Original Research Article

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The pattern of suicide poisoning cases in the Tertiary care Centre in Chengalpet district, Tamil Nadu, India

R. Swaminathan Veerasamy¹, V. Pragadeesh Raja^{2*}, T. Muthukumar², A. Kalaivani²

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*Correspondence:

Dr. V Pragadeesh Raja,

E-mail: vpragadeeshraja@gmail.com

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ABSTRACT

Background: Suicide is an important public health problem, every year 800000 people due to suicide, Suicide is the third leading cause of death in 15-19-year-old only. Most (79%) of the suicide happened in low and middle-income countries. Among them consuming poisoning is 25.8%. In India 2019 incidence of suicides 10.4 per one lakh (1,00,000) of population. Tamil Nadu is the state of India sharing most of the suicide deaths, second position (9.7%) in 2019 next to Maharashtra (13.6%).

Methods: This is a Hospital-based cross-sectional study, this study was conducted among suicide patients who consumed poison by using nonprobability, consecutive sampling. A pretested questionnaire was administered, and information regarding socio-demographic factors, type of poisoning, and outcome of poisoning was obtained. Statistical analysis was done through Statistical package for social sciences (SPSS) version 21.

Results: Of 111 suicide poisoning patients admitted, were female (50.5%) and the majority were from a rural area (70.3%). Among suicidal, tablet poisoning was predominant (27.7%), followed by Organophosphorus poisoning (26.8%) and rat killer poisoning (17.1%). The major reason for suicidal poisoning was family problems (58.6%), and the majority of Suicidal poisoning was more among the age group of 11–30 years (67.6%) and middle socioeconomic status (50.5%). The majority of patients were admitted to the hospital with median days of 2 days (range 1-12). Among 111 patients 109 are cured and discharged and death of 2 cases.

Conclusions: Suicides are avoidable and preventable deaths, there are so many measures are there in individuals levels particularly high-risk persons and community level also. So many poisoning cases are tablets and organophosphorus so to take steps for reducing access for that like legislative measures and regulations. Early identification of the mentally disturbed persons and to give counselling.

Keywords: Intensive care unit, Suicide, Sociodemographic factors

INTRODUCTION

Suicide is an important public health problem, every year 800000 death occurred due to suicide, suicide is the third leading cause of death in the age group between 15-19-year-old only. Most (79%) of the suicide happened in low and middle-income countries.¹ According to recent data

from the National Crime Bureau of India, increase in the number of suicides in India 1,39,123 deaths in 2019. Among them consuming poisoning is 25.8%. In India 2019 incidence of suicides 10.4 per one lakh (1,00,000) of population. Tamil Nadu is the state of India sharing most of the suicide deaths, second position (9.7 %) in 2019 next to Maharashtra (13.6%).²

¹Department of Anaesthesia and critical care, Chettinad Hospital and Research Institute (Chettinad Academy of Research and Education), Chengalpet, Tamil Nadu, India

²Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute (Sri Balaji Vidyapeeth), Chengalpet, Tamil Nadu, India

The incidence of poisoning in India is among the highest in the world. Poisoning is the deterioration of the body's functions by the ingestion of any substance being toxic to the body or by overdosing a nontoxic substance at a normal dose.³ In general, accidental poisoning is more common in children, whereas suicidal poisoning is more common in young adults.⁴ All the cases of poisoning are admitted through emergency services where the safety of life of the patient is the main issue for the doctor.⁵

Intentional poisoning is dependent on the cultural and native factors of a region and the available facilities including poisons and drugs. In India, due to wide geographical variation and vast differences in socioeconomic status and cultural practice, the type of poisoning cases encountered in clinical practice differ in different states.

METHODS

Study design

The study design was cross-sectional and prospective study.

Study setting

The study was conducted in hospital based settingintensive care unit in a tertiary care center.

Study population

The study was conducted among suicide patients who consumed poison.

Inclusion criteria

All patients admitted to ICU for a duration of one year from September 2019 to August 2020.

Exclusion criteria

Patient discharged in Against Medical Advice before treatment complete and shifted to another hospital.

Data collection

All participants, after obtaining informed consent, were interviewed with the semi-structured questionnaire. Collected information was kept confidential.

Sample technique

The study sample technique was nonprobability, consecutive sampling.

Study instrument

A standardized pre-tested semi-structured questionnaire was used.

Section A

This section includes the details of the demographic profile of the patient participants like name, age, gender, socioeconomic status, occupation, educational status, address.

Section B

This section includes the details of the type of poison taken, time and duration interval to reach the hospital, the reason for suicide, previous attempt, alcohol intake, GCS of the patient, intubation.

Section C

This section includes the outcome of the patient and hospital days.

Statistical analysis

Data collected was then entered in the Microsoft Excel sheet (MS excel 2010). The normality of the data was checked. Data were coded and analyzed in Statistical package for the social sciences (SPSS) version 21.0 software (institutional licensed). Descriptive analysis for all the variables was expressed in frequency and proportions. Age was expressed in the median. Chi-square test was done. P-value of less than 0.05 was considered significant.

Ethical consideration

Permission was obtained from the Chief of the Intensive care unit. All the selected patients were informed about the purpose, procedure, and confidentiality of the study in the language they understand. Written informed consent was obtained from the study participants. Confidentiality was maintained throughout the study.

RESULTS

During the study period, 111 patients with suicide poisoning were included in the study. The majority of patients were young with a median age of 28 years (range 14-82). The maximum number of cases (67.5%) was recorded in the age group of 20-30 years. 20.7% of the patients are under 20 years. 56 patients were women (50.5%) and 55 were men (49.5%). 66 patients are married (59.5%), 42 patients were unmarried (37.8%), 2 patients widow (1.8%) and one patient divorced (0.9%). Most of the patients (70.3%) from the rural area. Three patients (2.7%) had a previous history of suicidal attempts.50.5% cases were from socio-economic status (Modified B.G. Prasad) of the middle class. (Table 1). 12 patients take poison along with alcohol (10.8%).106 poisoning cases are literate only (95.5%) (Table 1).

Table 1: Socio-demographic profile.

Age group (years)	No. of. Cases	Percentage
0-10	0.0	0.0
11-20	23	20.8
21-30	52	46.8
31-40	19	17.1
41-50	07	6.3
51-60	03	2.7
Above 60	07	6.3
Sex		
Male	55	49.5
Female	56	50.5
Area		
Urban	33	29.7
Rural	78	70.3
Marital		
Married	66	59.5
Unmarried	42	37.8
Divorced	1	0.9
Widow	2	01.8
Socioeconomic status		
Upper	0	0
Upper middle	35	31.5
Middle	56	50.5
Lower middle	18	16.2
Lower	2	01.8
Education		
Illiterate	5	04.5
Primary	6	05.4
Middle	13	11.8
High	19	17.1
Higher secondary	42	37.8
Graduate	26	23.4
Occupation		
Student	20	18.0
Housewife	33	29.8
Business	15	13.5
Farmers	14	12.6
Engineers	2	01.8
Others	27	24.3
Religion		
Hindu	84	75.7
Christian	22	19.8
Muslim	5	4.5

Among the cases, the majority (71.1%) of the suicide happened in the evening only time interval between 3 pm to 10 pm. In most of the cases, 72 (64.9%) reach the hospital between 2 to 3 hours after consumed poison. 63 cases attempt suicide because of the family problem (56.8%) and followed by 34 cases they not willing to tell the reason (30.6%) (Figure 1).

Table 2: Association between poisoning agent and area.

Agent	Area		P value
	Urban	Rural	
Organophosphorus	4	26	
Oleander poisoning	4	9	
Tablet poisoning	17	14	
Corrosive poisoning	0	2	
Rat killer poisoning	4	15	
Pyrethroid poisoning	1	1	0.036
Abrus precatorious sees	0	2	
Phenol poisoning	1	5	
Others	2	4	

Table 3: Association between after poison consumed to reached hospital and outcome.

Intonnal	Outcome		P
Interval	Cured	Death	value
Less than one hour	32	0	
2 to 3 hour	71	1	0.033
3 to 4 hour	6	1	0.033

Table 4: Association between after poison consumed to reached hospital and intubation.

Interval	Intubation		P
	Yes	No	value
Less than one hour	1	31	
2 to 3 hour	9	63	0.000
3 to 4 hour	5	2	0.000

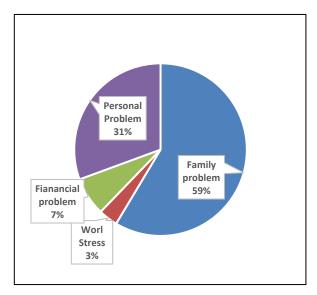


Figure 1: Causes of suicide.

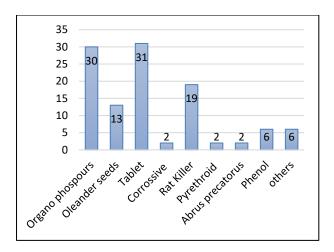


Figure 2: Poisoning agents.

The majority of the cases are tablet poisoning (27.9%) followed by Organophosphorus poisoning (27.0%).

Among tablet poisoning, most of them are paracetamol poisoning only (41.9%) and followed by antidepressant tablet poisoning (32.2%) (Figure 2). Among 111 patients 15 patients (13.5%) were intubated, required mechanical ventilation. The majority of patients were admitted to the hospital with median days of 2 days (range 1-12). Among 111 patients 109 are cured and discharged and death of 2 cases.

DISCUSSION

In our study majority of the suicide cases presented between 11 and 30 years of age group (67.6%), this is concurrence to other studies.^{6,7} The majority of them in these productive years may be attributed to the high degree of stress on academic, financial, and emotional fronts, and also the inability to achieve targets may contribute to suicidal actions as observed by others this shows they do not have good mental health, so need to give mental health and counselling from school life itself. In this study almost equal between the male and female to commit suicide, but in other studies, males are dominated in the poisoning cases.^{8,9} Most of the organophosphorus case are reported from rural areas only that shows free availability of organophosphorus agent among rural areas and the majority of the poisoning cases reported from urban area (Table 2). Need appropriate action and control for sale this agent to public.

Among mortality of 2 cases, two cases were organophosphorus case poisoning which affects the organs rapidly. These two cases were late reporting to the hospital. Hence, mortality depends on the substance and time of intervention to give an antidote, to prevent poison to affect the organ (Table 3). The cases brought to hospital more than 2 hours of attempt ingestion of poison survived despite more amount of poisoning agent consumed. The first aid support such as administration of gastrointestinal lavage and dose schedule of various antidotes depends

upon the poisoning agent such as atropine, pralidoxime, and activated charcoal is given had a considerable impact on the outcome and also first aid includes other life-saving measures like intubation also this result similar to other study. ¹⁰ Late reporting to hospital after poisoning intake also needs a requirement of mechanical ventilation. (Table 4). During the intake of poisoning agent some patient along with they consumed alcohol also that will increase the mechanism of the poisoning agent and also they are more chance of intubation, it is statistically significant (p=0.001).

Agent, intubation were play important role in the number of the days patients stay in the hospital. Some agents need more days for observation of the patient in the hospital it is statistically significant (p=0.023) and intubated patients also more days to stay in the ICU so their hospital days are prolonged (p=0.000). So patients spend more money that leads to an economic burden to the family and also unable to receive another medical emergency case also. The limitation of this study is this work is limited to only a small sample of cases only.

CONCLUSION

Suicides are avoidable and preventable deaths, there are so many measures are there in individuals levels particularly high-risk persons and community level also. So many poisoning cases are tablets and organophosphorus so to take steps for reducing access for that like legislative measures and regulations. Early identification of mentally disturbed persons and to give counselling. To teach and regular conducting of the programs from school and colleges for mental health. To follow up care for the people who attempted suicide and provision of community support.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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