ORIGINAL RESEARCH PAPER

Volume-8 | Issue-2 | February-2019 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A RECORD – BASED STUDY OF PATTERN OF MEDICO-LEGAL CASES IN TERTIARY CARE HOSPITAL OF CENTRAL INDIA

Forensic Medicine

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ABSTRACT

Background: The cases coming to hospital could be related to certain illness or those arising due to certain adverse conditions. A case is made medico-legal on various grounds that are based on certain general principles in most parts of the world. In these cases, exhaustive documentation is as important as treatment. Aims and Objectives: The present study was carried out at a tertiary care center with an intention to know the pattern of medico-legal cases. **Material and Methods:** A cross-sectional record based study was conducted at tertiary care hospital of Central India for duration of 3 years. **Result:** During study period 2177 medico-legal cases were admitted, out of which 2048 were discharged and 129 expired, with male and urban population preponderance. Cases of road traffic accidents were recorded in majority. The cases of suicidal poisoning outnumbered accidental cases. **Conclusion:** Load of medico-legal cases at the tertiary care hospital apart from treatment of patients can be perceived from this study which includes legal responsibilities to examine, document and certify medico-legal cases. Documentation of medico-legal cases should be done with great care to avoid future litigations.

KEYWORDS

Medico-legal cases, Pattern, Record-based study, Road traffic accidents, Profile.

INTRODUCTION:

A physician's duty comprises of medical as well as medico-legal, which is observed in Indian context also. Any case where some criminality is involved accounts for medico-legal case (MLC) such as road traffic accidents, burn injuries, poisoning, injuries by weapons, homicide, sexual assault, snake bite, insect bite, industrial accidents, alcoholic intoxications, etc1. MLCs are an integral part of the medical practice and constitute substantial proportion of workload in hospitals. Their registration is an imperative aspect for further deciding on the measures for prevention of avoidable casualties in near future so that firm steps can be taken by law and enforcement agencies[2].

The doctor attending the medico-legal cases not only treats the patient to fulfill his medical obligation but also do documentation in order to meet his legal obligation towards the case2. Apex court of our country has made saving life of patient in emergency supreme duty of doctor. After giving primary treatment and life saving measures to the patient, a MLC report should be made and information to be given to the police department as earliest as possible. Under section 39 of Cr. P. C., it is the duty of a doctor to register a particular case as a medico-legal case whenever indicated after judging properly and in doubtful cases inform the police as required by law3. This saves the doctor from unnecessary and needless allegations later1. Doctor should be well versed in handling MLCs. Intimation to police, preservation of the evidentiary materials and attending court form the additional duty in a medico-legal case. The idea is to initiate legal proceeding at the earliest so that maximum evidence can be collected to ease out the further judiciary proceedings[4-5].

With a sudden rise in population throughout the globe, there is a surge in the medico-legal cases as well. It is important to profile the different types of medico-legal cases arriving to the tertiary care centre so that the necessary healthcare facilities and the preventive measures can be adopted. Numerous studies2-7 have been conducted on the profile of medico-legal cases in various cities of India and also in neighboring countries, yet the pattern of medico-legal cases differ from region to region based on enforcement of law, socio-economic status, cultural diversities of the land, and the prevailing standards of healthcare services available in the community. However, no study has been undertaken in central India till date. In order to enforce and minimize medico-legal cases, the first step is to identify and profile the medico-legal cases [3]. Profiling helps to know the burden of medico-legal cases. In present study an attempt is made to know the pattern of medico-legal cases admitted at tertiary care hospital.

MATERIAL AND METHODS:

A cross-sectional record based study of 2177 indoor medico-legal cases, out of which 2048 were discharged and 129 expired, has been undertaken at Lata Mangeshkar Hospital, Nagpur after obtaining an approval from institutional ethics committee (Ethical clearance number IEC/NKPSIMS/10/2017 Dated 28/09/2017). The data was obtained from medical record section for a period of 3 years from 1st January 2015 to 31st December 2017. The medico-legal cases recorded in the MLC and Death register were included in the study. In addition to this the number of brought dead cases was also noted. Individuals of all ages and gender with medico-legal perspectives were included and those with no medico-legal perspectives were excluded from the study.

The parameters considered in the study were demographic data (age, gender, region) and pattern of medico-legal cases in respect to its indications being road traffic accident, assault, fall, poisoning, burn, electric injuries and others. The incidence of various poisoning being accidental or suicidal was obtained with respect to certain poisons and their prevalence. The data was tabulated and analyzed using SPSS 20.0 for frequencies and percentage.

RESULTS:

A retrospective record based study was undertaken to assess and analyze the pattern of medico-legal cases admitted in Lata Mangeshkar Hospital, Nagpur. As per the data obtained from medical record section, the total medico-legal cases from 1st January 2015 to 31st December 2017 were 2177, out of which 2048 got discharged after proper management and 129 expired. Out of 2048 discharged cases, 1505 (73.48%) were males and 543 (26.51 %) were females (Table 1), the male female ratio being 2.7: 1.

Table 1: Demographic data of discharged medico-legal cases

Variables	2015			2016			2017		
Age	M	F	T	M	F	T	M	F	T
0-10	20(4.54%)	18(10.84%)	38(6.27%)	14(3.01%)	15(8.98%)	29(4.58%)	41(6.84%)	16(7.62%)	57(7.05%)

11-20	59(13.40%)	28(16.86%)	87(14.36%)	61(13.09%)	33(19.76%)	94(14.85%)	66(11.02%)	36(17.14%)	102(12.61%)
21-30	162(36.81%)	48(28.92%)	210(34.65%)	157(33.69%)	49(29.34%)	206(32.54%)	184(30.72%)	53(25.24%)	237(29.29%)
31-40	102(23.18%)	33(19.88%)	135(22.28%)	88(18.88%)	29(17.37%)	117(18.48%)	131(21.87%)	32(15.24%)	163(20.15%)
41-50	49(11.13%)	21(12.65%)	70(11.55%)	87(18.67%)	27(16.17%)	114(18.01%)	86(14.36%)	31(14.76%)	117(14.46%)
51-60	29(6.59%)	08(4.82%)	37(6.11%)	35(7.51%)	07(4.19%)	42(6.64%)	58(9.68%)	22(10.48%)	80(9.89%)
61-70	13(2.95%)	07(4.25%)	20(3.30%)	18(3.86%)	05(2.99%)	23(3.63%)	23(3.84%)	16(7.62%)	39(4.82%)
> 71	06(1.36%)	03(1.81%)	09(1.49%)	06(1.29%)	02(1.19%)	08(1.26%)	10(1.67%)	04(1.90%)	14(1.73%)
Total	440(72.61%)	166(27.39%)	606(100%)	466(73.62%)	167(26.38%)	633(100%)	599(74.04%)	210(25.96%)	809(100%)

We observed that maximum number of cases were reported having a predilection of age during 21-30 years followed by 31-40 years (Table 1). Most of the medico-legal cases were reported from urban areas (Table 2).

Table 2: Region wise distribution of discharged MLC cases

Domicile	2015	2016	2017
Urban	372 (61.39%)	347(54.82%)	445(55.01%)
Rural	234(38.61%)	286(45.18%)	364(44.99%)
Total	606(100%)	633(100%)	809(100%)

The present study on the basis of different categories of medico-legal cases exhibited that maximum number of cases in 2015 and 2016 were recorded for road traffic accident cases followed by poisoning cases except in 2017 where road traffic accidents were followed by fall (Table 3).

Table 3: Profile of discharged medico-legal cases

Pattern	2015			2016			2017		
	M	F	T	M	F	T	M	F	T
Road traffic accidents	253(57.50%)	79(47.59%)	332(54.79%)	283(60.73%)	65(38.92%)	348(54.98%)	315(52.59%)	86(40.95%)	401(49.57%)
Fall	50(11.36%)	11(6.63%)	61(10.07%)	39(8.37%)	14(8.38%)	53(8.37%)	90(15.03%)	45(21.43%)	135(16.69%)
Burns	21(4.77%)	15(9.04%)	36(5.94%)	20(4.29%)	18(10.78%)	38(6.01%)	40(6.68%)	20(9.52%)	60(7.42%)
Poisoning	56(12.73%)	48(28.92%)	104(17.16%)	48(10.30%)	43(25.75%)	91(14.38%)	54(9.02%)	35(16.67%)	89(11.01%)
Physical	18(4.09%)	02(1.20%)	20(3.30%)	16(3.43%)	01(0.59%)	17(2.69%)	22(3.67%)	03(1.43%)	25(3.09%)
Electrocution	01(0.23%)	01(0.60%)	02(0.33%)	04(0.86%)	01(0.59%)	05(0.79%)	02(0.33%)	03(1.43%)	05(0.62%)
All other causes of injury	16(3.64%)	03(1.81%)	19(3.14%)	26(5.58%)	09(5.39%)	35(5.53%)	31(5.18%)	05(2.38%)	36(4.45%)
Venomous animal	02(0.45%)	00	02(0.330%)	06(1.29%)	01(0.59%)	07(1.11%)	07(1.17%)	02(0.95%)	09(1.11%)
Other causes	23(5.23%)	07(4.22%)	30(4.95%)	24(5.15%)	15(8.98%)	39(6.16%)	38(6.34%)	11(5.24%)	49(6.06%)
Total	440(72.61%)	166(27.39%)	606(100%)	466(73.62%)	167(26.38%)	633(100%)	599(74.04%)	210(25.96%)	809(100%)

Out of total poisoning cases, 158 (55.63%) were males and 126 (44.37%) were females. Maximum poisoning cases were recorded in 2015 and it was also observed that the commonly used poison was agricultural poison (Table 4).

Table 4: Poison wise distribution of cases

Poisoning Agent	2015			2016			2017		
	M	F	T	M	F	T	M	F	T
Agricultural	29(51.79%)	18(37.51%)	47(45.19%)	32(66.67%)	24(55.81%)	56(61.54%)	34(62.96%)	18(51.43%)	52(58.43%)
Corrosive	01 (1.79%)	01(2.08%)	02(1.92%)	00	00	00	00	03(8.57%)	03(3.37%)
Biological	08 (14.29%)	12(25%)	20(19.23%)	05(10.42%)	02(4.65%)	07(7.69%)	02(3.70%)	07(20.0%)	09(10.11%)
Cannabis	01(1.79%)	00	01(0.96%)	01(2.08%)	00	01(1.09%)	02(3.70%)	00	02(2.25%)
Alcohol	00	00	00	00	00	00	01(1.85%)	00	01(1.12%)
Hydrocarbons	01(1.79%)	06(12.51%)	07(6.73%)	02(4.17%)	04(9.30%)	06(6.59%)	10(18.52%)	02(5.71%)	12(13.48%)
Other	16(28.57%)	11(22.92%)	27(25.96%)	08(16.66%)	13(30.23%)	21(23.08%)	05(9.26%)	05(14.29%)	10(11.24%)
Total	56(53.85%)	48(46.15%)	104(100%)	48(52.75%)	43(47.25%)	91(100%)	54(60.67%)	35(39.33%)	89(100%)

It was seen that the total number of suicidal poisoning cases 188 (66.19%) in the study period outnumbered the accidental 96(33.81%) poisoning cases (Table 5).

Table 5: Manner wise distribution of poisoning cases

Manner	2015			2016			2017		
	M	F	T	M	F	T	M	F	T
Suicidal	31(55.36%)	31(64.58%)	62(59.62%)	36(75.0%)	31(72.09%)	67(73.63%)	33(61.11%)	26(74.29%)	59(66.29%)
Accidental	25(44.64%)	17(35.42%)	42(40.38%)	12(25.0%)	12(27.91%)	24(26.37%)	21(38.89%)	09(25.71%)	30(33.71%)
Homicidal	00	00	00	00	00	00	00	00	00
Total	56(53.85%)	48(46.15%)	104(100%)	48(52.75%)	43(47.25%)	91(100%)	54(60.67%)	35(39.33%)	89(100%)

In the study period, out of 2177 MLC cases, 129 patients expired, the most common cause was found to be road traffic accidents (Table 6). Total brought dead cases to the hospital were 39 in 2015, 43 in 2016, and 46 in 2017.

Table 6: Profile of MLC deaths

Pattern	2015			2016			2017		
	M	F	T	M	F	T	M	F	T
RTA	09(37.50%)	01(6.25%)	10(25.0%)	07(24.14%)	04(30.77%)	11(26.19%)	07(23.33%)	02(11.76%)	09(19.15%)
Other injuries	05(20.83%)	03(18.75%)	08(20.0%)	06(20.69%)	01(7.69%)	07(16.67%)	08(26.67%)	04(23.53%)	12(25.53%)
Burns	04(16.67%)	06(37.50%)	10(25.0%)	03(10.34%)	06(46.15%)	09(21.43%)	02(6.67%)	02(11.76%)	04(8.51%)

Poisoning	01(4.17%)	03(18.75%)	04(10.0%)	05(17.24%)	00	05(11.90%)	07(23.33%)	03(17.65%)	10(21.28%)
Other causes	05(20.83%)	03(18.75%)	08(20.0%)	08(27.59%)	02(15.38%)	10(23.81%)	06(20%)	06(35.29%)	12(21.53%)
Total	24(60.0%)	16(40%)	40(100%)	29(69.05%)	13(30.95%)	42(100%)	30(63.83%)	17(36.17%)	47(100%)

DISCUSSION:

In current times, rapid urbanization, industrialization, mechanization has led to rise in frequency of medico-legal cases. In our country and across the globe, the mortalities and morbidities due to medico-legal causes have been increasing at an alarming pace, yet to be controlled effectively. The present study was carried out at a tertiary care center with an intention to know the profile of medico-legal cases for a period of 3 years.

Total 2177 medico-legal cases were admitted throughout the study period, out of which 2048 cases got discharged having male (73.48%) predominance. The similar observation was noted by previous researchers1-8. The male to female ratio in our study was found to be 2.77:1 as against the ratio of 5.1:1 in the study conducted by Arif M et al3, 2.74:1 by Malik Y et al9, 1.87:1 in study of Timsinha S et al10, and 5:1 by Garg V et al11. This could be attributed to the fact that males are main earners and breadwinners, being more involved in to day to day outdoor activities that make them more vulnerable to adverse environmental conditions. Earlier researchers2-11 observed maximum MLC cases belonged to the age group 21 to 30 years followed by 31 to 40 years, which is consistent with our findings. However, the study conducted by Yadav A et al12 and Tajammul N et al13 showed that maximum number of cases were from age group 11-30 years.

Our study exhibited that the majority of MLC cases reported to the hospital were from urban area as seen in the studies conducted by Hussaini SN et al1, Siddappa SC et al4, Timsinha S et al10, Tomar J et al14, Kishore K et al15, the hospital domicile being urban though the other studies16, 17 showed rural domicile dominance.

Our findings regarding the profile of medico-legal cases are in agreement with prior studies2, 4, 7-11, 14-21 where road traffic accidents were the most common category for the admission of medico-legal cases in the hospital. Lack of safety measures like wearing helmet, seatbelts, careless and rash driving, poor road infrastructure, implementation of traffic laws and legislations may be the contributing factors. Regarding incidence of poisoning cases, males outnumbered females which is similar with findings of Sidappa SC et al4 and Haridas SV et al22, however Yadav A et al12, Malik R et al18 and Vishnurajkumar J et al19 the female preponderance. Most commonly used poison by patients were agricultural poisons (Organophosphorus, Organochlorines, Carbamates, Pesticides, Rodenticides, Herbicides and Fungicides), which is in concordance with findings of Tasgaonkar VN et al5, Mir MS et al16, Raju K et al20 and Haridas SV et al22. Analogous to the interpretations of former studies by Yadav A et al2, Haridas SV et al22 and Brahmankar TR et al23, suicidal poisoning cases were more in number as compared to accidental poisoning cases.

Death due to venomous animals (snake bite) was also noted during study period as seen in the studies conducted by Sidappa SC et al4, Tasgaonkar VN et al5, Haridas SV et al22. In the study period, out of 2177 MLC cases, 129 patients expired, the most common cause was found to be road traffic accidents.

Conclusion and Recommendation:

Load of medico-legal cases at the tertiary care hospital apart from treatment of patients can be perceived from this study which includes legal responsibilities to examine, document and certify medico-legal cases. Apart from the treatment of patients' illness, doctors also shoulder legal responsibilities in terms of medico-legal cases. Proper documentation in accordance to law of land is essential for which the medicos must be well trained. Doctor should be well versed with the handling of documentation that is mandatory in medico-legal case. It is essential to establish a quick fast approach towards such cases and making the doctors competent in tackling these situations. This will help to decrease the chances of negligence suits and better health care assurance to all. Documentation of medico-legal cases should be done with great care to avoid future litigations.

ACKNOWLEDGEMENT:

We are thankful to the medical record section In-charge Mr. Jaydeep Nayase, Mr. Anil Tayade and Mrs. Vinita Shende for their valuable support.

Financial support and sponsorship: Nil.
Conflicts of interest: There are no conflicts of interest.

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