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ORIGINAL ARTICLE

Rising trends of intentional ingestion of caustic agents in adults, A study from tertiary health care center.

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ABSTRACT… Objective To evaluate factors associated with rising trends of intentional ingestion of caustic agents for suicidal attempts in Pakistan. **Study Design:** Cross Sectional, Observational study. **Setting:** Tertiary Health Care Center of Islamabad. **Period:** January 2019 to December 2020. **Material & Methods:** One hundred subjects with intentional ingestion of caustic ingestion were interviewed on a written questioner after informed consent. Non-probability purposive was sampling method used. **Results:** Out of 100 patients 63% were female, mean age was 28.81 years and 58% had suicidal intension. Disturbed marital/ family life was main factor behind suicidal attempts. (P= 0.025). **Conclusion:** factors like female gender, younger age, poor socioeconomic status and disturbed marital/ family life in study group had statistically significant association with suicidal intentions.

Key words: Behavioral Problem, Caustic Injury, Disturbed Marital Relations, Emotional Drive, Poor Socioeconomic Condition, Social Life, Suicidal Intensions.

INTRODUCTION

Caustic agents are the substances with acidic and alkaline properties. Strong acids with pH less than 2 and strong alkalis with pH higher than 12. Ingestion of these agents cause chemical burn of gastrointestinal tract. Caustic ingestion is one of the major health problems prevailing worldwide. Accidental ingestion occurs usually in infants and children[1] but in adolescents and adults its ingestion is usually intentional.[2] Suicidal thoughts are main drive of its use in adults. Despite all the efforts and the educational campaigns its use is increasing day by day. In the United States an incidence of 5000 to 15000 cases per year is estimated[3] Ingestion of corrosive agents varies country to country. Reports from Denmark, Israel, UK, Spain, and Australia showed that alkaline agents are most commonly used. In developing countries the majority of caustic ingestion is due to acids. Caustic agents are generally easily available (washroom cleaner, battery acids), usually cheaper in cost. And mostly no legislation/ checks are available on its sell and misused in criminal activities both homicidal and suicidal attempts.[4] Life after caustic injury is a misery. Despite of all advances in medical field, persons with significant caustic injury at time of ingestion usually are not free of medical support throughout life. They often need assisted medical and surgical procedures to maintain the process of eating still they have feeding difficulties and suffer from nutritional deficiencies. The degree of this dependency depends on extent of mucosal injury of gastrointestinal track which range from apparently normal mucosa to extensive ulceration and perforation and massive hemorrhages of gastrointestinal tract leading to death. Long term complications include stricture formation, aorto-enteric, gastro-colic or gastro-bronchial fistulas and increased risk of esophageal and gastric malignancy. Reported mortality rate after caustic ingestion is between 7 and 14%.[5] These people not only live unhealthy life after wards but become a big burden on family, society and

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health care delivery system. They often live with severe depression, and anxiety.[6] Constant rise in number of caustic injury cases is alarming and it is high time to identify factors directly linked to such rise.

Through this study we have evaluated important factors that contribute in intentional use of caustic agents for suicidal attempts in Pakistani population after approval of Ethical Review Board (F.1-1/2020/ERB/SZABMU/280).

MATERIAL & METHODS

A cross sectional, observational study was conducted at tertiary health care center, Islamabad (ethical approval dated 22 January 2019) from January 2019 to December 2020. Sampling technique used was non probability purposive. 100 patients with primary diagnosis of intentional ingestion of corrosive ingestion were interviewed after informed consent Sample size was calculated with estimated prevalence rate of 50%, precision 10% and significance level 5%. Patients of age 15 above, both genders were included. Patients in critically ill state, inability to communicate due to dis-articulation or preexisting psychiatric illness were excluded from study. Demographic variables like age, gender, education, occupation, socioeconomic and marital status were studied. Variable like intensions behind corrosive ingestion, selection of caustic agents, and situations leading to corrosive ingestion were included in study. Data was evaluated on SPSS 16 in the form of frequencies and percentages. Chi- square test was used to detect association between factors and suicidal intensions. P-value < 0.05 considered as significant .

RESULTS

Study population comprised of 100 cases of caustic injury out of which 63% were female and 37% were male. Mean age of patients was 28.81 years. Socioeconomic status shows 63% population belong to poor socioeconomic status (Figure-1).

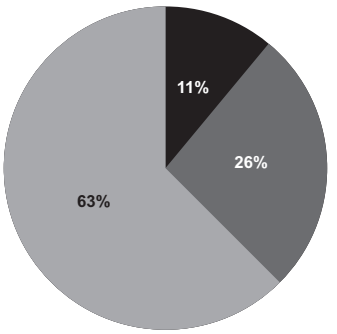

Figure-1. Economical status of study population

Regarding marital status, 40% study population was unmarried, 9% were married, 14% were divorced and 10% were widow. While rest of population were in relationship. (Figure-2).

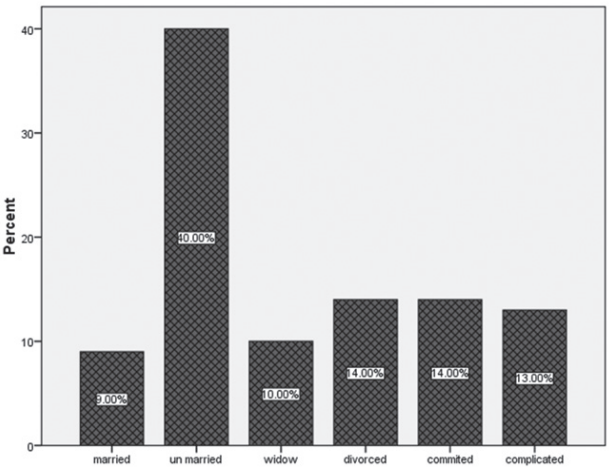

Figure-2. Marital status of study population

Most common situations/ problems in life leading to self-harm and suicidal attempts in study group mentioned in (Table-I).

Situations	Frequency (%)	Cumulative Percent %
Economical stress	26 (44.8%)	44.8
Job related issues	3 (5.2%)	50.0
Family related issues	20 (34.5%)	84.5
Spouse or love affair/ marital life related issues	9 (15.5%)	100.0
Total	58 (100.0%)	

Table-I. Situation leading to caustic agent ingestion

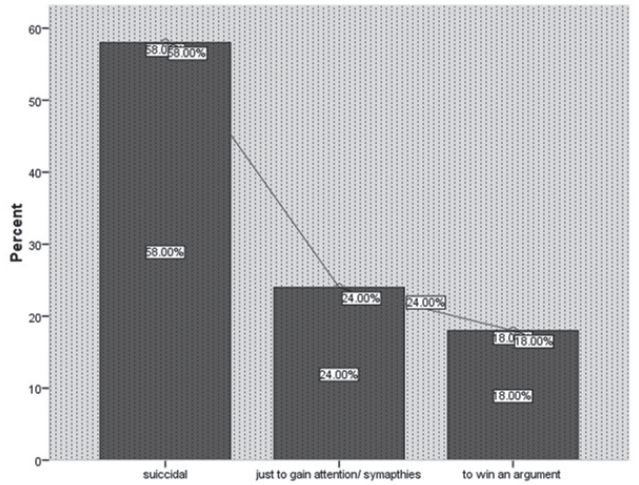

Figure-3. Intention behind corrosive ingestion

The most alarming and eye opening result indicates that 58% population ingested corrosives with suicidal intension. (Figure-3).

Association of female gender, younger age, and poor socioeconomic and disturbed marital life all had strong association (P< 0.05) with suicidal intentions in patients using corrosives. (Table-II)

Variables	Categories	Suicidal (%)	Non-Suicidal (%)	P-Value
Sex	Male	16	21	0.022
	Female	42	21	
Age				
	Teen	12	27	0.000
	Young	26	11	
	Adult	20	4	
Economic Status				
	Poor	41	22	0.031
	Rich	17	20	
Marital Status				
	Married	6	3	0.025
	Unmarried	17	23	
	Widow	9	1	
	Divorced	11	3	
	Committed	6	8	
	Complicated	9	4	

Table-II. Association of factors with suicidal intension in study population of caustic injury

DISCUSSION

Around 30-50% of adults use corrosives for suicidal attempts[7], which is the most alarming situation for the whole society. Much of literature covers medical/ endoscopic and surgical therapies but factors prevailing in society directly or indirectly related to this sort of poisoning are not studied in detail. That is why it is high time to identify factors responsible for such rising trends which seems beyond personality traits and surely relate to geo-socio-cultural factors which influence human behaviors and responses during challenges and day to day stresses of life.

We studied 100 patients who intentionally ingested caustic agents. Gender distribution shows that female were dominating 63% while males were 37%. Mean age in our study was 28.5 years. This is in accordance with another study from Pakistan on caustic injury which highlighted female dominance (84%) and 66% younger age people with mean age of 20.5 years.[7] Both younger age and female gender are considered as highly sensitive groups, this nature might make them liable to react aggressively in panic states.[8]

On studying the economic status of study population it was found that incidence was high in underprivileged population, belonging to lower socio-economic status and living below poverty line.[9] Similar distribution were see in our study. (Figure-1) 63% and 26% patients belong to poor and middle socioeconomic status respectively while 11% belong to upper class. This is unfortunate that poor commodities cannot enjoy facilities, status, and standards of living while rich people are enjoying all status all over, resulting in inferiority complexes in poor, negative thinking and emotional instability.

Another factor evaluated in detail in our study was marital status and personal relationships (Fig 2) keeping in view the positive influence of healthy human relationships and family support on overall mental health of an individual. Out of 100, 40.0% individuals were unmarried, 14% were divorced, 10% were widow, 14% were in relation (engaged) while 13% were in complicated relation, and only 9% were married. Disputes and fight with family members especially spouse was main triggering factor corrosive intoxication in our study population.

Lack of family support is main contributory factor in abnormal behaviors and responses of members of society.[9] in our study mostly young, unmarried population used caustic agents with non-suicidal intension. Similarly major stress inducers/ situations behind suicidal attempts (Fig 3) was economical stress in 44.8%, 34.5 had family related issues, 5.2% were experiencing job related issues and 15.5%had disturbed marital life.

58% individuals in our study had suiccidal intensions. (Figure-3) this is in according with other studies which shows that 30-95% adults ingest corrosives with suicidal intension,[10,11]

Association of suicidal tendencies with female gender, younger age, poor economical states, and disturbed marital life was statistically significant. (Table-II) This result is in accordance with available literature.[12] Through this study we have establish the fact that caustic ingestion is highly preventable by taking measures of improvements in jobs and economy, social and interpersonal relations and recreational and healthy activities.[12]

CONCLUSION

Suicidal attempt are the main reason behind rising trends of intentional ingestion of corrosives in adult population. Younger age and female gender have significant predisposition. Poor socioeconomic status, lack of family support, disturbed marital relationship and work related stress are main factors influencing over emotional liability and suicidal attempts. Easy access and low cost of chemicals like washroom cleaners is the main reason people chose them for suicidal attempts.

As long term morbidity and high mortality are associated with corrosive ingestion, multi departmental approach for community development is needed, in addition the strong legislation against corrosives misuse help in prevention & control.

However more studies are needed especially for psychological assessment of prone population and therapeutic improvements.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Shafat Khatoon	Concept, Study design, Data collection, Paper writing.	
2	Aijaz Ahmed Sand	Statistical analysis.