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Statistical Analysis on Different Types of Poisoning Cases in A Tertiary Care Hospital

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***Abstract*-- Acute poisoning remains a significant public health challenge worldwide and continues to be a major cause of emergency department visits, hospital admissions, morbidity, and mortality. The burden of poisoning is particularly high in developing countries where agricultural activities are widespread and toxic substances such as pesticides are readily accessible. In addition to accidental exposure, intentional self-poisoning has emerged as an important method of attempted suicide, especially among young adults experiencing psychosocial, economic, and familial stressors. Understanding the epidemiological characteristics, causative agents, management strategies, and clinical outcomes of poisoning cases is essential for improving healthcare delivery and developing preventive interventions. The present study was undertaken to evaluate the pattern of acute poisoning cases, identify the commonly involved poisoning agents, assess therapeutic management strategies, determine the factors associated with poisoning, and evaluate clinical outcomes among patients admitted to a tertiary care hospital. A prospective observational study was conducted over a period of six months in the Department of General Medicine at Sri Venkateswara Ramnarayan Ruia Government General Hospital (SVRRGGH), Tirupati, Andhra Pradesh, India. A total of 200 patients admitted with acute poisoning were included in the study. Relevant demographic, clinical, and treatment-related information was collected using a structured data collection proforma through patient interviews and review of medical records. Data regarding age, gender, marital status, type of poisoning, reason for poisoning, treatment provided, counselling responses, duration of hospital stay, and treatment outcomes were recorded and analysed using descriptive statistical methods. Among the 200 poisoning cases included in the study, females accounted for 106 (53%) cases and males for 94 (47%) cases. The majority of patients belonged to the age group of 26–40 years (58%), followed by 16–25 years (27%). Intentional poisoning constituted 151 (75.5%) cases, while accidental or unintentional poisoning accounted for 49 (24.5%) cases. Agricultural pesticides were identified as the most common poisoning agents, responsible for 62 (31%) cases, followed by multiple tablet ingestion in 33 (16.5%) cases. Financial problems (21.5%), family disharmony (17.5%), and marital discord (14%) were among the most frequently reported reasons for intentional poisoning. Specific antidotal therapy was administered to 128 (64%) patients, whereas the remaining patients received symptomatic treatment. The majority of patients responded positively to counselling interventions (83.5%). Clinical recovery was observed in 188 (94%) patients, while 12 (6%) patients were discharged without complete recovery.**

***Keywords*-- Acute poisoning, pesticide poisoning, intentional poisoning, antidotal therapy, counselling, clinical outcomes, prospective observational study.**

I. Introduction

Acute poisoning is one of the most common medical emergencies encountered worldwide and continues to pose a substantial challenge to healthcare systems, particularly in low- and middle-income countries. Poisoning results from exposure to substances that adversely affect normal physiological processes, leading to temporary or permanent harm and, in severe cases, death. Despite significant advances in healthcare delivery and toxicological management, poisoning remains an important contributor to hospital admissions, emergency department visits, disability, and mortality across the globe.

The epidemiology of poisoning varies considerably depending on geographical location, socioeconomic conditions, occupational exposure, cultural practices, and accessibility to toxic substances. In developed countries, pharmaceutical overdoses and recreational drug intoxication are commonly reported causes of poisoning. In contrast, developing countries frequently report pesticide poisoning, chemical ingestion, household product exposure, and animal envenomation as major contributors to poisoning-related morbidity and mortality.

Poisoning may occur intentionally or unintentionally. Intentional poisoning is commonly associated with suicidal behaviour and self-harm, whereas accidental poisoning often occurs due to occupational exposure, environmental contamination, inappropriate storage of toxic substances, medication errors, or accidental ingestion by children. The increasing prevalence of psychological stress, financial instability, social conflict, and family-related issues has contributed significantly to the rise in intentional poisoning cases worldwide.

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According to global health estimates, hundreds of thousands of deaths occur annually due to poisoning. A substantial proportion of these deaths are attributed to pesticide self-poisoning, particularly in agricultural regions of Asia and Africa. The widespread availability of highly toxic pesticides in rural and semi-urban communities makes them a readily accessible means of self-harm. Consequently, pesticide poisoning remains a major public health concern and has attracted considerable attention from healthcare professionals, policymakers, and international health organisations.

India is among the countries most affected by acute poisoning. The nation's large agricultural workforce, easy accessibility of pesticides, rapid industrialisation, and growing psychosocial pressures contribute significantly to poisoning incidence. Studies conducted across different regions of India have consistently reported pesticide poisoning as one of the leading causes of hospital admissions due to toxic exposure. Furthermore, demographic factors such as age, gender, educational status, occupation, and marital status influence poisoning patterns and outcomes.

Young adults constitute one of the most vulnerable populations affected by poisoning. This age group often faces multiple stressors, including educational pressures, financial responsibilities, employment concerns, relationship conflicts, and family expectations. These challenges may contribute to psychological distress and increase the likelihood of self-harm behaviour. Consequently, understanding the demographic characteristics of poisoning victims is essential for identifying high-risk populations and implementing targeted preventive interventions.

Gender-related differences have also been observed in poisoning epidemiology. Several studies have reported higher rates of poisoning among females, particularly in cases of intentional self-poisoning. Factors such as domestic violence, family disputes, marital discord, emotional distress, and societal pressures have been implicated in increasing vulnerability among women. However, the distribution of poisoning cases varies across different regions and populations, highlighting the importance of local epidemiological investigations.

In addition to demographic factors, the type of poison consumed plays a crucial role in determining clinical outcomes. Agricultural pesticides, rodenticides, pharmaceuticals, household cleaning agents, herbal products, and animal toxins differ considerably in their mechanisms of toxicity, clinical manifestations, and treatment requirements. Prompt identification of the poisoning agent is therefore essential for effective management and improved patient outcomes.

The management of poisoning requires a multidisciplinary approach involving physicians, nurses, pharmacists, toxicologists, and mental health professionals. Treatment strategies vary depending on the nature and severity of poisoning but generally include stabilisation of vital functions, supportive care, decontamination procedures when appropriate, administration of specific antidotes, and continuous clinical monitoring. Advances in toxicological management have significantly improved survival rates; however, delays in presentation and limited availability of antidotes continue to pose challenges in many healthcare settings.

An often-overlooked aspect of poisoning management is psychological assessment and counselling. Many poisoning incidents, particularly intentional poisonings, are associated with underlying emotional and psychosocial difficulties. Counselling interventions during hospitalisation provide an opportunity to address these factors, promote coping strategies, and reduce the risk of recurrent self-harm. Clinical pharmacists can play a valuable role in this process through patient education, medication counselling, and collaboration with multidisciplinary teams.

Despite the considerable burden of poisoning, data regarding poisoning patterns and outcomes remain limited in many regions. Continuous surveillance and periodic epidemiological studies are necessary to understand changing trends, identify emerging risk factors, and evaluate the effectiveness of existing management strategies. Such information is essential for guiding healthcare policies, resource allocation, and preventive programmes.

Against this background, the present prospective observational study was undertaken to evaluate the epidemiological characteristics, causative agents, management approaches, and clinical outcomes of acute poisoning cases admitted to a tertiary care hospital. The findings of this study are expected to contribute to the growing body of evidence regarding poisoning patterns and provide valuable insights for healthcare professionals involved in the management of poisoned patients.

II. Aim

To evaluate the epidemiology, management strategies, and clinical outcomes of acute poisoning cases admitted to a tertiary care hospital.

III. Objectives

1. To assess the proportion of intentional and unintentional poisoning cases.
2. To identify the various poisoning agents involved in acute poisoning incidents.

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3. To determine the demographic characteristics of poisoned patients, including age, gender, and marital status.
4. To identify the major reasons associated with poisoning incidents.
5. To evaluate the time interval between poisoning exposure and hospital admission.
6. To assess the treatment and management strategies employed in poisoned patients.
7. To evaluate the utilisation of specific antidotal therapy in different poisoning cases.
8. To assess patient responses to counselling interventions provided during hospitalisation.
9. To determine the duration of hospital stay among poisoned patients.
10. To evaluate treatment outcomes and recovery patterns among patients admitted with acute poisoning.
11. To identify potential areas for improving poisoning prevention and management strategies in tertiary care settings.

IV. Materials And Methods

Study Design

A prospective observational study was conducted to evaluate the epidemiological characteristics, management practices, and clinical outcomes of acute poisoning cases admitted to a tertiary care hospital. The prospective design enabled real-time collection of patient data and facilitated comprehensive assessment of demographic variables, poisoning characteristics, treatment approaches, counselling interventions, and clinical outcomes.

Study Setting

The study was carried out in the Department of General Medicine at Sri Venkateswara Ramnarayan Ruia Government General Hospital (SVRRGGH), Tirupati, Andhra Pradesh, India. SVRRGGH is a tertiary care teaching hospital that serves as a major referral centre for patients from both urban and rural areas of the region. The hospital receives a substantial number of poisoning cases, making it an appropriate setting for evaluating patterns and outcomes of acute poisoning.

Study Duration

The study was conducted over a period of six months.

Study Population

The study population consisted of patients admitted to the General Medicine Department with a confirmed diagnosis of acute poisoning during the study period.

A total of 200 poisoning cases that fulfilled the study eligibility criteria were included in the analysis.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee of Annamacharya Institute of Technology and Sciences, Tirupati, Andhra Pradesh, India.

Participation in the study was entirely voluntary. All eligible participants were informed about the purpose, objectives, and procedures of the study before enrolment. Written informed consent was obtained from all participants or their legally authorised representatives whenever applicable. Confidentiality and anonymity of patient information were maintained throughout the study, and all collected data were used exclusively for research purposes.

Inclusion Criteria

The following patients were included in the study:

- Patients admitted with acute poisoning to the Department of General Medicine.
- Patients of either gender and all age groups.
- Patients willing to participate in the study and provide informed consent.

Exclusion Criteria

The following patients were excluded from the study:

- Patients with incomplete clinical records.
- Patients unwilling to participate in the study.
- Cases where essential information regarding poisoning exposure was unavailable.

Data Collection Procedure

Data were collected prospectively using a specially designed and validated patient data collection proforma. Information was obtained through direct patient interviews, interviews with caregivers when necessary, review of case records, physician notes, laboratory reports, and medication charts.

The collected data included:

Demographic Characteristics

- Age
- Gender
- Marital status

Poisoning Characteristics

- Type of poisoning
- Nature of poisoning (intentional or unintentional)
- Poisoning agent involved
- Time of poisoning exposure

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- Reasons associated with poisoning
- Time elapsed before hospital admission

Clinical Characteristics

- Presenting signs and symptoms
- Clinical manifestations
- Therapeutic interventions
- Specific antidotal therapy administered
- Supportive and symptomatic treatment

Outcome Measures

- Duration of hospital stay
- Response to counselling interventions
- Treatment outcome at discharge

Study Variables

Independent Variables

- Age
- Gender
- Marital status
- Type of poison
- Reason for poisoning
- Time of exposure
- Delay in hospital admission

Dependent Variables

- Clinical outcome
- Recovery status
- Response to counselling
- Duration of hospital stay

Sample Size and Sampling Technique

A consecutive sampling method was employed. All eligible poisoning cases admitted during the study period were screened for inclusion.

A total of 200 poisoning cases meeting the study criteria were enrolled and analysed.

Statistical Analysis

Data were entered into Microsoft Excel and analysed using descriptive statistical methods. Continuous variables were summarised using frequencies and percentages. Results were presented using tables, charts, and graphical representations to facilitate interpretation of poisoning patterns, treatment approaches, and clinical outcomes.

V. Results

Demographic Characteristics of Study Participants

A total of 200 acute poisoning cases were included in the study. Analysis of demographic characteristics revealed notable variations across age groups, gender, and marital status categories.

Age-wise Distribution of Poisoning Cases

Among the 200 poisoning cases, the majority of patients belonged to the age group of 26–40 years, accounting for 116 (58%) cases. This was followed by the 16–25 years age group, which comprised 54 (27%) cases.

Patients aged 41–60 years accounted for 18 (9%) cases. Children aged 1–5 years represented 7 (3.5%) cases, while patients older than 60 years constituted the smallest proportion, with 5 (2.5%) cases.

The predominance of poisoning among young and middle-aged adults suggests that individuals in their economically productive years may be particularly vulnerable to poisoning incidents due to occupational, social, psychological, and financial stressors.

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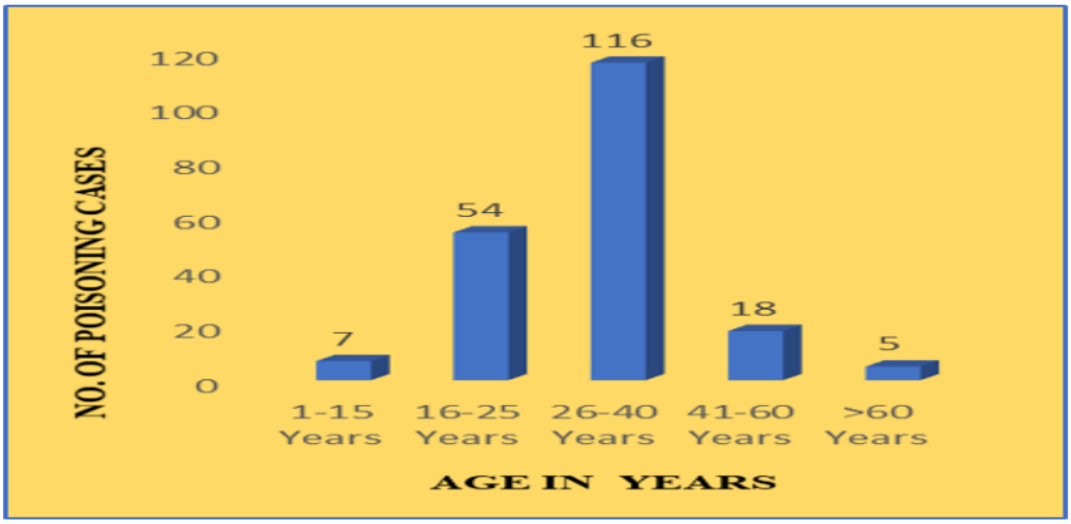

Figure 1: Age Wise Categorization Of Different Types Of Poisoning Cases

Gender Distribution

Of the total 200 poisoning cases, 106 (53%) occurred among females, whereas 94 (47%) occurred among males.

The slightly higher proportion of females indicates increased susceptibility to poisoning within the study population. This finding may be associated with psychosocial factors such as family conflicts, marital discord, emotional stress, and domestic challenges that disproportionately affect women in certain social settings.

Marital Status Distribution

Among the study participants, 151 (75.5%) were married and 49 (24.5%) were unmarried. Within the married group, females accounted for 79 (39.5%) cases, while males accounted for 72 (36%) cases. Among unmarried individuals, females represented 27 (13.5%) cases and males represented 22 (11%) cases. The predominance of poisoning among married individuals suggests that family responsibilities, marital challenges, and financial pressures may play an important role in poisoning behaviour.

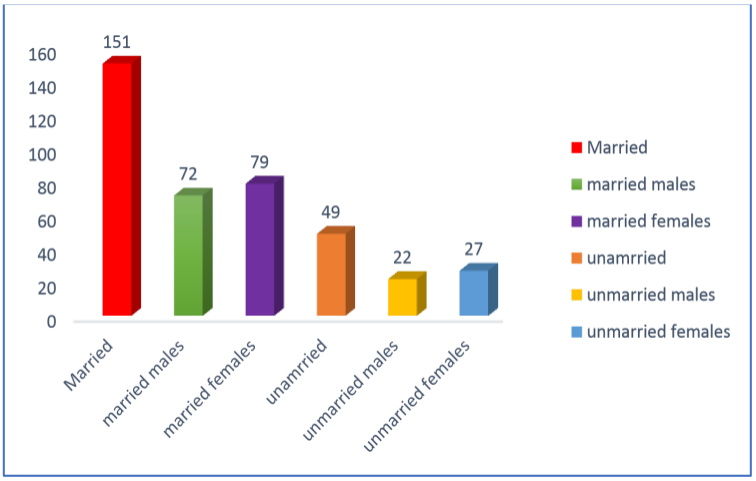

Figure 2: Based On Marital Status Categorisation Of Different Types Of Poisoning Cases

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Nature of Poisoning

The categorisation of poisoning cases according to intent demonstrated that intentional poisoning was substantially more common than accidental poisoning.

Out of 200 poisoning cases:

- Intentional poisoning: 151 (75.5%)
- Unintentional poisoning: 49 (24.5%)

The findings indicate that self-poisoning constituted the majority of poisoning incidents within the study population. This observation highlights the importance of addressing underlying psychosocial and mental health factors in poisoning prevention programmes.

Types of Poisoning Agents

A wide range of poisoning agents were identified during the study period.

Agricultural pesticides were the most commonly involved poisoning agents, accounting for 62 (31%) cases. Multiple tablet ingestion was observed in 33 (16.5%) cases and represented the second most common category. Animal bites accounted for 26 (13%) cases, while herbal product poisoning accounted for 24 (12%) cases. Rodenticide poisoning was observed in 18 (9%) cases, followed by disinfectant poisoning in 15 (7.5%) cases.

Mosquito repellents and liquid vaporiser poisoning accounted for 9 (4.5%) cases, while Super Vasmol hair dye poisoning accounted for 8 (4%) cases. Alcohol intoxication was responsible for 3 (1.5%) cases, and unknown poisoning accounted for 2 (1%) cases. The predominance of pesticide poisoning reflects the agricultural background of the population served by the hospital and underscores the need for stricter regulation of pesticide availability and storage.

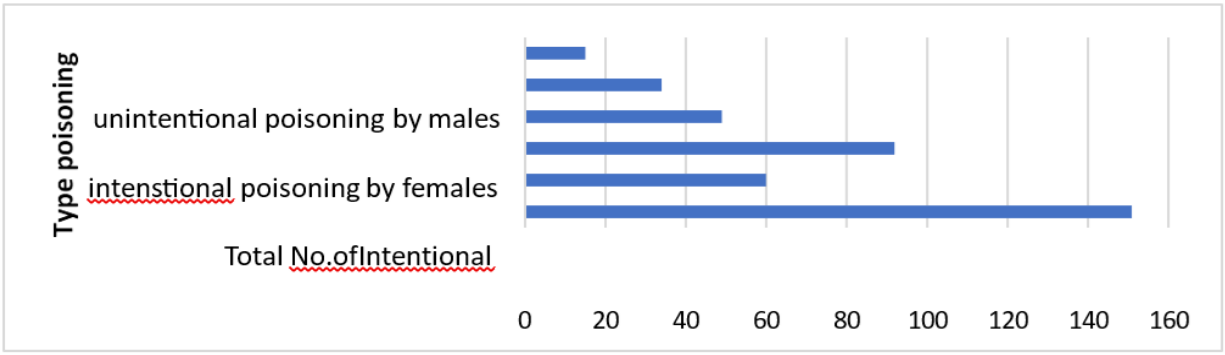

Figure 3: Type Of Poisoning Categorisation

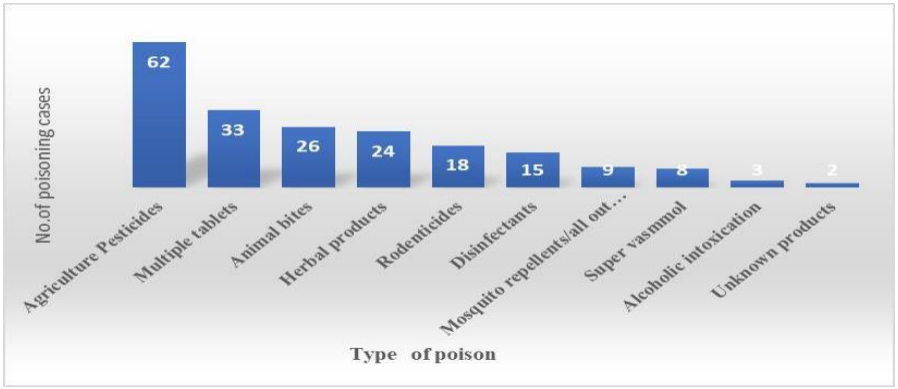

Figure 4: Type Of Poison Categorisation

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Reasons Associated with Poisoning

Several factors were identified as contributing to poisoning incidents. Financial issues emerged as the leading cause, accounting for 43 (21.5%) cases. Family disharmony was responsible for 35 (17.5%) cases, while marital discord contributed to 28 (14%) cases. Animal bites accounted for 26 (13%) cases.

Academic pressure was identified in 23 (11.5%) cases, while domestic violence was reported in 19 (9.5%) cases. Parental pressure accounted for 14 (7%) cases, love failure for 9 (4.5%) cases, and interpersonal conflicts for 3 (1.5%) cases. These findings demonstrate the significant influence of psychosocial stressors on poisoning behaviour and highlight the importance of mental health support services.

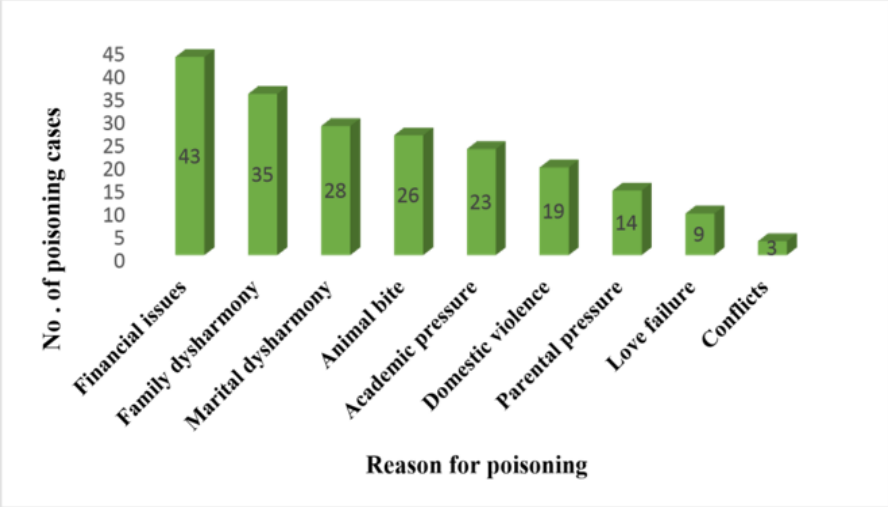

Figure 5: Reason For Poisoning Categorisation

Time of Poisoning Exposure

Analysis of poisoning exposure timing revealed that the majority of poisoning incidents occurred during daytime hours.

Out of 200 cases:

- Daytime exposure: 123 (61.5%)
- Night-time exposure: 63 (31.5%)
- Early morning exposure: 12 (6%)
- Unknown timing: 2 (1%)

The higher frequency of daytime poisoning may be related to increased occupational and social activities during daytime hours.

Delay in Hospital Admission

Timely hospital presentation is an important determinant of poisoning outcomes.

Among the study participants:

- 46 (23%) patients reached the hospital within one hour of poisoning.
- 97 (48.5%) patients arrived after 3–4 hours.
- 22 (11%) patients arrived after 5–6 hours.
- 35 (17.5%) patients presented more than six hours after poisoning.

The predominance of delayed admissions suggests potential barriers to healthcare access, including transportation difficulties, lack of awareness, and delays in seeking medical attention.

First Aid Measures

Among the 200 poisoning cases, first aid measures were administered in 128 (64%) cases. Gastric lavage was the most commonly performed intervention, accounting for 73 (36.5%) cases. Induced vomiting was performed in 29 (14.5%) cases, while other first aid measures were utilised in 26 (13%) cases. No first aid measures were reported in 72 (36%) cases.

Clinical Manifestations

Patients presented with a wide range of clinical manifestations affecting multiple organ systems. Vomiting was the most commonly reported symptom and was observed in 110 (55%) patients.

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Blurred vision and abdominal burning sensation were each reported in 93 (46.5%) cases. Abdominal pain was observed in 73 (36.5%) patients. Additional manifestations included nausea, dizziness, weakness, sweating, altered sensorium, respiratory distress, and neurological symptoms depending on the nature of poisoning.

Clinical Management

Therapeutic Approach

Specific antidotal therapy was administered to 128 (64%) patients. Symptomatic treatment alone was provided to 62 (31%) patients.An additional 10 (5%) patients received symptomatic management due to the unavailability of specific antidotes. These findings demonstrate the importance of antidote accessibility in poisoning management.

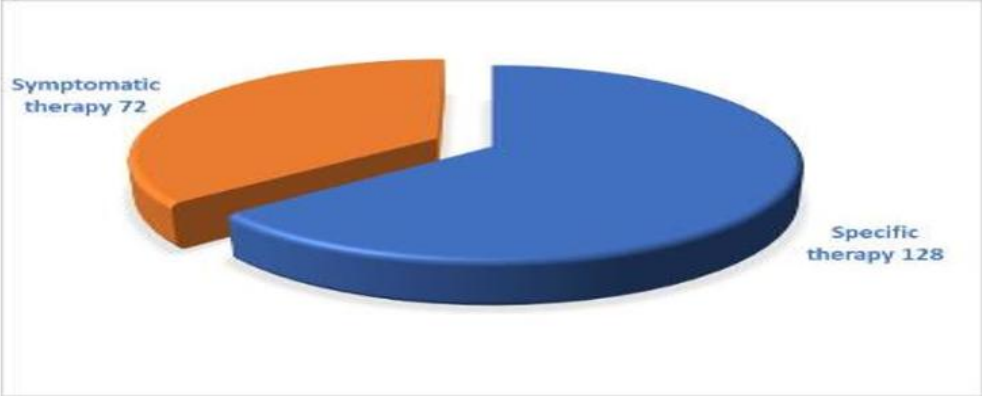

Figure 6: clinical approach

Antidotal Therapy Utilisation

Several antidotes were utilised during the study period according to the poisoning agent involved. Atropine was administered to 53 (26.5%) patients and represented the most frequently used antidote. Pralidoxime was administered to 26 (13%) patients. Anti-snake venom and Vitamin K were each administered to 21 (10.5%) patients. Neostigmine was administered to 18 (9%) patients. N-acetylcysteine was utilised in 10 (5%) patients, while Prazosin was administered in 7 (3.5%) cases.

Prescribing Patterns

Anti-ulcer medications were prescribed to 198 (99.5%) patients, making them the most frequently utilised drug class. Vitamin supplements were prescribed to 179 (89.5%) patients, followed by antibiotics in 172 (86%) cases. Antipsychotics were prescribed to 120 (60%) patients. Other commonly prescribed medications included anticholinergics, antiemetics, analgesics, antiepileptics, corticosteroids, and diuretics.

Table 1: Specific antidotes

Specific antidote	Number of poisoning cases	Percentage(%)
Atropine	53	26.5
Pralidoxime	26	13
Anti snake venom	21	10.5
Vitamin K	21	10.5
Prazocin	7	3.5
Neostigmine	18	9
NAC	10	5

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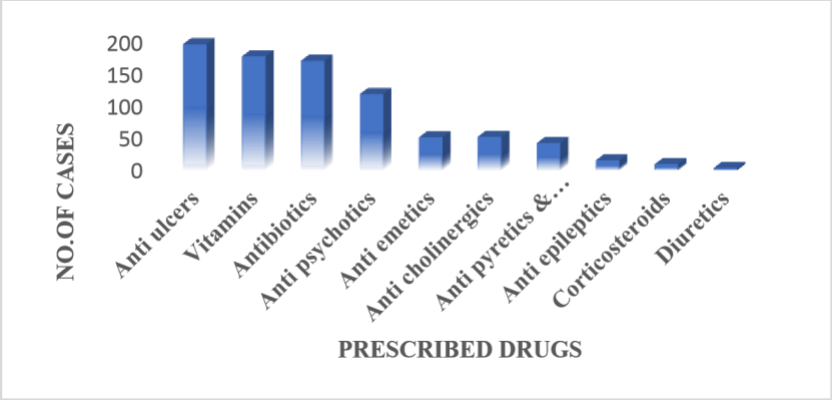

Figure 7: Categorisation Of Prescribed Drugs

Duration of Hospital Stay

The majority of patients remained hospitalised for 5–6 days. This finding indicates that most poisoning cases required prolonged monitoring and supportive care.

Table 2: Duration of hospital stay

Duration of hospital stay	Number of poisoning cases	Percentage(%)
5-6 days	105	52.2
1-4 days	63	31.5
>7days	32	16

Response to Counselling:

Counselling interventions were provided to patients and caregivers during hospitalisation.

A positive response to counselling was observed in 167 (83.5%) patients. The remaining 33 (16.5%) patients did not respond adequately, primarily due to unconsciousness, severe psychological distress, or depressive symptom.

Table 3: Treatment outcomes

Outcome	Number of patients	Percentage(%)
Recovered and discharge	188	94
Discharged without recovery	12	6

Treatment Outcomes

Treatment outcomes were generally favourable. Among the 200 poisoning cases:

- Recovered and discharged: 188 (94%)
- Discharged without complete recovery: 12 (6%)

The high recovery rate observed in this study may be attributed to prompt clinical management, availability of supportive care, antidotal therapy, and multidisciplinary patient monitoring.

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VI. Discussion

Acute poisoning continues to represent a major public health challenge worldwide and remains one of the leading causes of emergency hospital admissions, particularly in developing countries. The present prospective observational study was conducted to evaluate the epidemiological characteristics, management strategies, and clinical outcomes of acute poisoning cases admitted to a tertiary care hospital. The findings provide valuable insights into the demographic profile of affected individuals, commonly implicated poisoning agents, treatment approaches, and patient outcomes.

Demographic Characteristics

The present study demonstrated that poisoning predominantly affected young and middle-aged adults, with the highest incidence observed among individuals aged 26–40 years (58%), followed by those aged 16–25 years (27%). Together, these age groups accounted for 85% of all poisoning cases.

This finding is consistent with previous studies conducted in India and other developing countries, which have reported a higher incidence of poisoning among young adults. Individuals within these age groups are often exposed to substantial social, economic, occupational, and emotional pressures. Financial responsibilities, employment instability, academic expectations, family obligations, and interpersonal conflicts may contribute significantly to psychological distress, thereby increasing vulnerability to intentional self-poisoning.

The predominance of poisoning among economically productive age groups has important implications not only for individual health but also for families, communities, and healthcare systems. Loss of productivity, increased healthcare expenditure, and long-term psychological consequences can substantially affect socioeconomic development.

Gender Distribution

The present study found that females constituted a slightly higher proportion of poisoning cases (53%) compared with males (47%). Similar findings have been reported in several regional studies, particularly those evaluating intentional poisoning and self-harm behaviour.

The higher incidence among females may be attributable to a variety of psychosocial and cultural factors. Family disputes, marital disharmony, domestic violence, emotional distress, social expectations, and limited coping mechanisms may contribute to increased psychological vulnerability.

Women may also be more likely to use poisoning as a method of self-harm because of the relative accessibility of toxic substances within household and agricultural environments.

However, gender distribution patterns vary considerably across different geographical regions. Some studies have reported male predominance, particularly in cases involving occupational exposure and alcohol-related poisoning. These variations emphasise the influence of local social, cultural, and occupational factors on poisoning epidemiology.

Marital Status and Poisoning

Married individuals represented the majority of poisoning cases in the present study, accounting for 75.5% of all cases. Married females constituted 39.5% of the total study population, while married males accounted for 36%.

This finding suggests that marital and family-related stressors may contribute significantly to poisoning behaviour. Financial responsibilities, family conflicts, relationship difficulties, caregiving burdens, and domestic challenges may increase psychological stress among married individuals. The association between marital discord and poisoning was further supported by the identification of family disharmony and marital discord as major contributing factors.

These findings highlight the need for family-centred counselling services and psychosocial interventions aimed at addressing relationship-related stress and promoting mental well-being.

Nature of Poisoning

Intentional poisoning accounted for 75.5% of all poisoning cases, whereas accidental poisoning represented only 24.5%. The predominance of intentional poisoning observed in this study is consistent with reports from many developing countries where poisoning remains a common method of attempted suicide. The accessibility of toxic substances, particularly pesticides, contributes significantly to this pattern.

The high proportion of intentional poisoning underscores the importance of integrating mental health services into poisoning management protocols. Early identification of psychological distress, suicide risk assessment, and psychiatric referral may help prevent recurrent poisoning episodes and improve long-term patient outcomes.

Poisoning Agents

Agricultural pesticides emerged as the most frequently implicated poisoning agents, accounting for 31% of all cases.

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The predominance of pesticide poisoning is unsurprising given the agricultural background of many patients served by the study hospital. Easy accessibility, inadequate storage practices, and widespread agricultural use increase the likelihood of both intentional and accidental pesticide exposure.

Pesticide poisoning remains a major public health concern in India and other agricultural economies. Several studies have demonstrated that restricting access to highly hazardous pesticides can significantly reduce poisoning-related mortality. Improved pesticide regulation, safer storage practices, public education programmes, and promotion of less toxic alternatives may contribute to reducing poisoning incidence.

Multiple tablet ingestion was identified as the second most common poisoning category (16.5%). This finding reflects the increasing availability of pharmaceutical products and highlights the need for responsible medication storage and prescribing practices.

Animal bites accounted for 13% of cases, indicating the continued importance of environmental and occupational exposures in poisoning epidemiology. Timely administration of anti-snake venom and appropriate supportive care contributed to favourable outcomes among these patients.

Reasons for Poisoning

Financial problems emerged as the leading reported reason for poisoning, accounting for 21.5% of cases.

Economic hardship can significantly affect psychological well-being and has been recognised as a major risk factor for self-harm and suicidal behaviour. Financial instability may contribute to feelings of hopelessness, anxiety, and depression, thereby increasing the likelihood of intentional poisoning.

Family disharmony (17.5%) and marital discord (14%) were also important contributing factors. These findings emphasise the complex interplay between social relationships and mental health. Effective poisoning prevention strategies should therefore extend beyond clinical management and include social support systems, family counselling, and community-based mental health services.

Academic pressure accounted for 11.5% of poisoning cases, reflecting the growing psychological burden experienced by students and young adults. Educational institutions should prioritise mental health awareness programmes and provide accessible counselling services to support students experiencing emotional distress.

Domestic violence, parental pressure, love failure, and interpersonal conflicts were additional contributors identified in the present study.

Collectively, these findings highlight the multifactorial nature of poisoning behaviour and the need for comprehensive preventive approaches.

Delay in Hospital Admission

The majority of patients presented to the hospital after a delay of 3–4 hours following poisoning exposure.

Early presentation to healthcare facilities is a critical determinant of clinical outcomes in poisoning management. Delayed admission may result in increased toxin absorption, progression of clinical manifestations, and greater risk of complications.

Potential reasons for delayed presentation include transportation difficulties, lack of awareness regarding poisoning severity, financial constraints, and limited access to emergency healthcare services. Public education initiatives aimed at improving awareness of poisoning emergencies may help reduce delays and improve outcomes.

Therapeutic Management

Specific antidotal therapy was administered to 64% of patients in the present study. Atropine represented the most frequently utilised antidote due to the high prevalence of organophosphate pesticide poisoning.

The use of specific antidotes plays a crucial role in reducing poisoning-related morbidity and mortality. Prompt antidotal therapy can limit toxin effects, reduce complications, and improve survival rates.

Patients who did not receive specific antidotal therapy were managed using supportive and symptomatic measures, including fluid replacement, monitoring of vital signs, gastrointestinal protection, respiratory support, and management of complications.

The findings demonstrate the importance of maintaining adequate antidote availability in tertiary care centres to ensure timely treatment of poisoning emergencies.

Counselling and Psychological Support

One of the notable findings of the present study was the high proportion of patients who responded positively to counselling interventions (83.5%). Poisoning management extends beyond immediate medical stabilisation and should address the underlying psychosocial factors contributing to poisoning behaviour. Counselling provides an opportunity to identify emotional stressors, improve coping strategies, and facilitate behavioural change.

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Psychological support is particularly important among patients with intentional poisoning, as they may remain at risk of recurrent self-harm. Incorporating counselling services into routine poisoning management may contribute to long-term improvements in mental health and quality of life.

Treatment Outcomes

The overall treatment outcome was favourable, with 94% of patients recovering and being discharged successfully. The high recovery rate observed in this study may be attributed to prompt clinical intervention, appropriate supportive care, availability of antidotal therapy, and multidisciplinary patient management.

Only 6% of patients were discharged without complete recovery. This outcome compares favourably with findings reported in several similar studies and reflects the effectiveness of poisoning management practices within the study setting.

VII. Strengths Of The Study

The present study possesses several strengths.

First, the prospective observational design enabled systematic and real-time collection of patient information, thereby reducing recall bias.

Second, a relatively large sample size of 200 poisoning cases provided a comprehensive overview of poisoning patterns within the study setting.

Third, the study evaluated multiple aspects of poisoning management, including demographic characteristics, poisoning agents, treatment approaches, counselling responses, and clinical outcomes.

Finally, the findings contribute valuable regional data that may support future poisoning prevention and management initiatives.

VIII. Limitations Of The Study

Despite its strengths, the study has certain limitations.

The study was conducted at a single tertiary care hospital, which may limit the generalisability of findings to other healthcare settings.

The study primarily utilised descriptive statistical analysis and did not explore associations between variables using advanced statistical methods.

Long-term follow-up of patients following discharge was not performed; therefore, recurrence of poisoning and long-term psychological outcomes could not be assessed.

Information regarding socioeconomic status, educational level, and psychiatric history was not comprehensively evaluated.

Future multicentre studies incorporating larger populations and advanced analytical methods may provide a more comprehensive understanding of poisoning epidemiology.

IX. Recommendations

Based on the findings of the present study, the following recommendations are proposed:

1. Strengthen regulations governing the sale and storage of highly hazardous pesticides.
2. Improve public awareness regarding poisoning prevention and safe handling of toxic substances.
3. Enhance emergency transportation services to facilitate early hospital admission.
4. Ensure adequate availability of antidotes in healthcare institutions.
5. Establish dedicated poisoning management protocols within tertiary care centres.
6. Integrate mental health assessment and counselling services into routine poisoning management.
7. Promote community-based suicide prevention programmes.
8. Encourage multidisciplinary collaboration among physicians, pharmacists, nurses, toxicologists, and mental health professionals.
9. Conduct regular surveillance studies to monitor poisoning trends and evaluate preventive interventions.
10. Undertake multicentre research to generate nationally representative poisoning data.

X. Conclusion

Acute poisoning remains a significant public health problem and continues to contribute substantially to emergency hospital admissions. The present study demonstrated that poisoning predominantly affected young and middle-aged adults, with females representing a slightly higher proportion of cases. Intentional poisoning constituted the majority of poisoning incidents, highlighting the growing influence of psychosocial stressors and mental health challenges.

Agricultural pesticides emerged as the most frequently implicated poisoning agents, emphasising the need for stricter regulatory measures and improved pesticide safety practices.

Financial difficulties, family disharmony, and marital discord were identified as major contributing factors, indicating the importance of addressing social and psychological determinants of poisoning behaviour.

The majority of patients received appropriate clinical management and experienced favourable outcomes, with a recovery rate of 94%. The high rate of positive response to counselling further underscores the importance of integrating psychological support into poisoning management strategies.

Overall, the findings of this study highlight the need for a comprehensive approach to poisoning prevention and management that incorporates clinical care, mental health support, public education, regulatory interventions, and multidisciplinary collaboration. Such measures may contribute to reducing the incidence of poisoning, improving patient outcomes, and enhancing public health.

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