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A STUDY OF CARDIAC DYSRHYTHMIAS IN OLEANDER SEED POISONING IN A TERTIARY CARE HOSPITAL –A RETROSEPECTIVE STUDY .

Dr. S.Sivakumar [1] , Dr. Befin.k,[2]

1, Junior Resident, Department of Emergency Medicine Sree Mookambika Institute of Medical Sciences College Kanyakumari, Tamil Nadu, India.

2. Associate Professor, Department of Emergency Medicine, Sree Mookambika Institute of Medical Sciences Kanyakumari, Tamil Nadu, India.

Corresponding Author: Dr. S.Sivakumar, Junior Resident, Department of Emergency Medicine Sree Mookambika Institute of Medical Sciences Kanyakumari, Tamil Nadu, India.

ABSTRACT :

Background: In developing countries, the hospital admissions due to suicidal attempts are relatively high. Even in western countries mortality due to suicidal attempt is on the rise. The factors influencing suicidal attempts mainly depends on cultural &ethnic background. It is essential to prevent or decrease the number of deaths due to suicidal attempts.

Aim: To determine the incidence of oleander seed poisoning among hospital admissions in our hospital .To elucidate the factors influencing the incidence of oleander seed poisoning,Age.Sex.Education.Socio economic status.

Results: Out of the 100 selected patients around 56 % of the patients selected were in the range of 15– 25 yrs. 26 % of the patients in the age range of 25– 35 yrs. 12 % of patients in 35– 45 yrs and 6 % in the age group more than 45 yrs.

Conclusion: Most common mode of consumption was in the grounded form In our study mortality is seen more commonly if the consumption of seed was > 3.ECG abnormality is seen in 78 % of the patients.There is a marginal increase in the ECG abnormality in females.ECG abnormality can occur as early as 2 hrs and as late as 18hrs.

Keywords: Oleander seed poisoning, cardiac dysrhythmias.

INTRODUCTION:

In developing countries, the hospital admissions due to suicidal attempts are relatively high. Even in western countries mortality due to suicidal attempt is on the rise. The factors influencing suicidal attempts mainly depends on cultural &ethnic background. It is essential to prevent or decrease the number of deaths due to suicidal attempts.

In India the incidence of suicidal attempts is more in females. This may be attributed to gender discrimination , lower educational standards , Lack of financial & social independence . Various methods of suicidal attempts used are hanging ,drowning, ingestion of chemicals, corrosives or indigenous plant substances . Drug abuse or over dosage also contributes.

In our population Yellow oleander poisoning is more commonly seen. Yellow oleander is more potent & toxic than White oleander. All parts of the plant namely The Root, Stem, Twig, Leaf, Flower, Fruit, Kernel & Seed are poisonous. These plant parts have a high content of alkaloid whose

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action is similar to digitalis. Cardio toxicity is the major cause of death in oleander poisoning.

The proportion of hospital admissions due to oleander seed poisoning is high. The incidence is high in adolescence & early adult life. This group of population is productive, economically. suicidal attempts can be effectively prevented by comprehensive health care & counseling. Poisoning due to indigenous plants is more common in India which should be prevented or treated appropriately.

AIM AND OBJECTIVES OF THE STUDY:

1. To determine the incidence of oleander seed poisoning among hospital admissions in our hospital .

2. To elucidate the factors influencing the incidence of oleander seed poisoning,Age.Sex.Education.Socio economic status.

3. To analyze various factors influencing mortality in oleander seed poisoningvariety of oleander,Part of the plant consumed,Amount consumed,Mode of consumption,Time window,Cardiac Dysrrythmias.

MATERIALS AND METHODS:

Totally 100 patients of Yellow Oleander poisoning have been selected randomly in intensive medical care unit in our hospital from April 2023 to August 2024.

Detailed history was taken: Regarding the number of seeds consumed,Reason for consumption,Mode of intake– swallowed or chewed or grounded or paste form,Time of consumption– whether taken with empty stomach or after food, if taken after food {how many hours},Whether yellow oleander seed is taken alone or with other poisons like organophosphorus, cow dung powder, alcohol or coffee,Symptoms at the time of presentation,Time between ingestion and admission,History of first aid.

Complete clinical examination:G/E: Pulse Rate, Rhythm; Blood pressure; Respiratory Rate; Single Breath Count.CVS: JVP(Cannon a waves); Varying intensity of first heart sound; regularity of heart sounds.CNS: GCS, Pupil size& reactions; Neuromuscular weakness; Respiratory muscle paralysis.

ECG:Recordings were taken in 12 lead ECG immediately after admission.Patients with arrhythmias were put on continuous ECG monitoring and recordings were taken in lead 2 long strip. Then ECG was repeated 12 hrs later and every 24 hrs till discharge.

Statistical analysis was done using the statistical package for social sciences (SPSS).Different statistical methods were used as appropriate. Mean ± SD was determined for quantitative data and frequency for categorical variables. The independent t- test was performed on all continuous variables. The normal distribution data was checked before any t-test. The Chi-Square test was used to analyze group difference for categorical variables.A p- value < 0.05 was considered significant.

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RESULTS:

TABULATION SHOWING THE VARIOUS FORMS OF CONSUMPTION OF OLEANDER SEED IN 100 PATIENTS:

Forms of consumption	Number of patients { % }
Grounded	64{ 64% }
Paste	26 { 26%}
Chewed	6 { 6 % }
Seeds with leaves	4 { 4% }

TABULATION SHOWING THE RELATIONSHIP BETWEEN SOCIO ECONOMIC STATUS & OLEANDER SEED POISONING IN 100 PATIENTS.

Socio economic class	**No. of patients**	**Percentage**
Class I	**--**	**--**
Class II	**--**	**--**
Class III	**--**	**--**
Class IV	**31**	**31%**
Class V	**69**	**69%**

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TABULATION SHOWING TIME WINDOW BETWEENnCONSUMPTION AND HOSPITALISATION IN 100 PATIENTS OF OLEANDER SEED POISONING:

Time interval	No. of patients	Percentage
< 6 hrs	77	77%
6 – 12 hrs	19	19%
> 12 hrs	4	4%

TABULATION SHOWING THE INCIDENCE OF ECG ABNORMALITIES IN 100 PATIENTS OF OLEANDER SEED POISONING

Total patients	Abnormal Ecg	%	Normal Ecg	%
100	78	78 %	22	22 %

TABULATION SHOWING THE RELATIONSHIP BETWEEN AGE & ABNORMAL ECG IN 100 PATIENTS OF OLEANDER SEED POISONING.

Age group (yrs)	Number of patients	Percentage

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15 – 25	46	60 %
25 – 35	13	17 %
35-45	11	14 %
>45	8	9 %

TABULATION SHOWING THE RELATIONSHIP BETWEEN GENDER & ABNORMAL ECG IN 100 PATIENTS OF OLEANDER SEED POISONING.

Patients with abnormal ECG	Male (%)	Female (%)
78	33 (42.3 %)	45 (57.7 %)

TABULATION SHOWING THE NO: OFOLEANDER SEEDS CONSUMED & ABNORMAL ECG IN 100 PATIENTS .

Number of seeds consumed	Patients with abnormal Ecg	Percentage
< 3	6	46.2 %

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>3	72	82.8 %

TABULATION SHOWING THE RELATIONSHIP BETWEEN FORMS OF ECG ABNORMALITY & MORTALITY IN 100 PATIENTS OF OLEANDER SEED POISONING

Ecg abnormality	No. of deaths	Percentage
Second degree A – V Block	2	40 %
Complete heart block	1	20 %
Sudden cardiac death	2	40 %

TABULATION SHOWING THE TIME OF DISAPPEARANCE OF ABNORMAL ECG IN 100 PATIENTS OF OLEANDER SEED POISONING.

Time of disappearance	No: of patients	%
Reverted with in 24 hrs	29	37.17
24 – 48 hrs	27	34.61
48 – 72 hrs	13	16 .66

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72 – 96 hrs	6	07.69
Upto 1 week	3	03.84

Discussion :

The vulnerable age group for oleander seed poisoning was 15- 35 years, which contributed to 82 % of the study population. Only 6% of the patients were >45 years.12% of the patients were among the age group of 35–45 years.

Out of the 100 selected patients around 56 % of the patients selected were in the range of 15– 25 yrs. 26 % of the patients in the age range of 25– 35 yrs. 12 % of patients in 35– 45 yrs and 6 % in the age group more than 45 yrs. Thus according to the study the incidence of the poisoning is higher in the age group of 15– 25 yrs.The incidence of poisoning in males was 42 %. 26 % in the age group between15 – 25 yrs constituting the major portion. Among females the incidence of poisoning was 58% with 30% in the age group between 15–25 yrs and 18 % in 25 – 35 yrs. Thus the incidence of poisoning is higher in females than males.

The incidence of oleander seed poisoning was higher among female patients. Majority of females were among 15–35 years age group. 42 % of males had consumed oleander seed. Even among males 34 % of them were among 15–35 years age group.Total number of deaths in our study population was 5 % .4 % among the age group of 15 and 35 yrs.1 % in the age group of > 45 yrs. The commonest cause of death being bradyarrythmias. 2 % of deaths was due to second degree A-V block. Sudden cardiac death was the cause in another 2% .In 1% of the population mortality was due to complete heart block.

Total number of deaths in the selected study group of 100 patients was 5 % . Males contributed to 3 % of mortality. 2 % of mortality was seen among females. According to the study mortality is more in males, though the incidence of poisoning is more in female patients. This may be attributed to the number of seeds taken, the mode of consumption, time window for hospitalisation. Though the incidence of poisoning was more common in females, the mortality is more common in males. This may be related more to the mode of consumption of the seed rather than the sex difference.

The mode of consumption in majority of patients in our study population was in grounded form, around 64%. 26 % of patients have taken it in paste form. The toxin availability in these forms are more ,hence mortality is more when the seed is taken in these forms .other modes of consumption seen in the study group are chewed seeds and seeds along with

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leaves.

Out of the 100 patients 64 patients took the seed in grounded form, 26 patients took it in the paste form , 6 patients in chewed form and 4 patients have taken seeds with leaves. In the grounded and paste form the alkaloid availability is more and hence the cardiac toxicity .Out of the total 100patients 77 % of patients presented with in 6 hrs of consumption.19% patients presented within 6– 12 hrs and only 4% of patients presented beyond 12 hours. Most of the patients presented earlier (< 6hrs), hence the low level of mortality observed in our study.

In majoritty of the study population the time window was < 6 hours.Delayed presentation was seen only in 4 % of patients.This may be because of the awareness of the study group.this can even attribute to the low incidence of mortality.In our study most patients consumed around 4 – 6 seeds constituting 67 % .Mortality was not seen when patients consumed < 3 seeds . Mortality appears high when patient consumed > 5 seeds .There appears to be a direct relationship between the number of seeds consumed , ECG abnormality and mortality.

78 % of the patients had ECG abnormalities and remaining 22 had normal ECG . The abscence of Ecg changes in 22 % of patients can be attributed to the less no : of seeds consumed ,effective first aid and partly to mode of consumption .78 % of patients who had Ecg changes had mostly consumed > 3 seeds ,in grounded or pasted form which has a higher alkaloid content.

The number of patients with ECG abnormality was 46 in the age group of 15 – 25 yrs constituting around 60 % . 17 % of patients had ECG abnormality in 25 – 35 yrs age group. In 35 – 45 yrs 14 % and in > 45 yrs 9 % of patients had ECG abnormality.

Out of the 13 patients who had consumed < 3 seeds 6 patients had ECG abnormality . 72 Patients who had consumed more than 3 seeds had ECG abnormality . Thus around 83 % of patients who had consumed > 3 seeds had abnormal ECG. ECG abnormality was more common if > 3 seeds are consumed.Out of the 78 patients with ECG abnormality 54 had bradyarrythmia and 24 had tachy arrythmia. According to the study bradyarrythmias were more common than tachy arrythmias. Commonest form of arrythmias are sinus bradycardia followed by first degree A-V block. Rarer forms include type 2 mobitz and complete A-V block . sinus tachycardia was the most common tachyarrythmia observed.

Out of the 5 deaths observed in our study ,2 patients died of second degree A-V block , 1 patient died of complete heart block and the other 2 died of sudden cardiac death Out of the 78 patients in the study who had ECG abnormality ,changes reverted in 48 hrs in 56 patients , in 13 patients it reverted in 72 hrs and in 6 patients in 96 hrs.ECG abnormality persisted in 3 patients till 1 week .

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CONCLUSION:

Common age group of poisoning in our study is 15 – 25 yrs .Study reveals a little higher incidence of poisoning in females.yellow oleander is consumed commonly.Oleander seed is the most common part of the plant that is consumed.Mortality is related to time window, no: of seeds consumed,mode of consumption and cardiotoxicity.

Most common mode of consumption was in the grounded form In our study mortality is seen more commonly if the consumption of seed was > 3.ECG abnormality is seen in 78 % of the patients.There is a marginal increase in the ECG abnormality in females.ECG abnormality can occur as early as 2 hrs and as late as 18hrs. 9.Commonest arrythmia found in our study is sinus bradycardia.Varying arrythmias observed in the same patient mandates continuous ECG monitoring.ECG abnormality lasted for 4 days in majority of patients which emphasises that monitoring should be done for a minimum of 4 days.

BIBLIOGRAPHY

1. Bosscher MRF, Leeuwen BLV,Hoekstra HJ. Current management of Surgical oncologic emergencies. PLOS One. 2015;10(5):0124641.
2. Brewer RJ, Golden GT, Hitch DC, et al: Abdominal pain: an analysis of 1,000 consecutive cases in a university hospital emergency room. Am J Surg 1976; 131:219.
3. Cappell MS,colonic toxicity of administered drugs and chemicals/ Am J Gastroenterol 2004; 99(6): 1175-90.
4. Carolene DF, Herlinger H, Laufer I et al, Small bowel enema in the diagnosis of adhesive obstructions. AJR Am J Roentgenol. 1984;142(6):1133-1139.
5. Catena F, L. Ansaloni L, Gazzotti F, et al., Small bowel tumours in emergency Surgery: ANZ Journal of Surgery, 2005 ; 75(11):997- 999.
6. Chow JS, Chen CC, Ahsan H, Neugut AI. A population-based study of the incidence of malignant small bowel tumours. Int J Epidemiol 1996; 25(4):722.
7. Ciresi DL, Scholten DJ. The continuing clinical dilemma of primary tumors of the small intestine. Am Surg 1995;61(8):698.
8. Cunningham JD, Aleali R, Aleali M, Brower ST, Aufses AH. Malignant small bowel neoplasms: histopathologic determinants of recurrence and survival. Ann Surg 1997;225(3):300.
9. Darakhshan A, Lin BP, Chan C, Corralets and outcomes of tumor adherence in resected colonic and rectal cancer. Ann Surg 2008;247:650-8
10. Daskalopoulos G ,Karyotis I, Heretis I, et al., Spontaneous perirenal hemorrhage. Int Urol Nephrol.2003; 36: 15-19.
11. De Dombal FT: Diagnosis of Acute Abdominal Pain, 2nd ed. Churchill Livingstone, London, 1991.
12. Hata K kitayama J,Shinozaki M, et al, Intestinal perforation due to metastasis of breast carcinoma Jpn J Clin.Oncol 2001; 31 : 162-164.
13. Hata K,Kitayama J, Shinozaki M, Komuro Y, Watanabe T,et al., Intestinal perforation due to metastasis of breast carcinoma, with special reference to chemotherapy; a case report. Jpn J

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Clin Oncol 2001; 31: 162-164.