

Study of Medico-legal cases in a Tertiary Care Teaching Hospital

Donthireddy Leela Durga¹, Dheeravath Kalyani², R. Kalyan Varma³, P Namrata⁴,
Srinivasulu Pothireddy⁵, M. Vaikunta Babu⁶

¹Postgraduate, ^{2,4}Asst Professor, Dept of Emergency Medicine, ³Associate Professor, ⁵Professor and Head dept of Forensic Medicine, ⁶Postgraduate Emergency Medicine, Great Eastern Medical School & Hospital, Ragolu, Srikakulam, Andhra Pradesh.

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Abstract

Medico-legal cases are pivotal in the pursuit of justice for victims and the accused. It is essential for medical professionals to be well-versed in the intricacies of medico-legal cases to ensure that they follow the procedures of the law of the land diligently. Understanding the patterns of medico-legal cases in a specific region can assist government authorities in devising strategies to prevent such incidents. This study was conducted at a rural tertiary care teaching hospital over a span of seven months, from January to July 2023, and examined 139 medico-legal cases. The age group of 21 to 40 years, predominantly comprising males, emerged as the most affected demographic in our study. Road traffic accidents were the predominant cause of medico-legal cases, with head injuries being the most frequently observed. Understanding the demographics and injury patterns of medico-legal cases in this rural area serves as a foundation for tailoring medical care and legal interventions to the specific needs of the community. By continuing to investigate and analyze medico-legal cases, healthcare providers and law enforcement agencies can work collaboratively to not only address the immediate medical needs of victims but also to develop proactive strategies to minimize the occurrence of such cases and improve overall community well-being.

Key words: Medico-legal cases, Injuries, Road traffic accidents (RTA's).

Introduction

Any unnatural event resulting in bodily damage seeking intervention and legal answer is called medico legal case⁽¹⁾. Medico-legal cases, which involve medical issues with legal implications, require both medical examination by a doctor and investigation by law enforcement authorities. These cases encompass a wide range of scenarios, including road traffic accidents, sexual assaults, poisonings,

falls, burns, asphyxia deaths, industrial accidents, assaults, and more⁽¹⁾.

The primary responsibility when a medico-legal case arrives at the Emergency Medicine department is to assess and provide medical care to stabilize the victim or accused. Subsequently, the circumstances and history surrounding the incident must be documented for legal investigation along with thorough examination. The welfare of the patient

Corresponding Author: Srinivasulu Pothi Reddy, Professor and Head, Dept of Forensic Medicine, Great Eastern Medical School & Hospital, Ragolu, Srikakulam, Andhra Pradesh.

E-mail: forensic1pokiri@gmail.com

Mobile: 7382292799

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takes precedence over procedural requirements, and doctors are obligated by oath to prioritize their patient's well-being⁽²⁾. After stabilizing the patient, it is crucial to inform the relevant law enforcement authorities about the medico-legal case.

In every medico-legal case, a comprehensive medico-legal report must be prepared. This report should include essential information⁽¹⁾ such as the patient's name, age, sex, address, date and time of reporting, the person who brought them to the hospital, P.C. number and Police Station, time of the incident, conducted investigations, and the patient's discharge status. Additionally, two identification marks and fingerprints of the patient should be obtained, and the date and time of the examination should be documented. If the patient is in serious condition, a dying declaration should be recorded⁽²⁾.

Before conducting any examination, informed consent from the patient and or requisition from courts or the police is essential depending on circumstances of case. The doctor must clearly explain to the patient the medico-legal nature of the examination and the legal implications if the findings and history do not align. Following a thorough examination, an opinion should be provided, which holds significance in subsequent legal procedures.

Additionally, Emergency Medicine department is the backbone of every hospital as all medical and surgical first report here. Knowledge of trends of medico legal cases brought to Emergency Medicine department is essential to make corresponding arrangements in terms of man power, drugs, equipment's, and instruments to deal with them, as the initial few hours are Golden Hours⁽³⁾ which can save the life of a victim/patient. These trends are also necessary for law enforcement agencies too, by which they can take preventive and corrective measures⁽³⁾.

The prevalence and nature of medico-legal cases reported in a hospital are influenced by factors such as road quality, socio-economic conditions, and cultural diversity in the area. In some rural areas, cases like Organophosphorus poisonings and snakebites are more common, necessitating the presence of anti-snake venom sera and antidotes of poisoning in rural primary health centers and Emergency Medicine units. Conversely, metropolitan areas may

see higher instances of road traffic accidents and industrial accidents, highlighting the need for trauma care centers and blood banks.

Misinterpretation of medico-legal cases can occur, emphasizing the importance of conducting examinations with care and transparency. Doctors should familiarize themselves with medico-legal guidelines set by their respective state and central governments. In cases of Medico Legal Casedeath, the body must be handed over to the police and subjected to a postmortem examination before being released to the patient's relatives⁽⁴⁾. Hospitals should ensure that their medical practitioners receive adequate training to handle medico-legal cases effectively.

Medico-legal cases are typically categorized as accidental, suicidal, or homicidal. The examination of the crime scene by a doctor along with law enforcement authorities can provide vital evidence and help determine the manner of death in some cases.

The primary objective of this study is to investigate the prevalence and patterns of medico-legal cases in a rural tertiary care teaching hospital. This research aims to provide insights into the types and frequency of medico-legal cases encountered in the hospital setting which can create standard health care practices and allot resources for other similar rural setups.

Materials and Methods

Study Design: This retrospective cohort study aimed to analyze medico legal cases (MLC) registered in the Emergency Medicine department of Great Eastern Medical School and Hospital during the period from January 2023 to July 2023.

Data Collection: Sample Size: A total of 139 MLC cases were included in this study.

Data Sources: Data was collected from two primary sources: Medical records maintained in medical record department & Emergency medicine records.

Data Parameters Collected: Age, Sex, Type of occurrence (e.g., road traffic accidents, burns, hanging, drowning, poisoning, assault, fall), Manner of occurrence (e.g.; suicidal, homicidal, and

accidental); Time of arrival at the hospital, Time of day and month of occurrence, Time gap between the incidence and admission, Duration of the hospital stay, Number of deaths / discharges.

Inclusion Criteria: All cases that were officially recorded as medico-legal cases (MLC) during the specified period were included in the study. **Exclusion Criteria:** Cases that did not meet the criteria/not relevant to the study's objectives were excluded.

Data Analysis: The collected data was analyzed, grouped, and tabulated based on the relevant parameters mentioned above. The results were expressed in terms of frequency and percentage to provide a clear understanding of the prevalence and characteristics of MLC cases in the hospital during the study period.

Advantages: Easy, inexpensive, require less time, Risk factors can be known

Limitations: Retrospective studies have limitations related to accuracy & completeness of data, recall bias. The study's findings may be specific to the hospital and region under investigation & may not be generalizable some times.

Results and Discussion

The analysis of medico-legal cases reveals several key findings and trends:

Road traffic accidents (RTAs)^(4,5,6) were the most prevalent type of medico-legal cases, accounting for over half (51.07%) of the cases. Falls (19.42%) and Poisonings (15.82%) were the next most common, followed by Assaults (5.75%), Burns (4.31%), Industrial accidents (2.15%), Drowning (0.71%), and Hanging (0.71%). The high incidence of Road Traffic Accidents in the area could be attributed to greater motorization in this region. The prevalence of falls suggests the possible influence of factors like alcohol consumption (n=3) or underlying health issues like vertigo, Hypertension, Diabetes, Syncopal attacks etc.

The study revealed that, most affected age group was 21 to 40 years⁽¹⁾ (48.2%), likely due to this age group's higher engagement in outdoor activities such as work, recreation, education, and miscellaneous pursuits. Males were significantly more affected^(5,6), constituting 76.25% of the cases, which can be

attributed to their higher involvement in outdoor activities.

Males suffered from RTA's (n=59) followed by fall (n=25), Poisoning (n=12) and Assaults (n=5). Females, majority suffered from RTA's (n=12), followed by Poisoning (n=10) and Burns (n=4). More females suffering from Poisonings and Burns suggest they stay alone at home leading to suicidal thoughts and succumbing to poisons and burns.

Most Medico-legal cases occurred between 6 AM - 6 PM (64.74%) and from 6 PM to 11 PM (22.3%). This can be explained by increased human activity during daytime and up to 11 PM. Fewer cases were observed on Tuesday (n=13) may be due to less movement, with Thursdays and Fridays recording the highest (n=26), possibly due to increased movement on these days. Similarly, taking into consideration Month of incidence, July recorded the highest Medico-legal cases (34.5%) followed by June (24.4%), while March recorded the lowest (4.31%).

Most cases (58.27%) showed a time gap of 1-8 hours between incident and arrival at hospital. This delay could be attributed to factors such as delayed ambulance response, unavailability of vehicles at the incident site, patients' negligence in seeking medical attention and non-availability of patient attenders etc.

Patients with medico-legal cases arrived at the hospital more frequently during the time of 6 PM to 6 AM⁽⁷⁾ (38.84%), followed by 12 PM to 6 PM (33.09%), in contrast to most of the Medico-legal cases occurring between 6AM and 6PM, imposing the requirement of trained staff in Emergency Medicine department during night time.

Taking into consideration the duration of stay in the hospital, 84 cases (60.4%) were discharged within 6 days while 55 cases (39.5%) exceeded 6 days. The high number of discharges within 6 days can be attributed to the less severity of the disease.

In RTAs, Head injuries (n=19) were the most common. In Head injuries, Scalp lacerations were the most common (n=19) followed by Facial injuries (n=16), Intracranial injuries (n=10) and Skull fractures (n=9). Lower limb soft tissue injuries and fractures (n=18) and Upper limb soft tissue injuries and fractures (n=10) were also prevalent. Thoracic

injuries included Rib fractures (n=4) while there were a few cases of Pelvic, Abdominal, and Neck injuries.

Among the types of RTA’s majority were Self Accidents (53.52%) maybe due to skidding, bad roads, over speeding, sudden obstruction, followed by Pedestrian accidents (22.53%), Bike x Four-Wheeler (11.26%), Two-Wheeler x Two-Wheeler (9.89%).

Falls from heights resulted in Head injuries (n=20) particularly facial (n=8) and scalp injuries (n=5), as well as Intracranial injuries (n=3) and Skull fractures (n=2). Chest injuries (n=5) were the next most common, including rib and claviclefractures (n=2), followed by long bone injuries such as Femur (n=2) Fibula (n=1) and Radius fractures (n=1) along with Spine injuries (n=2).

Poisoning cases predominantly involved Snake bites (18.18%) and Paraquat poisonings (18.18%) followed by other types of poisonings. Suicidal cases (77.27%) were more common than accidental cases (22.72%) in this category. Incidence of Snake bites is high due to rural areas, while Paraquat poisonings

are high probably due to usage of pesticides in agriculture.

In Burns cases, females (66.67%) were more affected while Industrial accidents (100%) predominantly affected males. Accidental causes were dominant in both types of medico-legal cases.

In Assaults, majority of the cases involved usage of Blunt objects (87.5%) as compared to Sharp objects (12.5%). Males were predominantly involved (62.5%) as compared to Females (37.5%)

Looking at the manner of Medico-Legal cases, 81.29% of the cases were Accidental, 12.94% Suicidal and 5.7% Homicidal. ⁽⁸⁾

This Study’s outcomes indicate that most cases (85.61%) were discharged, while 6.47% resulted in fatalities. 11 cases were referred to higher centers. Among the deaths, (5.03%) occurred within the first day of admission, likely due to the severity of Disease/Injuries.

TABLE 1: TYPES OF MLCs (n=139)

MLC Type	MALE	FEMALE
RTA (51.07%)	59	12
FALL (19.42%)	25	2
POISON (15.82%)	12	10
ASSAULT (5.75%)	5	3
BURN (4.31%)	2	4
INDUSTRIAL ACCIDENTS (2.15%)	3	0
HANGING (0.71%)	0	1
DROWNING (0.71%)	0	1

TABLE 2: AGE OF PERSON

Age in years	Male (n=106)	Female (n=33)
0-10	1	2
11-20	12	3
21-30	31	3
31-40	25	8
41-50	17	9
51-60	13	6
61-70	2	1
71-80	5	0
81-90	0	1

TABLE 3: TIME OF INCIDENT

TIME OF Incident	MALE	FEMALE	TOTAL	%
6AM-6PM	66	24	90	64.74%
6PM-11PM	29	2	31	22.3%
11PM-6AM	11	7	18	12.94%

TABLE 4: ARRIVAL TIME AT HOSPITAL

Arrival at hospital	Total	Percentage
6AM-9AM	14	10.07%
9AM-12PM	25	17.98%
12PM-6PM	46	33.09%
6PM- 6AM	54	38.84%

Table 5: TIME GAP BETWEEN INCIDENT & ADMISSION

Time gap between incident & admission	Total	Percentage
<1hour	24	17.26%
1 -8 hours	81	58.27%
8-16 hours	13	9.35%
16-24 hours	10	7.19%
>24 hours	11	7.91%

Table 6: DURATION OF HOSPITAL STAY

Duration of hospital stay	Total	Percentage
<24 hours	19	13.66%
1-3 days	44	31.65%
4-6 days	21	15.10%
>6 days	55	39.56%

TABLE 7: INJURIES IN RTA's

HEAD INJURIES	NECK INJURIES	THORAX INJURIES	ABDOMINAL INJURIES	PELVIC INJURIES	UPPER LIMB INJURIES	LOWER LIMB INJURIES
1.Scalp lacerations-19 2. Facial injuries - 16 3. Intra Cranial Injuries - 10 4. Skull Fractures - 9	Soft tissue injury - 1	1) Rib fractures: 4 2) Soft tissue injuries - 2	Soft tissue injury - 1	Soft tissue injuries - 3	1) Bone fractures - 3 2) Soft tissue injuries - 10	1) Bone fractures - 9 2) Soft tissue injuries - 18

Conclusions

Majority of Medico-Legal cases include Road Traffic Accidents, fall from heights and Poisonings.

Males in the age group of 21-40/50 years are the most vulnerable.

Medico-Legal cases predominantly occurred between 6AM-6PM, while arrival to the hospital was more between 6PM-6AM.

Incidence of Medico-Legal cases was lower on Tuesdays in a week.

Most of the patients required a hospital stay of less than 6 days.

In Road Traffic Accidents, self-accidents were common followed by pedestrian accidents.

Among the manner of MLC's, accidental manner was the commonest; in contrast to the poisonings where suicidal manner was the commonest.

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