



Demographic profile of Aluminium phosphide poisoning in Gandhinagar, Gujarat

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How to cite this article: Pragnesh Parmar, Gunvanti B. Rathod, Sangita Rathod, Ashish Parikh. Demographic profile of Aluminium phosphide poisoning in Gandhinagar, Gujarat. IAIM, 2015; 2(1): 76-82.

Available online at www.iaimjournal.com

Received on: 15-12-2014

Accepted on: 03-01-2015

Abstract

Background: Poisoning is an important cause of unnatural death, next to road traffic accidents in India even today. Incidence of aluminium phosphide poisoning is increasing day by day in western region of India including Gujarat. Demographic profile of aluminium phosphide poisoning cases is very helpful to be aware of current scenario and to implement preventive steps for betterment of health services.

Objectives: The present study was undertaken to know the demographic profile of aluminium phosphide poisoning cases received as indoor or outdoor patient department of Gayatri Hospital, Gandhinagar, Gujarat, India.

Material and methods: History taking, complete examination and necessary investigations of all cases of aluminium phosphide poisoning was done, during the period of two years from 01-01-2012 to 31-12-2013. A proforma was prepared to fill up details of the parameters used in the study like prevalence of age and sex, socio-economic status, marital status, religion, literacy status, occupational status, time of consumption, manner of poisoning, reasons for suicidal consumption etc.



Results: During the study period, 40 cases were diagnosed as of aluminium phosphide poisoning. Majority of the victims were in the age group of 41–50 years (25%), 70% were married, 80% were Hindu, 65% were of lower socio economical class and 57.5% belonged to rural area. Occurrence of aluminium phosphide poisoning was more common in evening time between 5 pm to 11 pm (45%) and among housewives (27.5%). Suicidal cases (82.5%) were more common compared to others.

Conclusion: Based on these findings, preventive measures like restriction of sale and availability of aluminium phosphide, good availability of investigation and treatment, promoting poison information centre etc have been put forward.

Key words

Poisoning, Aluminium phosphide, Demographic profile, Gandhinagar, Gujarat.

Introduction

Even today poison and poisoning is as common as that was in the past. Improvement and awareness in medical field is still not able to cope up with poisoning cases and they are increasing day by day [1, 2, 3]. Every life ends up with death but death due to poisoning leaves bad taste in society [4, 5]. Among the unnatural causes of death, poisoning is next to road traffic accidents in India. The incidence of poisoning, particularly with aluminium phosphide is increasing day by day because of its easy availability [6]. Present study was focused to find out demographic profile and other significant features of aluminium phosphide poisoning in Gandhinagar, Gujarat.

Material and methods

The present study was conducted at Department of Medicine, Gayatri Hospital, Gandhinagar, during the period of two years from 01-01-2012 to 31-12-2013. During this period, total 40 cases of aluminium phosphide poisoning were observed. History taking, complete examination, and necessary investigations of all patients was done. A proforma was prepared to fill up details of the parameters used in the study like prevalence of

age and sex, socio-economic status, marital status, religion, literacy status, occupational status, time of consumption, manner of poisoning, reasons for suicidal consumption etc.

Results and Discussion

Pattern of aluminium phosphide poisoning cases varies from place to place and need to be evaluated time to time in the country like India. In the last few years, there is a significant increase in the incidence of aluminium phosphide poisoning. [1] Present study highlighted certain important findings. The number of males who died due to aluminium phosphide poisoning was more (62.5%) as compared to females (37.5%). This can be explained on the basis that males being more vulnerable to financial and domestic stress. Maximum numbers of deaths due to aluminium phosphide poisoning were reported in the age group of 41–50 years (25%) as per **Table - 1**. This period forms the crucial period of life and there is greater stress which may lead to more cases.

Prevalence of aluminium phosphide poisoning was more in Hindu people (80%) as per **Table – 2** which can be explaining by the fact that major population of Gujarat is Hindu. Prevalence of aluminium phosphide poisoning was more



amongst married (70%) as compared to unmarried (17.5%) as per **Table – 3**. This can be explained on the basis of various marital and familial tensions and problems. Dowry seemed to be an important factor. Prevalence of aluminium phosphide poisoning deaths was more amongst victims whose literacy status was school (32.5%) as per **Table - 4**. Lack of knowledge and inability to succeed in life are important causes. Our findings were similar to many other studies [7, 8, 9].

Majority of the victims were housewives (27.5%) as per **Table - 5**. This can be attributed to difficulty in making both ends meet and fulfilling demands of family. Prevalence of poisoning was more in lower socio-economical class (65%) as per **Table – 6**. Maximum cases were from joint family (55%) as per **Table - 7**. Prevalence of aluminium phosphide poisoning deaths was more in rural area (57.5%) as per **Table - 8**. This can be explained on the basis that there is more farming activity in rural areas. Also lack of awareness and distance from hospitals is an important factor. Prevalence of time of consumption of aluminium phosphide poisoning was more between 5 pm to 11 pm (45%) as per **Table – 9**.

Maximum numbers of aluminium phosphide poisoning cases were suicidal (82.5%) in nature as per **Table - 10**. Accidental poisoning was less common due to particular smell of aluminium phosphide. History given by patients or relatives was used to decide manner of poisoning. Most common reason for suicidal poisoning was domestic (36.37%) as per **Table – 11**. Total 32.5% victims came for treatment within 2-6 hours of consumption of aluminium phosphide as per **Table - 12**. Interval between consumption of aluminium phosphide and seeking of medical advice depend upon witnessing of act of poison by someone else, appearance of symptoms to the patient and availability of nearby hospital.

Our findings were almost similar to other studies [10, 11, 12].

Conclusion

Demographic profile of aluminium phosphide poisoning in present study in Gandhinagar, Gujarat is more or less similar to the demographic profile found in most of the other studies in India. This similarity is there in almost all parameters used in study. The high prevalence of suicidal aluminium phosphide poisoning can be checked by psychological counseling and by tackling their problems sympathetically. Restriction of sale and availability of aluminium phosphide, good availability of treatment, promoting poison information centre etc. have been put forward.

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Source of support: Nil

Conflict of interest: None declared.

Table - 1: Age and sex wise distribution of Aluminium phosphide poisoning cases.

Age group (years)	Male		Female		Total	
	No of cases	%	No of cases	%	No of cases	%
< 10	1	4	---	---	1	2.5
11-20	5	20	3	20	8	20
21-30	5	20	1	6.66	6	15
31-40	4	16	4	26.67	8	20
41-50	6	24	4	26.67	10	25
51-60	1	4	2	13.34	3	7.5
61-70	2	8	1	6.66	3	7.5
>70	1	4	---	---	1	2.5
Total	25	100	15	100	40	100

**Table - 2:** Religion of victims of Aluminium phosphide poisoning.

Religion	No of cases	Percentage (%)
Hindu	32	80
Muslim	3	7.5
Christian	5	12.5
Total	40	100

Table - 3: Marital status of victims of Aluminium phosphide poisoning.

Marital status	No of cases	Percentage (%)
Married	28	70
Unmarried	7	17.5
Divorced	3	7.5
Widowed	2	5
Total	40	100

Table - 4: Literacy status of victims of Aluminium phosphide poisoning.

Literacy status	Male		Female		Total	
	No of cases	%	No of cases	%	No of cases	%
Illiterate	7	28	2	13.34	9	22.5
School	8	32	5	33.33	13	32.5
High school	9	36	3	20	12	30
Graduate	1	4	2	13.34	3	7.5
Post graduate	---	---	1	6.65	1	2.5
Unknown	---	---	2	13.34	2	5
Total	25	100	15	100	40	100

Table - 5: Occupational status of victims of Aluminium phosphide poisoning.

Occupation	Male		Female		Total	
	No of cases	%	No of cases	%	No of cases	%
Student	2	8	3	30	5	12.5
Service	7	28	1	6.66	8	20
Business	3	12	---	---	3	7.5
Housewife	---	---	11	73.34	11	27.5
Driver	4	16	---	---	4	10
Labourer	8	32	---	---	8	20
Unknown	1	4	---	---	1	2.5
Total	25	100	15	100	40	100

Table - 6: Distribution of Aluminium phosphide poisoning cases according to socio-economical status.

Socio-economic class	No of cases	Percentage (%)
Upper	3	7.5
Middle	11	27.5
Lower	26	65
Total	40	100

Table - 7: Distribution of Aluminium phosphide poisoning cases according to type of family.

Type of family	No of cases	Percentage (%)
Nuclear	18	45
Joint	22	55
Total	40	100

Table - 8: Area and place of incidence of Aluminium phosphide poisoning.

Cases	Area		Place		
	Urabn	Rural	Home	Workplace	Others
No of cases	17	23	18	1	21
%	42.5	57.5	45	2.5	52.5

Table - 9: Time of consumption of Aluminium phosphide poisoning.

Time of consumption	05-08 AM	08-11 AM	11AM-02PM	02-05 PM	05-08 PM	08-11 PM	11PM-02AM	02-05 AM
No of cases	1	4	5	5	9	9	5	2
%	2.5	10	12.5	12.5	22.5	22.5	12.5	5

Table - 10: Manner of Aluminium phosphide poisoning.

Manner of poisoning	No of cases	Percentage (%)
Suicidal	33	82.5
Homicidal	---	---
Accidental	7	17.5

**Table - 11:** Reasons for suicidal Aluminium phosphide poisoning.

Reason	No of cases	Percentage (%)
Domestic	12	36.37
Financial problems	10	30.30
Psychiatric illness	2	6.06
Exam failure	3	9.09
Infertility	1	3.03
Unemployment	2	6.06
Love failure	2	6.06
Unspecified	1	3.03
Total	33	100

Table – 12: Time interval between consumption of Aluminium phosphide and seeking medical treatment.

Time interval	No of cases	Percentage (%)
<1 hour	3	7.5
1-2 hours	8	20
2-6 hours	13	32.5
6-12 hours	11	27.5
>12 hours	5	12.5
Total	40	100