Section: Miscellaneous

Original Research Article

CLINICAL & DEMOGRAPHIC PROFILE OF THE PATIENTS ADMITTED WITH POISONING, OVERDOSE, DRUG ADVERSE EFFECTS & ANAPHYLAXIS IN TERTIARY CARE HOSPITAL

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ABSTRACT

Background: To describe Clinical & demographic profile of the patient admitted with poisoning, drug overdose, drug adverse effects and anaphylaxis.
Materials and Methods: This is a retrospective hospital record-based study conducted in a tertiary care hospital in Kolhapur, Maharashtra. Medical records of 408 admitted patients were included from May 2018 – Dec 2023 after permission from the Institutional Ethics Committee. Medical records having incomplete details were excluded from the study. Data was collected in predefined proforma.
Results: Maximum Patients admitted were of 21 to 30 years of age group with duration of stay up to 4 days. Male (224, 54.90%) were predominant over female (184, 45.09%).Most common diagnosis at admission was poisoning (209, 51.22%), followed by drug adverse effects (115, 28.18%), overdose (57, 19.97%) and drug induced anaphylaxis (27, 6.61%). At early age (up to 40 years) poisoning and drug overdose were common, at middle age (41 to 60 yrs) anaphylaxis was common while at elderly age (51 yrs and more) drug adverse effects were most common. Organophosphorus poisoning is most common with male predominance while household poisoning is commoner in females. Drug induced hypoglycemia is most common drug adverse effect with male predominance followed by drug induced hyponatremia with female predominance. Most common outcome at the time of discharge was complete recovery (283, 69.36%) followed by leave against medical advice (81, 19.85%), and death (31, 7.59 %). Paraquat poisoning is the most common cause of death followed by Organophosphorus.
Conclusion: Maximum admissions were from 21 – 30 years of age.Overall males are predominating over female but up to 20 years of age females are more than males.Poisoning and overdose is most common in young generation while in middle age anaphylaxis is common and in old age group drug adverse effects are commonest. Among causes of hospital admissions poisoning is most common in which Organophosphorus poisoning is commonest followed by paraquat poisoning.
Keywords: Poisoning, overdose, drug adverse effects, anaphylaxis, pharmacovigilance.

INTRODUCTION

Among the many causes of hospital admission poisoning, drug overdose, drug adverse effects and anaphylaxis are in significant proportion of hospital admission.

Poisoning of different type is common all over the world with varying morbidity and mortality, as per WHO approximately 2 lakh people die every year due to poisoning worldwide [23] while also in India many studies have been conducted and reviewed by Chary et al. [24] In one study by Adepu, Churi, Jesslin in tertiary care hospital at South India shows that Pesticides, pharmaceutical drugs and household products were the most common types of acute poisoning. [36]

Over the years, advances in pharmacotherapeutics improved the patient care as well as drug related adverse effect and hospital admission that was first emphasized in 1969 by Einarson. [17]

Prescription of drug is with the intent of optimized outcome with absence of drug related problems. Drug related problems may be due to drug overdose or drug adverse effects in therapeutic doses [19]. Drug induced anaphylaxis may be fatal and may occurs with therapeutically used drugs too P flipsen et al. [10]

There is need of systematic study to describe the hospital admission in term of clinical and demographical profile with outcome of patient associated with poisoning, drug overdose, drug adverse effects and anaphylaxis.

Present study is designed to describe the profile of patients admitted with adverse effect associated with drug consumption.

MATERIAL AND METHODS

The study was conducted retrospectively in tertiary care hospital. All patients who presented with any type of poisoning, overdose, drug adverse effects and anaphylaxis from May 2018 to Dec 2023 were included in the study.

After permission from the institutional ethics committee the data was collected from the medical records of discharged patients and documented in predefined proforma.

Patients whose medical records were incomplete are excluded from the study.As this hospital does not have pediatrics in scope of service pediatric age group was not in data.

Data collected was grouped as poisoning, overdose, drug adverse effects and drug induced anaphylaxis.

Data was also collected for following

- Demographic characters like age, sex etc.
- Details of patients who needed ventilator support, intubation, CVP line and SRC.
- Patients who required expert opinion
- Date of admission and date of discharge i.e., duration of hospital stay
- Recovery status at the time of discharge.

All data was analyzed for test of significance.

Statistical Analysis

The collected data were analyzed by using SPSS software.

Ethical Approval

The study was approved by institutional ethics committee.

RESULTS

Total 408 patients were recruited from the period of May 2018 to Dec 2023.

Among all hospital admission the maximum admission were in 21 – 30 years of age. In age group 51-60 years frequency of all causes of diagnosis is almost equal.

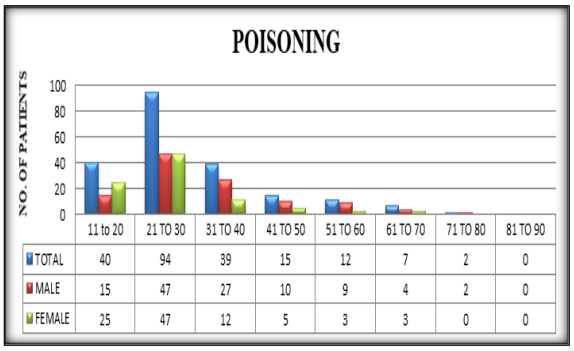
- In early age i.e., from 11- 40 most patients admitted due to poisoning and from 21 – 40 most patients admitted due to overdose.
- In age group 31 – 60 most patients admitted due to Anaphylaxis
- In age group 51 – 90 patients admitted due to drug adverse effect were maximum.

There were 224 (54.90 %) males and 184 (45.09 %) females i.e., overall male are more than female.But up to 20 years of age female are more than male become equal till 30 years while after 30 years of age male admissions were more than female. [Table1]

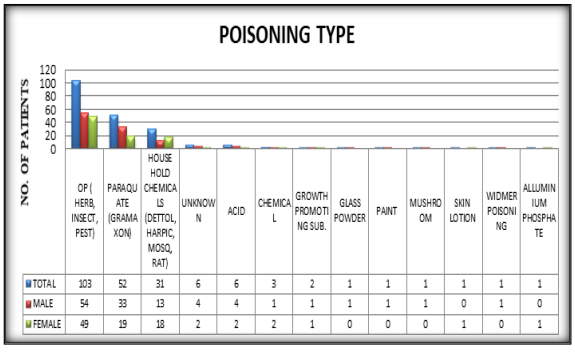
Most common reason of admission was poisoning 209 (51.22%), followed by drug adverse effect 115 (28.18%) then overdose 57 (13.97%) and drug induced anaphylaxis 27(6.67%).

In overdose and anaphylaxis both male and females are almost equal.

POISONING



A



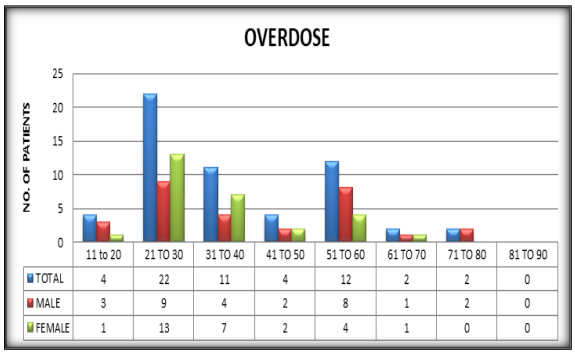
B

Total 209 (51.22 %) patients admitted due to poisoning. In 21-30 years, age group poisoning is much common. Males 114 (54.54%) are more than females 95 (45.45 %), But in age group 11-20, females are more and in 21 to 30 female were equal to male.

Poisoning due to Organophosphates were most common [T= 103 (49.28%), M= 54 (52.42%), F= 49 (47.57%)], followed by Paraquat poisoning [T = 52 (24.88%), M= 33 (63.46%), F = 19 (36.53%)] with male predominance.While in house hold chemical poisoning i.e. Dettol, Harpic, mosquito repellent, rat kill [T= 31 (14.83 %), M= 13(41.93 %), F = 18 (58.06%)] females were predominant than males.

[*T= Total, M = Male, F= Female]

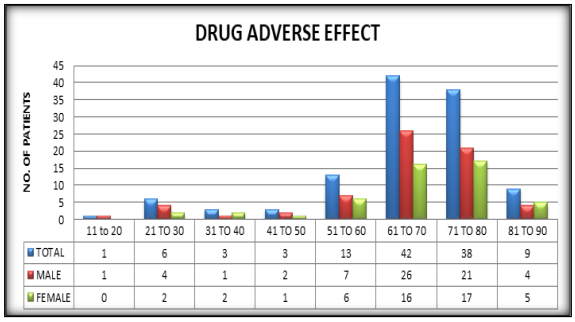
OVERDOSE



	11 to 20	21 TO 30	31 TO 40	41 TO 50	51 TO 60	61 TO 70	71 TO 80	81 TO 90
TOTAL	4	22	11	4	12	2	2	0
MALE	3	9	4	2	8	1	2	0
FEMALE	1	13	7	2	4	1	0	0

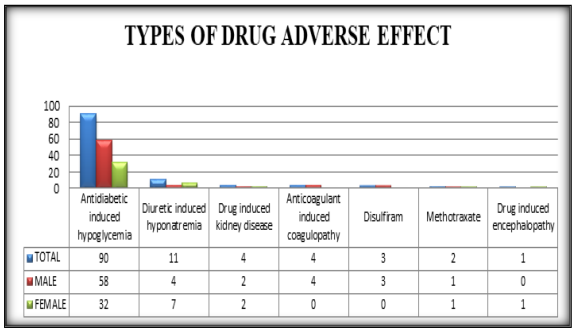
57 (13.97%) patients are admitted due to drug overdose with equal dominance of male 29(51%) and female 28(49%) overall but females are more between 21 to 40 years of age**.**

DRUG ADVERSE EFFECT



	11 to 20	21 TO 30	31 TO 40	41 TO 50	51 TO 60	61 TO 70	71 TO 80	81 TO 90
TOTAL	1	6	3	3	13	42	38	9
MALE	1	4	1	2	7	26	21	4
FEMALE	0	2	2	1	6	16	17	5

A



	Antidiabetic induced hypoglycemia	Diuretic induced hyponatremia	Drug induced kidney disease	Anticoagulant induced coagulopathy	Disulfiram	Methotraxate	Drug induced encephalopathy
TOTAL	90	11	4	4	3	2	1
MALE	58	4	2	4	3	1	0
FEMALE	32	7	2	0	0	1	1

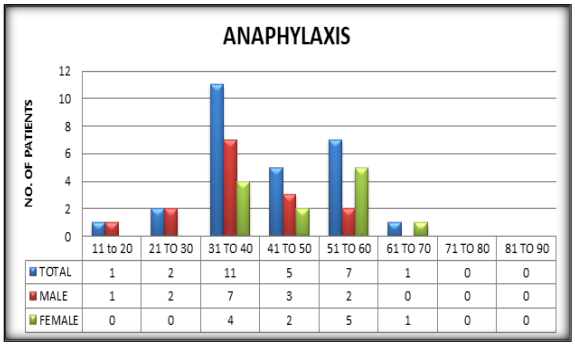
B

Total 115 (28.18%) patients were admitted due to adverse drug manifestation, in which male 72 (62.30%) were commoner than female 43 (37.39%). Most common age group is 51 to 80 years.

Types of drug adverse effects are Antidiabetic induce hypoglycemia, diuretic induced hyponatremia, drug induced kidney disease, Anticoagulant induced coagulopathy, Disulfiram, Methotrexate and Drug induced encephalopathy.

Most common cause is hypoglycemia accounted for total 90 (78.26%) patients, in which 58 (64.44%) were males and 32 (35.55%) were female. Here also males are more than females. Hyponatremia 11 (9.56%) is second most common cause of admission, but here females 7 (63.63%) are more than male 4(36.36%).

ANAPHYLAXIS

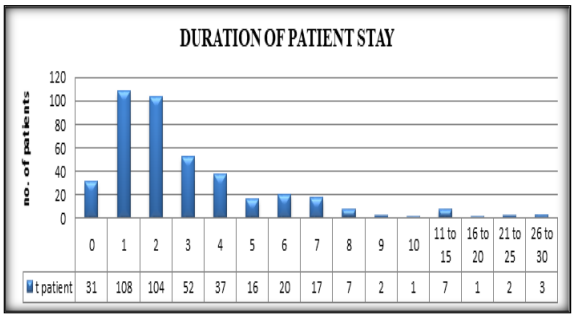


	11 to 20	21 TO 30	31 TO 40	41 TO 50	51 TO 60	61 TO 70	71 TO 80	81 TO 90
TOTAL	1	2	11	5	7	1	0	0
MALE	1	2	7	3	2	0	0	0
FEMALE	0	0	4	2	5	1	0	0

Total 27 (6.61%) patient admitted due to anaphylaxis in which males are 15 (55.55%)and females are 12(44.44%). 31 to 60 is the most common age group.

COURSE IN HOSPITAL

- **DURATION OF PATIENT STAY**



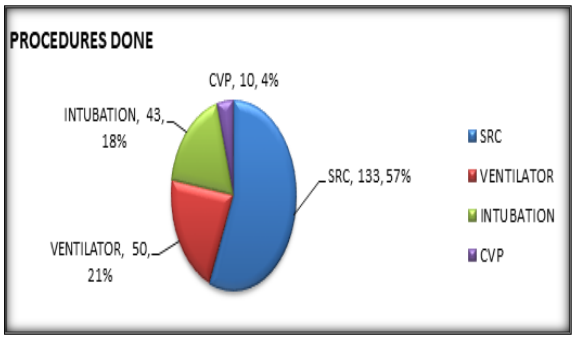
	0	1	2	3	4	5	6	7	8	9	10	11 to 15	16 to 20	21 to 25	26 to 30
t patient	31	108	104	52	37	16	20	17	7	2	1	7	1	2	3

A

Most of the patients (81%) stay up to 4 days or less in hospital. Maximum patients were discharged on 2nd day. 12 (2.94%) patients required expert opinion with some patient needed more than 1 expert opinion. Most commonly sought expert opinion was from Psychiatrist (33.33%), followed by Neurophysician (25%), Gastroenterologist 2 (16.66%), Chest physician 2 (16.66%), Nephrologists 1 (8.33%), Neurosurgeon 1 (8.33%), Rheumatologist 1 (8.33%), Hematologist 1 (8.33%),

ENT specialist1 (8.33%) and 1 (8.33%) patient required opinion of Orthopedic surgeon for lumbar pain.

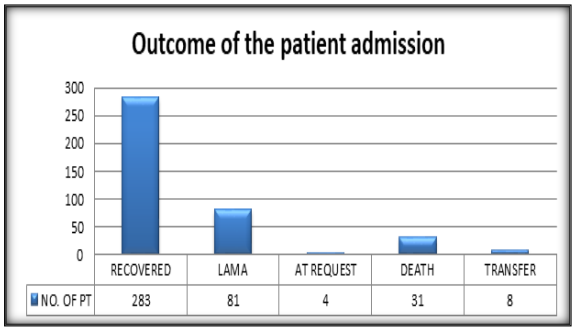
PROCEDURES DONE



B

Procedures like SRC, CVP, intubation & ventilator were also done in some patients. 10% patient's required CVP line, 133 patients required SRC and 43 patients needed intubation and 50 patients needed ventilator support.

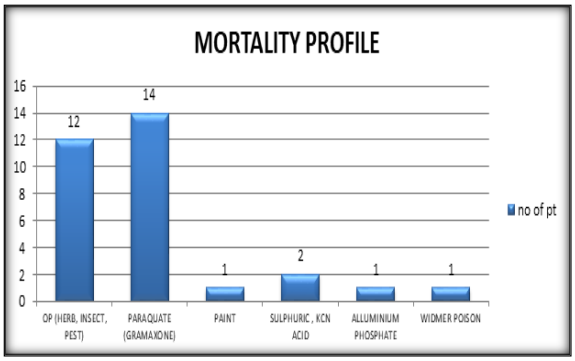
OUTCOME



C

Among 408 patients, 283 (69.36 %) patients discharge after complete recovery. while 81 (19.85%) patients leave against medical advice, 4 (0.98%) patients got discharge at request and 8 (1.96%) patients transfer to another hospital.

MORTALITY PROFILE



D

31 (7.59%) patients died; whatever death occur were all due to poisoning with paraquat 14 (45.16 %)the commonest followed by Organophosphorus poisoning 12 (38.70 %)

Table 1: Age distribution

CAUSE OF ADMISSION	POISONING			DRUG ADVERSE EFFECT			OVERDOSE			ANAPHYLAXIS		
TOTAL	209 (51.22%)			115 (28.18%)			57 (13.97%)			27 (6.67%)		
GENDER	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
20-Nov	15	25	40	1	0	1	3	1	4	1	0	1
21-30	47	47	94	4	2	6	9	13	22	2	0	2
31-40	27	12	39	1	2	3	4	7	11	7	4	11
41-50	10	5	15	2	1	3	2	2	4	3	2	5
51-60	9	3	12	7	6	13	8	4	12	2	5	7
61-70	4	3	7	26	16	42	1	1	2	0	1	1
71-80	2	0	2	21	17	38	2	0	2	0	0	0
81-90	0	0	0	4	5	9	0	0	0	0	0	0

DISCUSSION

Among the different reasons of hospital admission poisoning and drug related problems are major health problem with variable morbidity and mortality according to cause of admission. Overall maximum admissions were in 21 to 30 years of age with male predominance over the female overall and beyond 30 years.

Up to 20 years of age female were admitted more than male in all admission as well as in poisoning and drug overdose. Study by Chatterjee et al,[3]at india, by Tufekci et al,[29] at Istambul, by Yamashita et al,[30] at tokyo also mentioned the female predominance in this age group due to poisoning.

From 21 to 30 years of age female were equal to male in our study while male were predominant in studies byKumar et al [1] and Ahuja et al.[2]

Among the poisoning cases, Organophosphorus poisoning is commonest. Study bySonal Sekhar et al, [8] has revealed a increasing trend

inhospitalization due to the OP poisoning over a period of 3 year.

But in study by Das 27 in India and Rajasuriya et al,[28] in Malaysia shows that the commonest form of hospitalization were pharmaceutical agents.

House hold poisons (Dettol, Harpic, mosquito repellent, rat kill etc) are consumed more by females than males. Study byVon Fabeck et al,[20] also said that females were predominant in poisoning because of household agents. it may be because easy availability of household chemicals to females in house.

In drugadverse effect, hypoglycemia is most common accounted for 78% of patient with male predominance also study by Sonal Sekharet al,[8] shows that hospitalization due to hypoglycemic agents were remarkably increasing. While Hyponatremia is 2nd most common cause with female predominance. Study by Grikiniene et al, [33]also mentioned that females are more as compare to males in Hyponatremia.

3.47 % patients admitted due to anticoagulants while study by Sonal Sekhar et al, [8] shows that, anticoagulants were responsible for 9.9% hospital admission. In contrast study by Penjore et al, [9] reported that anticoagulants are the most common cause of adverse events.

Among patients admitted due to anticoagulants 75% patients admitted due to Warfarin. A study carried out in US Penjore et al, [9] Warfarin is the cause of admission in 85.7% cases.

Anaphylaxis was most common in middle age with equal predominance.An article from one organization in USA also stated that anaphylaxis occurs in between 30 - 39 years of age 35. But in Study by Martinis et al,[34]stated that females are predominant over male and this predominance occurs after puberty.

According to duration of hospital stay, most cases were discharged within 24 – 96 hours or 1 - 4 days. Study carried out in India by Parekh & Gupta[31]also shows that patient stay at hospital was between 1 to 4 days.

The most common outcome was recovery (69.36%) but in contrast, an Egyptian studyRageh et al, [7] reported that 70.3% patients got discharged at request. In our study, in our study death occur in 7.59% of patients, according to studies conducted by Rajasuriya et al, [28] death percentage varies from 3% - 4% & by Thomas M et al,[32] it varies from 15%, 17%. All deaths are due to poisoning having paraquat poisoning commonest followed by OP. But study byKumar et al. [1] shows that most of the deaths are due to op poisoning. On the other hand, study carried out in Karnataka by Rameshaet al, [6]deaths due to corrosives was high.

CONCLUSION

Maximum admissions were from 21 – 30 years of age.Overall males are predominating over female but up to 20 years of age females are more than males.Poisoning and overdose is most common in young generation while in middle age anaphylaxis in common and in old age group drug adverse effects are commonest. Among causes of hospital admissions poisoning is most common in which Organophosphorus poisoning is commonest followed by paraquat. Consumption of house hold poisoning was more in females. Hypoglycemia is most common among males while Hyponatremia is most common among females. Expert opinion and procedures may be required recovery is the most common outcome while death too may occur.

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Conflict of interest: none declared

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