dialysis.

Conclusions: The present data is an insight of the trends in self drug poisoning in rural south India as a result of low socioeconomic status, illiteracy and easy availability of drugs over the counter. Therefore strict regulations enforced on the medical drug outlets with mental health awareness counselling/programmes can go a long way in curtailing this problem.

Keywords: self drug poisoning, deliberate poisoning, drug overdose

1. Introduction

Drug overdose can be accidental or deliberate, posing a significant source of morbidity, mortality and health care burden. Drug over doses may be seen at any age and is particularly common among teenagers. [1,2] It is estimated that approximately 2-3 million drug poisonings occur every year in the United States. In India the true incidence of self drug poisoning is unknown due to under diagnosis and under reporting. Acute self drug poisoning is mostly due to benzodiazepines, antidepressants, antiepileptics and polypills containing NSAIDs. It is challenging for the treating physician/intensivist as, a high index of suspicion for intoxication is required. The profile of patients with acute poisoning and their choice of drugs not only depend upon the socioeconomic, and cultural status, but it also greatly varies between different countries [1,3,5], attributing to the easy availability of the drugs. [1,3] The clinical course and final outcome is related to the drug, the dose, comorbidities, and the time from consumption to admission at a hospital. [1,3,6,7] However, there is scarcity of data from the Indian subcontinent regarding the epidemiology and outcome of patients presenting with acute self drug poisoning. Hence, this study was undertaken to assess the profile and outcome of acute self drug poisoning in patients admitted to our tertiary care hospital.

2. Materials and method

This retrospective study was undertaken in Sri DevarajUrs Medical College, R.L.J Hospital Kolar, between Jan 2008 - Dec 2011 a tertiary care centre catering to rural

population. Data obtained from medical records section of 155 patients admitted with acute self drug poisoning was analysed for demography, type of drug poisoning, time of presentation, source of drug, psychological analysis, and reason for ICU admission, course and outcome. Disease severity at admission was assessed by means of acute physiology and chronic health evaluation (APACHE) II score. They were managed according to the standard protocols including the "ABCs" (airway, breathing, and circulation), resuscitation with intravenous fluids, inotropes and use of renal replacement therapy (RRT) as required. Patients were intubated to secure the airway when indicated. Gastric lavage and activated charcoal were used in selected patients presenting within 4 hours of oral ingestion of drug. Blood drug levels, urine and gastric aspirate toxicology screen was done. Specific antidotes were administered as indicated. Statistical analyses were done using SPSS 16.0 software.

3. Results

The majority were females 103 (66.4%) patients and 52 were males and majority 90 (58 %) of admissions were from age group 21 to 30 years. The most common drugs consumed was benzodiazepines 54(34.8%), followed by antiepileptics 41(26.4%), and polypills 33(19.4%). Thirty (19.4%) consumed two or more drugs. Commonest cause for drug consumption was suicidal (90%), and was mainly oral. The highest incidence of toxicity was due to benzodiazipines (34.8%) followed by antiepileptics (26.4%). Ten patients (15.5%) required ICU management for ventilatory support and average stay was seven days. None of our patients in the study required ionotropes or dialysis and there was no mortality.

Table 1: showing age wise distribution of drug poisoning.

| Age in years	Number of cases	Percentages
18-20	28	18,06%
21-30	90	58.06%
31-40	29	18.70%
41-50	02	1.2%
51-60	02	1.29%
>61	04	2.58%
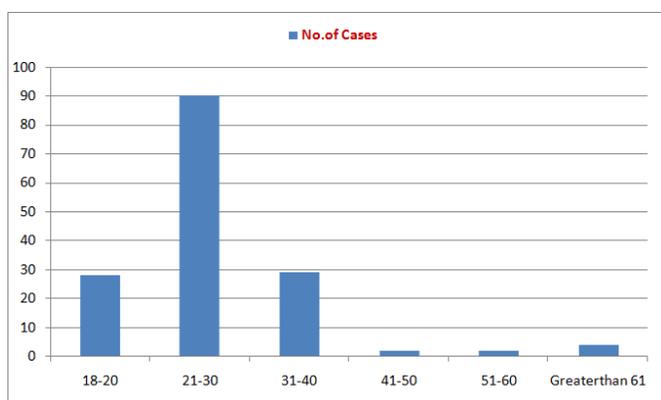
Figure 1: Bar graph showing age wise distribution of drug poisoning.

Table 2: Showing gender distribution:

| Gender	Female	Male
	103 (66.45%)	52(33.54%)
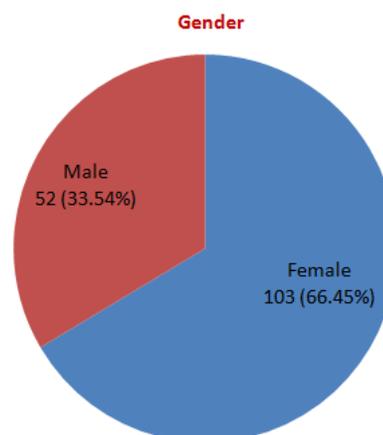
Figure 2: Pie chart showing gender distribution of drug poisoning.

Table 3: showing distribution religion wise

Religion Based Distribution	No. of cases	%
Hindu	135	87.09%
Muslim	15	9.67%
Christian	05	3.22%

Table 4: Showing Time of Presentation after consumption

| Hour	Number of cases
< 1	02
1-2	44
3-4	55
5-6	32
7-8	09
9-10	05
> 11	08

Table 5: Showing Types of Drugs used for Poisoning

Antiepileptics	41	Phenobarbitone	26
		Phenytoin	07
		Carbamazepine	06
		Valproate	02
Sedatives	54	Alprazolam	36
		Diazepam	14
		Zolpidem	04
Antidepressants	10	Escitalopram	04
		Amytryptiline	04
		Lithium	01
		Chlorpromazine	01
Unknown		-	10
Others	7	Oral anti diabetic drugs	01
		Antihypertensives	01
		Thyroxine	01
		Iron	01
		Morphine	01
		Salbutamol	01
		ATT	01
Polypill (combinations)	33	Paracetamol, CPM, Analgesic NSAID, PPIS, Antibiotics	

Table 6: Showing Source of Procuring Drugs.

Over the counter prescriptions	self use	Family member using the drug
98 (63.2%)	41(27.09%)	16(10.32%)

Table 7: Showing Clinical Manifestations at Presentation

Altered sensorium	12	7.74%
Drowsiness	30	19.35%
Normal	73	47.09%
Vomiting	14	9.03%
GTCS	04	2.58%
Giddiness	12	7.74%
Respiratory failure	10	6.45%
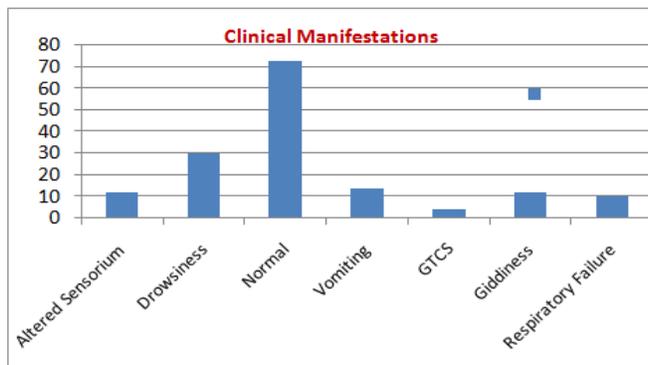
Figure 3: Bar graph showing clinical manifestations

Table 8: Showing Investigation in serum/blood

Normal	Abnormal
145	10

Table 9: Showing no of patients who received Stomach wash

Yes	No
132	23

Table 10: Showing complications

Complications	Poisoning	No of times Stomach wash (Given)
Respiratory failure - 10	T. Gardenal - 08 Unknown - 02	03

Table 11: Showing Various Modalities of treatment given

Symptomatic & supportive treatment	126	**81.29%**
Forced alkaline diuresis	19	**12.25%**
Ventilatory support	04	**2.5%**
FAD &Ventilatory support	06	**3.87%**
Total	155	
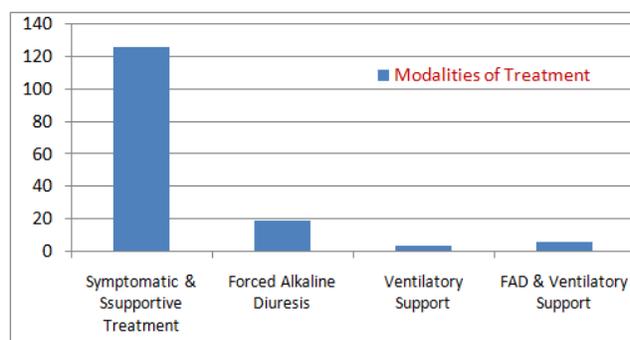
Figure 4: Bar graph showing various modalities of treatment.

Table 12: Previous Suicide Attempts

Gender	No of Cases
Male	01
Female	03

Table 13: Associated Comorbid illness

Comorbid Illness	No of Cases	Gender	
		Female	Male
Epilepsy	19	15	04
Major Psychosis	04	03	01
Minor Psychosis	04	02	02
Hypertension & Diabetes	03	01	02
Hypothyroidism	03	03	-
Migraine	01	01	-
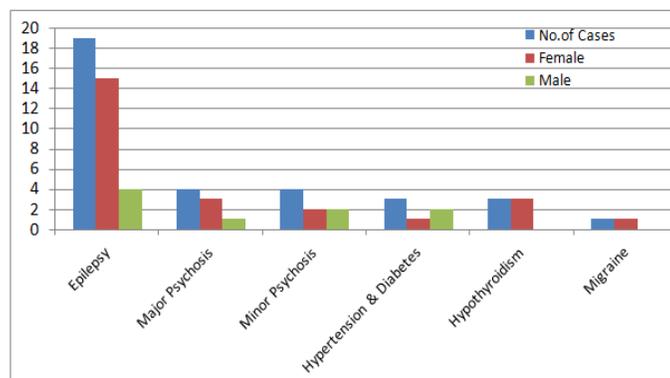
Figure 5: Bar graph showing associated comorbid illness

Table 14: Showing various psychiatric illnesses

Psychiatric illness	No of cases
Reactive depression	52
Impulsive behaviour	19
schizophrenia	07
Acute stress reaction	03
Chronic psychosis	01
Borderline antisocial personality	01
Drug dependence	01

4. Discussion

We observed in this study a female preponderance when compared to other Indian studies which show a male preponderance [11,12] (Table-2, Figure-2). It could perhaps have been due to low socio economic status and illiteracy among the females and male dominated families. It was also observed that majority of the patients were in the age group of 21-30 years as seen in other studies and the most common cause for poisoning was suicidal [(9,10] (Table-1, Figure-1). Respiratory failure was the only organ failure present in 10 (15.5%) of the patients, these patients had phenobarbitone overdose and required ventilatory support for an average of seven days with uneventful recovery (Table-10). The patterns of weaning from mechanical ventilation were as per standard ICU protocols. This may suggest that the organ failure is generally mild and self limiting and early aggressive intervention can reverse organ failure in most of these patients and reduce mortality. In this study most of the patients reported to the hospital within four hours of

consumption of the drug (Table-4) and there by the treatment was initiated early by aggressive gastric lavage and use of activated charcoal to halt the absorption of the drug. 19(12.25%) patients were subjected to forced alkaline dieresis (Table-11, Figure-4) In advanced centres, the case fatality rate for self-poisonings is approximately 0.5%, but it is as high as 10 to 20% in the developing countries where critical care resources are lacking. [8-10] there was no mortality in our study. Of the various drug poisonings observed in this study benzodiazepines (54(34.8%) was most common, alprazolam 36(66.6%), diazepam 14(25.9%), zolpidem 4(7.4%). Second most common drug poisoning was seen with antiepileptics 41(26.4%) phenobarbitone 26(63.4), phenytoin 7(17.1%), carbamazepine 6(14.6%), valproate 2(4.9%) Polypill poisoning was seen in 33(19.4%) which included a combination of proton pump inhibitor, paracetamol, analgesics, and antibiotics. While ten patients (15.5%) consumed unknown drugs. Seven took drugs like salbutamol, ATT, antidiabetic drugs, thyroxine, iron, morphine and antihypertensives. Antidepressants such as Escitalopram, Amitryptiline, Lithium and Chorpromazine were consumed by ten patients. (Table-5)

Urine toxicology screening can provide evidence of intoxication and guide in administration of a specific antidote [9,10]. As only a few drugs can be detected, a negative screen does not rule out the possibility of poisoning. The drawback is that certain drugs like opioids or benzodiazepines taken in therapeutic dose, may also be detected, error in the timing of sampling can also affect the results. As it rarely alters the course of management, urine screening may not be an investigation of choice routinely. Drugs which we assessed in urine toxicology screen were barbiturates and benzodiazepines. Blood and urine toxicology screen was done in all our patients and it was positive in 10(6.5%). Most of the patients in this study self procured drugs over the counter 98(63.2%), 41 (26.49%) patients were on treatment and consumed an overdose of it, sixteen (10.32%) of which had an access to the drugs used by another family member (Table-6). Comorbidities seen in this study were psychiatric illness, epilepsy, migraine and metabolic syndromes (Table-13, Figure-5).

Although there were only three female patients who had previous suicidal attempts in our study, it can still be a strong predictor of more future suicidal attempts, hence at recovery and before discharge all the patients were examined and counselled by the psychiatrist, treated and followed up accordingly [1]. Most of them were diagnosed to be suffering from reactive depression (Table 14).

5. Conclusion

The pattern of acute self drug poisonings is the same in the last 10 year period. The patients suffer from underlying psychiatric disorders. Most of the drugs were dispensed over the counter. Prevention of drug over dosage can be overcome through proper identification of those high risk patients and enforce strict regulations to curtail over the counter dispensing by the medical stores. The government could be recommended to provide psychiatrist services in the PHU/PHC and Community health centres which should conduct mental health awareness programmes that will go a long way in prevention of such illness.

Limitation

This retrospective study was conducted in a single centre teaching hospital, the results cannot be generalised. In addition, because of a small sample size and nil mortality rates, assessment of factors predicting outcome could not be done.

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