



A Study Of Profile And Pattern Of Hospitalised Medico-Legal Cases From A Tertiary Care Children Hospital

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Abstract

Objective: A study of profile and pattern of hospitalised medicolegal cases from a tertiary care children hospital

Materials and Methods: It was a hospital based, observational study and was conducted for a period of one year in Department of Paediatric Medicine, SPINPH hospital, SMS Medical College, Jaipur, a tertiary level paediatric hospital. Prior permission from the institutional ethical committee was obtained. Children attending outdoor and emergency services were enrolled after obtaining informed written consent from their parents.

Results: Total 100 children were enrolled in present study. Mean age of patients was 3.8 ± 3.33 years. Out of 100 children, 70 were males and 30 were females, with male to female ratio of 2.3:1. Maximum number of cases were from nuclear family (43%) followed by single parent (32%) and joint family (22%). The mean time taken between events happened and reporting to hospital was 4.55 hours with standard deviation of ± 3.34 with variance of 11.15. Mean duration of hospital stay was 3.4 ± 2.17 days with variance of 4.74 (ranging from 1-30 days) with Coefficient of variation of 64.05% & standard error of 0.21. Vomiting (60%) and abdominal pain (38%) were most common presenting symptoms, while 18% cases were asymptomatic. Majority of medico-legal cases were of poisoning (67%), while blunt trauma abdomen due to road traffic accident (12%) was the second most common cause, followed by drowning (5%) & electrocution (4%). Amongst the poisoning, most common was mosquito repellent ingestion (13.70%) followed by turpentine oil (10.96%) & caustic soda ingestion (6.85%) which makes insecticide and pesticide most common type of poisoning (32.87%). Poisoning because of accidental ingestion of corrosives and hydrocarbons constitutes 15.06% cases each.

Conclusion: Medico legal cases were most common in less than 5 years of age group. Vomiting, pain abdomen and odour of poison were most common presenting symptoms; other symptoms were seizure, difficulty in breathing, bleeding, diarrhoea, headache, redness of face and eyes, pain and swelling at the bite site. Most of the cases reported within 5 hours. Most of the cases were from urban locality belonging to nuclear family with lower socio-economic status. Majority of medico legal cases were of poisoning; amongst poisoning, mosquito repellent ingestion was the most common followed by turpentine oil ingestion. Other major causes were caustic soda ingestion and unknown substance ingestion.

Keywords: Medico legal case, poisoning, insecticide, pesticide

Introduction

A Medicolegal case (MLC) is defined as "Any case of injury or ailment where, the attending doctor after history taking and clinical examination, considers

that investigations by law enforcement agencies (and also superior military authorities) are warranted to ascertain circumstances and fix responsibility regarding the said injury or ailment according to the

law” [1]. The decision to label a case as MLC should be based on sound professional judgement, after a detailed history taking and thorough clinical examination [2]. Some of the examples of MLCs are assault, domestic violence, child abuse, road traffic accidents (RTA), industrial accidents, electrical injuries, poisoning, alcohol intoxication, burns and scalds, sexual offences, attempted suicide, drug abuse etc. It is advisable that the treating doctor should make careful note of all the facts observed by him. Alan Moritz stated “If evidence has been properly gathered and preserved, a mistake in interpretation may always be corrected. If the facts required for a correct interpretation are not preserved, the mistake is irreversible” [3]. The mortalities and morbidities from all medico legal cases have been increasing at an alarming rate in our country. Sadly, doctors are usually apprehensive in dealing with these “MLCs” because of fear factor of lot of disputes, unwanted burden, rough speaking police officials, inordinate hours in the court, unrelenting defence counsels, etc. [4]. Despite the revolutionary advancement in medical technology and facilities, we are unable to successfully stop this preventable mortality and morbidity. Knowledge of types of medico-legal cases brought to casualty / emergency department is of paramount importance to make corresponding arrangements to deal with them. This is also important for law enforcement agencies, as they can take preventive and corrective measures to reduce the number of such medico legal cases [5]. Changing lifestyles, use of newer pharmaceutical & chemical agents & modern technologies have changed the pattern of medico legal cases. Therefore, there is need to update the knowledge about medicolegal cases and their trends [6]. Amongst MLC cases, childhood poisoning is a frequent cause of admissions to paediatric emergency /wards [7]. The global death rate from poisoning in persons below 20 years of age is 1.8 per 10000 population [8]. It constitutes 0.33% -7.6% of total paediatric hospital admissions in India and mortality from it ranges from 0.64-11.6% [9]. There is paucity of information about medico-legal cases in paediatric population. Multiple studies have been done on medicolegal cases in adult population but only few studies are available from paediatric population, hence there is a need to highlight the pattern and profile of medico-legal cases in paediatric population which may help

various agencies to develop various strategies in order to reduce their incidences and to improve child welfare, hence the present study was designed to study the profile and their pattern of hospitalised medico-legal cases from a tertiary care children hospital of North India.

Methods:

It was a hospital based, observational study and was conducted for a period of one year in Department of Paediatric Medicine, SPINPH hospital, SMS Medical College, Jaipur, a tertiary level paediatric hospital. Prior permission from the institutional ethical committee was obtained. Children attending outdoor and emergency services were enrolled after obtaining informed written consent from their parents.

Complete history of all the medico legal cases was recorded. After taking detailed history & systemic examination, relevant investigations were done. A predesigned pretested performa was used to note down the required relevant information's like the demographic profile, age, time of occurrence, time period between event and reporting to hospital.

Inclusion Criteria:

Children up to 18 years age presenting as medico-legal cases.

Exclusion Criteria:

Children with non medicolegal cases, age above 18 years and parents refusing for consent.

Exclusion Criteria:

All data were compiled in the form of master chart using MS excel sheet, qualitative data has been expressed in numbers, while quantitative data has been expressed as mean. The qualitative data are graphically presented as bar diagram. Appropriate statistical test as applicable is used for data analysis. All results are tested at 95% confidence interval and 80% power and Chi square test is also used for qualitative data to find significant association.

Results:

Total 100 children were enrolled in present study, out of which maximum cases (56%) were of 0-3 years age group followed by 24%, 0.8%, 0.9% & 3% were from 3-6 years, 6-9 years, 9-12 years and above >12 years age group respectively. Mean age of patients was 3.8 ± 3.33 years. Out of 100 children, 70 were

males and 30 were females, with male to female ratio of 2.3:1. Maximum number of cases were from nuclear family (43%) followed by single parent (32%) and joint family (22%). In our study, 40% cases were from lower socio-economic group, followed by 24% and 19% were from upper lower and upper middle respectively.

The mean time taken between events happened and reporting to hospital was 4.55 hours with standard deviation of ± 3.34 with variance of 11.15.

Mean duration of hospital stay was 3.4 ± 2.17 days with variance of 4.74 (ranging from 1-30 days) with Coefficient of variation of 64.05% & standard error of 0.21.

Majority of the cases were discharged from the hospital after treatment (93%). 5% cases got absconded & 2% expired during treatment.

Table-1: Main presenting symptoms

Main symptoms	No. (n=100)	%
Vomiting	60	60.0
Pain in abdomen	38	38.0
Bleeding	9	9.0
Difficulty in breathing	7	7.0
Altered sensorium	6	6.0
Redness of face and eyes	6	6.0
Headache	6	6.0
Pain and swelling at the bite site	5	5.0
Foul smell	5	5.0
Dizziness	4	4.0
Diarrhoea	4	4.0
Seizure	2	2.0
Asymptomatic	18	18.0

Vomiting (60%) and abdominal pain (38%) were most common presenting symptoms, while 18% cases were asymptomatic (Table-1).

Table-2: Distribution of cases according to diagnosis

Diagnosis	No. (n=100)	%
Poisoning (oral)	67	67.0
Blunt trauma abdomen due to RTA	12	12.0
Drowning	5	5.0
Electrocution	4	4.0
Sexual Assault	3	3.0
Snake bite	3	3.0

Unknown Baby	3	3.0
Bee sting	2	2.0
Scorpion sting	1	1.0

Majority of medico-legal cases were of poisoning (67%), while blunt trauma abdomen due to road traffic accident (12%) was the second most common cause, followed by drowning (5%) & electrocution (4%) (Table-2).

Table 3: Types of poisoning

Types of poisoning	Frequency	%
Insecticide and pesticides	24	32.87
Hydrocarbon (including Kerosene)	11	15.06
Corrosives	11	15.06
Drug and medications	6	8.21
Plant poisoning	4	5.48
Household	4	5.47
Miscellaneous	7	9.58

Amongst the poisoning, most common was mosquito repellent ingestion (13.70%) followed by turpentine oil (10.96%) & caustic soda ingestion (6.85%) which makes insecticide and pesticide most common type of poisoning (32.87%). Poisoning because of accidental ingestion of corrosives and hydrocarbons constitutes 15.06% cases each (Table-3).

Discussion:

Our study results shows that maximum number of various medico legal cases were from 1-5 years of age .The higher incidence in less than 5 years of age can be explained by inherent inquisitiveness and higher oral exploratory activity aid by their newly acquired mobility and hand skills. The predominance of males over females in our study may be attributed to their behaviour and more involvement in outdoor games which makes them more vulnerable as compared to females.

In our study, maximum MLCs were presented with vomiting (60%) and abdominal pain (38%), while 18% cases were asymptomatic. Other symptoms were seizure, difficulty in breathing, bleeding, diarrhoea, headache, redness of face and eyes, pain and swelling at the bite site etc. Similar results were obtained by J Sharma, RK Kaushal *et al.* [10]; they observed that vomiting occurs in 69.6% of cases followed by altered

sensorium and unconsciousness (35.8%), while 8% of cases were asymptomatic. In another study conducted by Dhakal AK *et al.* [11], 68% cases were symptomatic while 32% of patients did not have any symptoms of poisoning at presentation.

The mean time taken between events happened and reporting to hospital was 4.55 hours with standard deviation of ± 3.34 with variance of 11.15. Most of the patients in our study were from peripheral centre, which may be a reason for delay in presenting to our hospital.

In the present study, 51% cases were from urban area while 46% were from rural area & in 3% cases status is unknown. Similarly study done by **Bindu Aggarwal *et al.*, Mina SS *et al.*, Basavaraj *et al.* & Shreedhar *et al.*** reported that maximum number of cases were from urban area.

Our study results are comparable with the above studies. It can be explained by urban people taking benefit of having tertiary care hospital in close

vicinity and also increased health awareness among them.

Our study results are in contrast with study done by **J Sharma, RK Kaushal et al**; in which they reported that 18.8% patients were from urban population and 81.2% were from rural areas. This difference may be due to locality of hospital.

In the present study, 40% cases were of lower socioeconomic status and 24% were of upper lower; this can be explained by the fact that maximum number of patients in our study were from urban slum area .

Easy availability of some formulations in the local market and lack of education among parents are the reason for higher incidence of childhood poisoning in the lower socio-economic strata.

In present study, majority of MLCs were of poisoning (67%) followed by blunt trauma abdomen (12%), drowning (5%) and electrocution (4%). Other causes were snake bite, scorpion sting, sexual assault & unknown baby. Similar results were obtained by Ajay Kasumbiwal & Mohini Apte et al. [7]; they observed that 79% of MLCs were because of poisoning and 21% cases were because of other causes. Another study by Özgün Araştırma et al. [12], found that poisoning due to medical drug ingestion (39.5%) was the most common cause of MLCs followed by intoxications due to carbon monoxide & chemical corrosive substances respectively.

Study by Shyam Sunder Mina et al. [13], reported that abandoned children for medical examination was the most common (26.89%) cause of MLCs followed by poisoning (23.10%), trauma (16%), road traffic accident (8%), physical assault (7.14%) and sexual assault (4.20%).

Our study results are not comparable with those of prior studies and reported higher proportion of medical medico-legal cases as compared to traumatic cases. The fact that explains the lower proportion of traumatic patients among medico legal cases in our study in comparison to the previous studies is that our emergency services handle only medical cases while the traumatic patients are directly referred to the trauma emergency services of SMS Hospital.

In our study, amongst the MLC cases due to poisoning (n=67), most common agent was mosquito

repellent ingestion (13.70%) followed by turpentine oil (10.96%) & caustic soda ingestion (6.85%). Overall poisoning due to insecticide and pesticide (24%) were the most common type of poisoning, followed by corrosives (15.06%) and hydrocarbons (15.06%).

In our study, 100% of poisoning cases were accidental; 91.78% ingested poison through oral route while rest 8.21% were cases of snake bite, bee sting and scorpion sting.

Insecticide poisoning is common in our study, as most of the study subjects in our study were from urban area and accidental ingestion of mosquito repellent is quite common in children 1-5 year of age.

In the present study, most common cause of poisoning in rural area is organophosphate ingestion (16.12%) followed by snake bite (9.68%). A large rural catchment area of our hospital, with agriculture as predominant occupation, in rural areas may explain these findings.

Study conducted by J Sharma, RK Kaushal et al. [10], reported that poisoning due to insecticide and pesticide (38.2%) were the most common type of poisoning and their study results are comparable with our study. Similarly, Hassan et al. [14], in their study reported that 28.6% of medico-legal cases were due to insecticide poisoning, 17% were due to cleaning products, and 22.6% were due to drugs.

Poisoning due to insecticide was most common in our study, because medico legal cases from urban population outnumbered rural medico legal cases due to locality of study place and accidental ingestion of mosquito repellent is quite common in children 1-5 year of age. However, study done by Alghadeer S et al. [15], reported that accidental ingestion of various drugs were the most common type of poisoning (70%) followed by chemical materials (29%). In another study by Özgün Araştırma et al. [12], drug intake was found as the most common cause of poisoning (n= 827; 52.1%). Study by Dhakal AK et al. [11], also reported that ingestion of various drugs were the most common cause of poisoning followed by kerosene.

Conclusion:

We conclude that medico legal cases were most common in less than 5 years of age group. Vomiting,

pain abdomen and odour of poison were most common presenting symptoms; other symptoms were seizure, difficulty in breathing, bleeding, diarrhoea, headache, redness of face and eyes, pain and swelling at the bite site. Most of the cases reported within 5 hours. Most of the cases were from urban locality belonging to nuclear family with lower socio-economic status. Majority of medico legal cases were of poisoning; amongst poisoning, mosquito repellent ingestion was the most common followed by turpentine oil ingestion. Other major causes were caustic soda ingestion and unknown substance ingestion.

Recommendations:

It is recommended that all parents should be educated about hazards of household products, their proper storage & placement. Proper placement of household could help in preventing morbidity and mortality of childhood poisoning. Main cause of paediatric poisoning is negligence and ignorance of parents about storage & placement of household & drugs, which could be prevented by giving more attention at home.

Limitations:

Trauma cases like road traffic accidents & fall from height were not encountered in majority because all trauma cases were sent to trauma centre, which is a separate department in our institution. Similarly, medico legal cases due to sexual assault were not encountered in our study because they were sent to respective department.

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