

Original Article**Profile of medico-legal cases in tertiary care hospital in Jamnagar, Gujarat: Retrospective study of one year**

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ABSTRACT

Background: As we know that human being is different from the other animal. Human being is a social animal and lives in a society. One of the things which govern the society is laws. So this study was undertaken to study the profile of medico-legal cases (MLCs).

Aims: Aim of present study was to evaluate complete profile of medico-legal cases at tertiary care hospital.

Material and Method: This study was conducted retrospectively by analyzing the medico-legal cases at Guru Gobindsinh Govt. (GGG) hospital, M. P. Shah Govt. Medical College, Jamnagar during the period of 01/01/07 to 31/12/07 retrospectively.

Result: In year 2007, 8199 cases were registered as "medico-legal". Male cases were predominated over female cases which were 5967 (72.77%). The maximum numbers of cases were in the age group 21-30 years, 2632 (32.10%). Out of 8199 cases, maximum numbers of MLCs were reported in October, 832 cases (10.15%). Maximum numbers of cases were of road traffic accidents (RTA), 1984 cases (31.97%), it was followed by assault, 1984 cases (24.20%). Maximum numbers of MLCs were treated on the OPD basis, 4297 cases (52.41%). Maximum numbers of cases were discharge after completion of treatment, 6615 cases (80.69%).

Conclusion: This study shows the load of medico-legal cases at the tertiary care hospital and hospital not only caters to the needs of patients who reports for their illness but also carry out legal responsibilities to examine, document and certify medico-legal cases.

Key words: Medico-legal cases, Road traffic accident, Assault, Poisoning.

INTRODUCTION

Generally physician has two duties, medical and medico-legal. It is true in Indian context also. Medico-legal duties become more pertinent if physician is working in government hospital. Cases coming to hospital are made "medico-legal" on various grounds. These ground, though follow same general principles in most parts of the world, may differ country to country as per the laws of the land.

So medico-legal case is any case where the attending registered medical practitioners (RMP), after eliciting history and examining the person, thinks that some investigation by law enforcement agencies is essential to establish and fix responsibility for the case in accordance with the law of the land. [1]

It is classified as cases related to the crime against the human body like assaults, negligence acts, rape, burns, poisoning, etc. and other than that like insurance cases, sickness and fitness cases etc.

This study was undertaken to study the profile of medico-legal cases received at GGG hospital, Jamnagar. A medico-legal case may have many aspects like why is the case made medico-legal? Which law is involved? What is the duty of physician in relation of that case? and so on.

MATERIAL AND METHOD

Medico-legal cases admitted at the Guru Gobind Singh Govt. Hospital, M. P. Shah Govt. Medical College, Jamnagar, Gujarat, during the 01/01/07 to

31/12/07 were studied retrospectively. In the year 2007, total no. of cases were 479343 & these include 53218 indoor cases. During this period 8199 cases were registered as "medico-legal".

Related general information like the age, sex, religion, education, profession, types of medico-legal case, history part etc. of the cases were collected from the MLC register maintain in the hospital. Other parameters of case were studied from the case papers of respective MLC cases.

The above referred details of these medico-legal cases were then entered in the Performa. Accordingly, master chart was prepared.

The relevant details were analyzed, grouped and tabulated by taking various parameters like age, sex, religion, education, profession, types of medico-legal case, history part, time of admission, cause of MLC etc. for obtaining observations.

OBSERVATIONS

Table 1: Distribution of cases according to age groups and sex

Age (in yrs)	Male	Female	Total
New Born	0(0%)	5(0.06%)	5(0.06%)
<1	16(0.19%)	13(0.16%)	29(0.35%)
1-10	441(5.37%)	242(2.95%)	683(8.33%)
11-20	976(11.9%)	440(5.37%)	1416(17.27%)
21-30	2004(24.44%)	628(7.66%)	2632(32.10%)
31-40	1253(15.28%)	449(5.48%)	1702(20.76%)
41-50	690(8.42%)	263(3.21%)	953(11.62%)
51-60	376(4.48%)	102(1.24%)	478(5.83%)
61-70	145(1.77%)	68(0.83%)	213(2.60%)
71-80	49(0.6%)	20(0.24%)	69(0.84%)
>80	11(0.13%)	1(0.01%)	12(0.15%)
Not known*	6(0.07%)	1(0.01%)	7(0.09%)
Total	5967	2232	8199(100%)

* in 7 MLCs age of person was not mentioned in their case paper.

During the study period of one year GGG Hospital dealt with 479343 cases. These include 53218 indoor cases. Out of the total no given above 8199 cases (1.71%) were made medico legal. Male cases were predominated over female cases which were 5967 (72.77%) and 2232 (27.23%) respectively. The maximum numbers of cases were in the age group 21-30 years, 2632 (32.10%). The age group 31-40

years followed it with 1702 (20.76%). The least affected age group was a new born with 5 cases (0.06%) and all were female gender. Table No. (1) Among the different religions, Hindus constituted the highest number of cases, 6527 cases (79.6%), that was followed by Muslims, 1558 cases (19%). While the least affected religion was Sikhs, 25 cases (0.30%). In 67 cases (0.82%) religion of the person could not be found. In only 102 cases marital status of the person was noted into the case paper among them 17 cases were of males while 85 cases were of females. In rest of the cases marital status of the person was not mentioned. Educational and professional status of the person was not mentioned in any case paper.

Out of 8199 cases, maximum numbers of MLCs were reported in October, 832 cases (10.15%). It was followed by September with 827 cases (10.09%). While least number of MLCs were reported in to the month of February, 558 cases (6.8%). Table No. (2) In relation of time of MLC made, maximum cases were from 12 p.m. to 6 p.m., 2780 cases (33.91%), followed by 2481 cases from 6 p.m. to 12 a.m. The least affected time slot was 12 a.m. to 6 a.m., 1009 cases (12.30 %). These differences were found to be statistical significant. Table No. (3)

Out of 8199 cases, 7517 cases (91.68%) were made MLC by the CMO after taking history which was maximum group. While 263 cases (3.81%) were brought by the police for examination. 370 cases (4.51%) were referred from the peripheral center for higher treatment. These differences were found to be statistical significant. Table No. (4) In maximum number of cases history was given by person himself, 5470 cases (66.72%). While only in 284 cases history was given by police who was accompanying the person. In 2445 cases (29.81 %) history was given by the relative of person. Out of 8199 MLCs, 7393 cases (90.17%) cases registered as medico-legal at the time of admission or examination of the person. While 806 cases (9.83%) were made MLC retrograde.

Maximum numbers of cases were of RTA, 1984 cases (31.97%), it was followed by assault, 1984 cases (24.20%). Least common cause of making cases medico legal was of age estimation, 5 cases (0.06%). Out of 1984 cases, maximum number of assault were reported in July, 221 cases, followed by in June 206 cases. Least numbers of cases were reported in February, 120 cases. Maximum number of RTA cases were noted in month of March, 262 cases. It was followed by April, 261 cases. Least numbers of

Table 2: Distribution of cases according to cause of MLC and month

Cause	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Assault	124 (1.51)	120 (1.46)	152 (1.85)	161 (1.96)	202 (2.46)	206 (2.51)	221 (2.7)	149 (1.82)	169 (2.06)	178 (2.17)	148 (1.81)	154 (1.88)	1984 (24.2)
RTA	229 (2.79)	177 (2.16)	262 (3.2)	261 (3.18)	234 (2.85)	210 (2.56)	190 (2.32)	146 (1.78)	209 (2.55)	229 (2.79)	218 (2.66)	256 (3.12)	2621 (31.97)
Fall from	55 (0.67)	41 (0.05)	43 (0.52)	36 (0.44)	50 (0.61)	49 (0.6)	46 (0.56)	43 (0.52)	40 (0.49)	44 (0.54)	36 (0.44)	31 (0.38)	514 (6.27)
Burns	43 (0.52)	54 (0.66)	36 (0.44)	41 (0.5)	30 (0.37)	41 (0.5)	20 (0.24)	32 (0.39)	44 (0.54)	48 (0.59)	45 (0.55)	40 (0.49)	474 (5.78)
Factory accident	4 (0.05)	1 (0.01)	1 (0.01)	1 (0.01)	1 (0.01)	1 (0.01)	1 (0.01)	1 (0.01)	-	-	1 (0.01)	-	12 (0.15)
Sexual assault	2 (0.02)	1 (0.01)	-	6 (0.07)	3 (0.04)	-	2 (0.02)	2 (0.02)	2 (0.02)	1 (0.01)	1 (0.01)	3 (0.04)	23 (0.28)
Poisoning	49 (0.6)	49 (0.6)	72 (0.88)	75 (0.91)	88 (1.07)	79 (0.96)	50 (0.61)	65 (0.79)	172 (2.1)	140 (1.71)	72 (0.88)	55 (0.67)	966 (11.78)
Other intox.	1 (0.01)	8 (0.1)	-	-	-	-	-	-	-	-	-	-	9 (0.11)
Uncon.	7 (0.09)	3 (0.04)	1 (0.01)	4 (0.05)	1 (0.01)	2 (0.02)	2 (0.02)	1 (0.01)	5 (0.06)	-	3 (0.04)	1 (0.01)	30 (0.37)
Brought in dead	17 (0.21)	29 (0.35)	29 (0.35)	24 (0.29)	38 (0.46)	24 (0.29)	29 (0.35)	36 (0.44)	50 (0.61)	37 (0.45)	23 (0.28)	30 (0.37)	366 (4.46)
Drowning	2 (0.02)	1 (0.01)	-	2 (0.02)	1 (0.01)	3 (0.04)	5 (0.06)	3 (0.04)	5 (0.06)	7 (0.08)	5 (0.06)	1 (0.01)	35 (0.43)
Infant death	1 (0.01)	2 (0.02)	2 (0.02)	-	1 (0.01)	-	-	-	-	3 (0.04)	-	1 (0.01)	10 (0.12)
Att. Suicide	1 (0.01)	1 (0.01)	1 (0.01)	3 (0.04)	1 (0.01)	3 (0.04)	1 (0.01)	-	-	2 (0.02)	1 (0.01)	1 (0.01)	15 (0.18)
A. INJURY	5 (0.06)	5 (0.06)	4 (0.05)	3 (0.04)	6 (0.07)	6 (0.07)	7 (0.09)	5 (0.06)	1 (0.01)	3 (0.04)	1 (0.01)	-	46 (0.56)
LEGAL SYS	12 (0.15)	24 (0.3)	5 (0.06)	9 (0.11)	21 (0.26)	33 (0.4)	29 (0.35)	16 (0.2)	12 (0.15%)	14 (0.17)	20 (0.24)	24 (0.29)	219 (2.67)
Age estimation	-	1 (0.01)	1 (0.01)	2 (0.02)	-	-	-	-	-	1 (0.01)	-	-	5 (0.06)
Animal bite	19 (0.23)	27 (0.33)	27 (0.33)	37 (0.45)	46 (0.56)	76 (0.93)	94 (1.15)	84 (1.02)	99 (1.21)	117 (1.43)	61 (0.74)	35 (0.43)	722 (8.81)
Electrocution	5 (0.06)	12 (0.15)	6 (0.07)	4 (0.05)	7 (0.09)	20 (0.24)	31 (0.38)	19 (0.23)	19 (0.23)	8 (0.1)	3 (0.04)	8 (0.1)	142 (1.73)
Others	-	2 (0.02)	-	-	-	1 (0.01)	1 (0.01)	-	-	-	2 (0.02%)	-	6 (0.07)
Total	576 (7.03)	558 (6.81)	642 (7.83)	669 (8.16)	730 (8.9)	754 (9.2)	729 (8.89)	602 (7.34)	827 (10.09)	832 (10.15)	639 (7.79)	641 (7.82)	8199 (100)

Figures in the parenthesis shows percentage

Table 3: Distribution of cases according to time of incident and sex

Time	Male	Female	Total
12 am to 6 am	782(9.53%)	227(2.76%)	1009(12.30%)
6 am to 12 pm	1352(16.48%)	577(7.04%)	1929(23.53%)
12 pm to 6 pm	1977(24.11%)	803(9.79%)	2780(33.91%)
6 pm to 12 am	1856(22.64%)	625(7.62%)	2481(30.26%)
Total	5967(72.77%)	2232(27.22%)	8199(100%)

$\chi^2 = 27.45$ At DF = 3 $p < 0.0001$

cases were reported in August, 146 cases. Out of 474 burns cases, maximum numbers of burns cases were noted in February, 54 cases, it was followed by October with 48 cases. Least numbers of cases were noted in July, 20 cases. Out of 966 cases of poisoning, maximum number of poisoning cases was noted in September, 172 cases, followed by 140

Table 4: Distribution of cases according to receiving of medico-legal cases and sex

Received by	Male	Female	Total
Doctor	5451 (66.48%)	2066 (25.19%)	7517 (91.68%)
Police	263 (3.21%)	46 (0.56%)	312 (3.81%)
Referred	253 (3.09%)	120 (1.46%)	370 (4.51%)
Total	5967 (72.77%)	2232 (27.22%)	8199 (100%)

cases in October. Least numbers of cases were noted in months of January and February, 49 cases in each. Out of 722 cases of some animal bite, maximum number of case was noted in October, 117 cases. It was followed by month of September with 99 cases. Least numbers of case were noted in January, 19 cases. Out of 142 cases of electrocution, maximum number of cases was noted in July with 31 cases

followed by June with 20 cases. Least numbers of cases were noted in November, 3 cases. Table No. (2)

Table 5: Distribution of cases on the basis of OPD or admission (indoor)

Treated as	Male	Female	Total
OPD	Living (35.48%)	1022 (12.46%)	3931 (47.94%)
	Brought dead (3.52%)	77(0.94%)	366 (4.47%)
Indoor	2769 (33.77%)	1133(13.82%)	3902 (47.59%)
Total	5967 (72.77%)	2232(27.22%)	8199 (100%)

Table 6: Distribution of according to disposal of cases and sex

Disposal	Male	Female	Total	P value
Discharge	4860 (59.28%)	1755 (21.41%)	6615 (80.69%)	0.004
Abandoned	312 (3.81%)	113 (1.38%)	425 (5.18%)	0.80
Death	503 (6.13%)	291 (3.55%)	794 (9.68%)	0.0001
Referred	292 (3.56%)	73 (0.89%)	365 (4.45%)	0.001
Total	5967 (72.77%)	2232 (27.22%)	8199 (100%)	

Maximum number of MLC were treated on the OPD basis, 4297 cases (52.41%), out of them 3931 cases(47.94%) were living while 366 cases (4.47%) were brought dead. Indoor cases were 3902 cases (47.59%). Table No. (5) Out of 3902 indoor cases, maximum cases were admitted in to the surgery department, 1809 cases (46.36%), followed by medicine department 728 cases (18.66%). Least numbers of cases were admitted in to the ENT department, 1 case (0.03%). Out of 8199 cases, maximum numbers of cases were discharge after completion of treatment, 6615 cases (80.69%). While 794 cases (9.68%) were dead during the course of MLC. Only 365 cases (4.45%) were referred to higher center for further treatment. Table No. (6) Out of 794 death cases, post-mortem examination was done in the 791 cases (99.74%), and in remaining 3 cases (0.36%) post-mortem examination was not done. Out of these 3 cases, 2 cases were of some poisonous animal bite and 1 case was accidental poison case.

DISCUSSION

It was observed that most of the cases were of male (72.77%). This is consistence with the various studies by other authors.[2-7] The male predominance may be explained by the fact that males were active in

various day to day outdoor activities and other social activities as per customs. Also male by nature indulge in more violent activities as compared female. They were main breadwinners of the family. Collectively therefore they were more vulnerable and exposed to such situations which fall as MLCs in our study.

It was observed that most of the cases were between age group 21-30 years (32.10%). This result was also similar with other study. [2-7] This can be explained by the fact that they were more active, violent and arrogant by nature. They were more vulnerable to the fast changing social trend and culture as they are mentally a bit immature with little experience of life. They were mostly married during this period and so they are exposed to a new married life full of family and social adjustments.

In our study victims of Hindu religion were more in both sexes male as well as female. This was because Jamnagar region has a predominantly Hindu population.

We could not find the detail regarding the marital, education and professional status of the persons in the case papers. Marital status of the person was documented in only 102 cases (1.26%) in which 17 male and 85 female. Education and occupation of person was not mentioned in any case paper. Ours is retrograde study so it was a possibility that all required details were not properly documented in person's record.

It was observed that most of the cases were of RTA (31.97%) followed by assaults (24.20%) and poisoning (11.78%). This was consistence with study by Garg et al, Benomran et al and Gupta et al.[2,6,7] It is explained by the fact that India are passing through a major socio-demographic, epidemiological, technological and media transition. India has witnessed rapid urbanization, motorization, industrialization and migration of people in last two decades. In Jamnagar two major oil refineries, reliance and ESSAR were functioning, that itself explained above facts. The motorizations of India have resulted in greater number of deaths and injuries. This is due to absence of safety policies, poor road conditions, ignorance regarding the law and environmental norms. Malik et al[3] study shows poisoning case predominant followed by RTA, Yadav et al[4] study show that maximum number of cases were of poisoning followed by assault and Hussaini et al[5] study shows maximum number of the cases were of burns followed by assault.

Our study maximum numbers of cases were noted in to the month of October and September. It could be due to the sudden increase in the cases of poisoning and animal bites. This result was consistency with the study of Garg et al[2] and Hussaini et al[5]. This could be mostly due to the increased farming activity and rainy season. Ours is an agriculture based country, hence major population depend upon farming activity, so it was true for Jamnagar district also. Majority of farming activity like spraying of insecticide was done in monsoon season. So the chances of accidental as well as suicidal poisoning were increased. Incidence of bite by poisonous animals was also increased in rainy season. Maximum incidences of poisoning in the rainy season noticed by Gupta et al in earlier study[8] were similarly to our study.

Cases of RTA have shown peak in the month of March, April and December which can be explained that the tourist season was peak in these months, so chances of RTA were increased. Study by Dhillon et al[9] had shown the peak of RTA in January, February, May and June which was not in consistency with finding in present study. However Dhillon mentioned cause of rise in RTA cases was tourist only. His study particulars to Shimla region where January and February being good winter season and May June vacation season cause good influx in tourism.

In the month of February, maximum numbers of burns cases were noted. It was because of February is a winter seasoning so chances of accidental burns were increased. Cases were least common in month of July which is rainy season.

Cases of electrocution were noted maximum in June, July and August which was rainy season. Because of least safety measure, poor quality of electrical equipment and ignorance of public, incidence of electrocution was increased in rainy season.

Cases of assault was shown the peak in month of May, June and July and cases of brought in death were maximum noted in August, September and October. We cannot draw exact cause of that particular pattern.

Maximum incidence of MLCs took place in between 12 p.m. to 6 p.m. because in this time of day people are maximally involved into their activities. This is consistency with the study of Garg et al[2] and Gupta et al.[7] As the day progress frustration of person was increased and the temperature and humidity level of

environment was also high during this time period of day. Minimum incidences of MLCs were seen in between 12 a.m. to 6 a.m. time period because people usually remain asleep. Those who were awaked have their minds fresh and mainly preoccupied by religious thoughts and prayers in the early morning.

Most of MLCs were registered at the time of admission (90.17%). While some cases (9.83%) were made medico-legal retrograde. It is sensible to realise the fact that even if a case had not been booked as medico-legal at the time of examination or admission into the hospital, the case may become medico-legal at a later stage. This means conversion of an ordinary case into a medico-legal case, by a late entry made in Medico-legal register. So it is denoted as retrograde MLC. This becomes inevitable when there are delayed allegation made about an assault in an injury case or some newer facts are noticed after lapse of time.

In our study most of the cases were treated in OPD (47.94%). Out of 2621 cases of RTA 1554 cases and out of 1984 cases of assaults 1554 cases had minor injuries, so they did not required admission and were dealt with at the OPD level. Out of 3902 indoor cases, 1809 cases admitted in to the surgery department (46.36%), because most of the cases of road traffic accidents, assaults, fall from height, some animal bite, and burns etc., were treated in to the surgery department which is similar with the study of Malik et al[3].

CONCLUSION

This study shows the load of medico-legal cases at the tertiary care hospital and hospital not only caters to the needs of patients who reports for their illness but also carry out legal responsibilities to examine, document and certify medico-legal cases. The doctors who are involved in treatment of such medico-legal cases need to be more trained in this field. Also due to increase in accidents and violence cases, hospitals have the need for round the clock availability of such medico-legal experts in sufficient number to deal effectively with such cases to better serve of laws of land.

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