ONE YEAR PROFILING OF FORENSIC AUTOPSY CASES AT TERTIARY CARE CENTRE

Sunny Basra[1], Gaurav Agnihotri[2], Jaspinder Pratap Singh[3], Girish Pal[4], Kuldip Kumar[5*]

1. Junior Resident, Department of Forensic Medicine and Toxicology, Government Medical College, Amritsar.
2. Professor, Department of Anatomy, Government Medical College, Amritsar.
3. Senior Resident, Department of Forensic Medicine and Toxicology, Government Medical College, Amritsar.
4. Intern, MBBS, Guru Nanak Dev Hospital and Government Medical College, Amritsar.
5. Professor and Head, Department of Forensic Medicine and Toxicology, Government Medical College, Amritsar.

CORRESPONDING AUTHOR

Dr Kuldip Kumar, Prof and Head
Department of Forensic Medicine and Toxicology,
Government Medical College, Amritsar.
Email Id: drkuldipgmc@yahoo.com
Contact no: 09814639916

ABSTRACT

Background: Autopsy or necropsy means postmortem examination of a dead body. In each and every case, the autopsy must be complete, all the body cavities should be opened, and every organ must be examined because evidence contributory to the cause of death may be found in more than one organ. Partial autopsies have no place in forensic pathologic practice.

Aims and objectives: The aim of the study was to find out the profile of the autopsies reported, manner of death, whether accidental, suicidal or homicidal cause of death, whether natural or unnatural and time since death. The objective was to observe the overall pattern of the autopsy cases in this region of the state.

Results: Majority of cases reported were in the age group of 40-49 years were 70 (22.2%) cases, followed by the age group of 30-39 years which had 68(21.6%) cases and 64(20.2%) cases in the age group of 20-29 years. 277(87.6%) were males followed by females 38(12.1%). Majority of the population belonged to the Sikh religion in 149 (47.2%) cases followed by Hindus. Majority of cases 84(26.6%) had time since death of 12 to 24 hours followed by 80(25.3%) having time since death of 3 to 5 days.

Conclusion: Autopsy plays a pivotal role in assessing cause of death, time since death, mode, manner and mechanism of death, thus helps in dispensation of justice in medicolegal cases. Multi-disciplinary study would yield far reaching results and would be better informative. Number of unidentified cases can be reduced by introducing more personal identification parameters in police investigation.

KEYWORDS: medicolegal autopsy, unnatural deaths, natural deaths, crime, identification.

INTRODUCTION

Autopsy or necropsy means postmortem examination of a dead body. In each and every case, the autopsy must be complete, all the body cavities should be opened, and every organ must be examined because evidence contributory to the cause of death may be found in more than one organ. Partial autopsies have no place in forensic pathologic practice. A complete

autopsy is necessary to substantiate the truth of the evidence of eyewitnesses. A poor autopsy is worse than no autopsy at all, as it is more likely to lead to a miscarriage of justice. The autopsy should be carried out by the doctor and not left to a mortuary attendant. The doctor should remove the organs himself. The attendant should prepare the body and help the doctor where required, such as sawing the skull cap, reconstructing the body, etc.[1]

AIMS AND OBJECTIVES

The aim of the study was to find out the profile of the autopsies reported, manner of death, whether accidental, suicidal or homicidal cause of death, whether natural or unnatural and time since death. The objective was to observe the overall pattern of the autopsy cases in this region of the state that is reported over the period of one year from 1 January to 31 December 2021.

MATERIAL AND METHOD

The present study was a prospective one year study of all autopsies performed in the department of Forensic Medicine and Toxicology at Government Medical College, Amritsar, Punjab, India from 1 January 2021 to 31st December 2021 (One year period). This was determined from post mortem reports & history of the case detecting, describing and recording any external or internal injuries, abnormalities and diseases.

COLLECTION OF DATA from

1.   Inquest report – Biodata (Name, Sex, Age, Address, Religion, Place, Date & Time of death and Postmortem examination).

2.   Previous history of the case.

3.   Medical document – Time & date of declaration of death at emergency department of hospital.

4.   During autopsy – Whether the findings corroborate with the apparent cause of death or not? External & internal findings were considered.

The data was collected, analyzed and subjected to statistical analysis using Statistical Package for Social Sciences (SPSS) and the observations were calculated.

RESULTS

TABLE 1:   AGE WISE DISTRIBUTION OF POST MORTEM CASES DURING YEAR 2021

Sr. No	Age	Number	Percentage
1.	0-9 months	10	3.2
2.	0- 9 years	01	0.3
3.	10 – 19 years	12	3.8

4.	20-29 years	64	20.2
5.	30- 39 years	68	21.6
6.	40- 49 years	70	22.2
7.	50- 59 years	44	13.9
8.	60- 69 years	31	9.8
9.	70- 79 years	14	4.4
10.	> 80 years	02	0.6
	Total	316	100

Table 1 depicts the age wise distribution of the post mortem cases, majority of cases reported were in the age group of 40-49 years were 70 (22.2%) cases, followed by the age group of 30-39 years which had 68(21.6%) cases and 64(20.2%) cases in the age group of 20-29 years. In the age group of 50-59 years there were 44 (13.9%) cases while in the age group of 60-69 years there were 31(9.8%) cases. 14(4.4%) cases were reported in the month of 70-79 years and 12 (3.8%) in the age group of 10-19 years. 10 (3.2%) cases were in the age group of intrauterine age to less than 9 months. The age group of more than 80 years had 2 (0.6%) cases and the least number of cases were present in the age group of 1-9 years that observes only one (0.3%) case. Maximum cases were reported during 20-49 years of age were 202 (64 %) .

TABLE 2:   **GENDER WISE DISTRIBUTION OF POST MORTEM CASES DURING 2021**

Sr. No.	Gender	Number	%age
1.	Male	277	87.6
2.	Female	38	12.1
3.	Others/Transgender	01	0.3
	Total	316	100

Table 2 shows the gender wise distribution of the post mortem cases, majority of cases 277(87.6%) were males followed by females 38(12.1%). Only one (0.3%) case of transgender/ others was present. The male is to female sex ratio is 7.3:1.

TABLE 3:   **DISTRIBUTION OF POSTMORTEM CASES ON THE BASIS OF RELIGION**

Sr. No.	Religion	Number	Percentage
1.	Sikh	149	47.2

2.	Hindu	70	22.2
3.	Muslim	03	0.9
4.	Christian	03	0.9
5.	Unknown	91	28.8
6.	Total	316	100

Table 3 shows the distribution of the postmortem cases on the basis of religion. Majority of the population belonged to the Sikh religion in 149 (47.2%) cases followed by Hindus in 70(22.2%) cases. The number of cases that belonged to the Muslim and Christians were 03(0.9%) each. The religious status of the 91(28.8%) cases was not known.

TABLE 4:   DISTRIBUTION OF POSTMORTEM CASES ON THE BASIS OF PRESENCE OF ANY SUPERSEDED/CHRONIC DISEASE.

S. no	Name of Chronic disease	Number	%age
1.	Mental illness	24	7.6
2.	Lung disease	21	6.7
3.	Heart disease / hypertension	20	6.3
4.	HIV/HCV/HBV	17	5.4
5.	Diabetes Mellitus	10	3.2
6.	Liver Disease	08	2.5
7.	Covid Disease	04	1.3
8.	Carcinoma	03	0.9
9.	Schizophrenia	03	0.9
10.	No history of any chronic disease	206	65.2
	Total	316	100

Table 4 shows the distribution of cases on the basis of presence of any superseded/chronic disease. No history of any chronic disease was present in 206(65.2%) cases out of total 316 which only 110 (34.8 %) cases had chronic disease before death. Mental illness was present in 24(7.6%) cases while lung diseases were present in 21(6.7%) and heart disease were present in 20 (6.3%) cases. Infectious diseases like HIV/HCV and HBV were present in 17 (5.4%) cases and diabetes mellitus was present in 10(3.2%) cases. The liver diseases were present in 8(2.5%) cases while 4(1.3%) cases had covid disease and Schizophrenia and carcinoma was present in 03(0.9%) cases each.

TABLE 5:   DISTRIBUTION OF MANNER OF THE BASIS OF   UNNATURAL DEATH

S. no	Manner of Death	Number	%age
1.	Natural	158	50
2.	Accidental	65	20.6
3.	Suicidal	54	17.1
4.	Homicidal	39	12.3
	Total	316	100

Table 5 shows the distribution of cases on the basis of manner of death among unnatural deaths. Majority of cases died due to accidents were 65 (20.6 %), suicides in 54 (17.1 %) and homicides in 39 (12.3 %) cases.

TABLE 6: DISTRIBUTION OF POSTMORTEM CASES ON THE BASIS OF FINAL CAUSE OF DEATH

S. no	Final cause of death	Number	%age
1.	Haemorrhage and shock	42	13.3
2.	Multiorgan failure	36	11.4
3.	Asphyxia	26	8.2
4.	Coma	25	7.9
5.	Septicemia	10	3.2
6.	Poisoning	01	0.3
7.	Unascertained	16	5.1
8.	Pending	160	50.6
	Total	316	100

Table 6 shows the distribution of cases on the basis of final cause of death. The cause of death in majority of cases was pending in 160(50.6%) cases due to HPE and Chemical analysis report. The cause of death was haemorrhage and shock in 42(13.3%) cases while multiorgan failure in 36 (11.4%) cases and asphyxia in 26(8.2%) cases. In 25 (7.9%) cases, the cause of death was could not be ascertained 16 (5.1%) cases and 10(3.2%) cases the cause of death was septicaemia. In only one (0.3%) case, the cause of death was poisoning.

TABLE 7:   DISTRIBUTION OF POST MORTEM CASES ON   THE BASIS OF TIME BETWEEN DEATH AND POST MORTEM

S. no	Time since death	Number	%age
1.	<6 hours	01	0.3

2.	6-12 hours	10	3.2
3.	12-24 hours	84	26.6
4.	24-48 hours	38	12.1
5.	48-72 hours	34	10.8
6.	3 to 5 days	80	25.3
7.	5 to 7 days	06	1.9
8.	1-2 week	03	0.9
9.	>2 weeks	02	0.6
	Total	316	100

Table 7 shows the distribution of cases on the basis of time between death and post mortem examination. Majority of cases 84(26.6%) had time since death of 12 to 24 hours followed by 80(25.3%) having time since death of 3 to 5 days. In 24 to 48 hours, the number of cases were 38(12.1%) autopsy was conducted within 24 to 48 hours while in 34(10.8%) cases within 48- 72 hours . 10 (3.2%) cases had time since death of 6 to 12 hours and 6 (1.9%) cases had 5 to 7 days of time since death. 1-2 week of time since death was seen in 3 (0.9%) cases and more than 2 weeks was seen in 2 (0.6%) cases. Only one (0.3%) cases reported with time since death of less than 6 hours. Most common recorded time since death was seen in 12 to 24 hours and the least common was seen in less than 6 hours .

DISCUSSION

In the age group 20 – 29 years maximum number of cases were reported. Similar finding were seen in the study conducted by **Radhakrishna et al (2015)**[2] which observed majority of cases in age group of 20 to 49 years and **Pateria et al (2018)**[3] where maximum cases were reported in age group of 31 to 49 years while minimum cases were reported in the extreme of age groups. In another study conducted by **Kumar et al(2013)**[4] reported similar findings, where majority of victims were from 21 to 50 years of age group. **Goel et al (2018)**[5] concluded that majority of victims (35.08%) were above 40 years of age , these are findings similar to the findings of the present study.

The findings of the present study differs from the study conducted by **Junaidi et al (2020)**[6]**, Patel et al (2016)**[7]**, Mohan et al (2018)**[8] **and Abdellah et al (2018)**[9] where the maximum number of autopsy cases were from the age group 21 to 30 years followed by 31 to 40 years and **Chaliha (2018)**[10] where least number of victims were in age above 60 years, Majority of studies concluded that least number of cases from the extremes of ages.

The findings in the present study were different from the studies conducted by **Chugtai et al (2013)**[11] where majority victims were of 26 to 40 years age group and **Afandi et al (2012)**[12] where the largest age group of victims were between 20 to 29 years and 30 to 39 years. In another study conducted by **Baral et al (2020)**[13] where highest number of cases reported were from 20 to 29 years , followed by age group of 31 to 39 years.

The findings of present study are similar to studies conducted by **Sampene et al (2017)**[14] where male is to female ratio is 3:2, **Radhakrishna et al (2015)**[2] where 75% males were observed in study, by **Prasad et al (2017)**[15] that included 62% males and 38% females, **Patel et al (2016)**[7] where male to female ratio was 3.31 :1 and by **Kumar et al (2013)**[4] where there were 94% males and 6 %females. In another study conducted by **Goel et al (2018)**[5], **Kartikeyan et al (2016)**[16], **Baral et al (2016)**[13], **Afandi et al (2012)**[12] **and Chaourasia et al (2019)**[17] which also showed male predominance.

The probable reason for male predominance is due to high male sex ratio in the society, more involvement of men in crime and females being more homely in the Indian society..

In another study conducted by **Sampene et al (2017)**[14] which observed that natural deaths were dominant among the 56.1% males as compared to 43.9% for the female counterpart. Most natural causes were related to cardiovascular diseases resulting in 37.7% deaths, followed by respiratory 28.1%, hepatobiliary 16.7%, genitourinary 7.0% and 6.1% gastrointestinal diseases which is different from present study. **Radhakrishna et al (2015)**[2] observed that among the natural deaths, cardiovascular pathology was seen in 51.80% cases, respiratory pathology in 31.44% cases, gastrointestinal pathology in 5.67% cases, central nervous system pathology was present in 2.57% cases, Genitourinary pathology in 0.77% and Multiorgan failure was present in 7.73% cases respectively. In another study conducted by **Patel et al (2016)**[7] that observed natural type of death occurred in 21.65% of cases, from which respiratory system-related deaths occurred in the maximum number of cases, followed by cardiovascular cause, septicaemia, and gastrointestinal tract (GIT) cause which correlates with present study.

The findings in the present study were similar to the study conducted by **Sampene et al (2017)**[14] where distribution of manner of death showed 37.6% natural deaths, 61.1% unnatural deaths and 1.3% were unascertained cases. Majority of deaths were accidental followed by suicidal and homicidal cases similar findings were observed by the study conducted by **Prasad et al (2017)**[15] where the manner of death was accidental comprising about 86% cases,8% cases were having suicidal manner and 6% cases in homicidal pattern.

In another study conducted by **Pateria et al(2018)**[3] that observed similar findings to the present study where alleged manner of death was burns, In present study the manner of death was accidental in 73.9% cases followed by suicidal in 20.2% cases and only 2.1% cases were homicidal in nature and **Radhkrishna et al (2015)**[2] which observed that accidental deaths followed by suicidal and homicidal deaths. Similar observations were concluded by **Kumar et al (2019)**[18] where 56% cases were accidental and 44 % were suicidal deaths while no case of homicide was observed and by **Junaidi et al (2020)**[6] which concluded 69% accidental deaths followed by 23% suicidal and rest were homicidal deaths.

The finding of present study differs from the study conducted by **Abdellah et al (2018)**[9] which observed that homicidal deaths represented 57.34% of autopsies, accidental deaths were 16.83%, and suicidal deaths were 12.72% while natural deaths represented 4.89 % of all deaths and **Afandi et al (2012)**[12] where homicide was predominant manner of death. Another study which had different observation was conducted by **Baral et al (2020)**[13] where the highest number of cases presented for autopsy were suicidal deaths in 59.09% cases, followed by accidental deaths in 27.5 % cases and homicidal comprising of 4.12%. the probable reason is different crime graph as well different region of the study.

Mohan et al (2018)[8] concluded in its study that 23.9% death were due to head injury, 18.3% due to asphyxia, 33.8% due to hemorrhagic shock, 2.8% due to burns, 4.2% due to cut throat

injury, 1.4% due to blunt trauma to chest, 8.5% due to natural death and 7% had unknown cause. In another study conducted by **Kartikeyan et al (2016)**[16] where major causes of death were trauma (27.26%) followed by asphyxia (15.3%), coronary artery disease (11.59%), tuberculosis (11.04%) and drowning (6.18%). In a similar study by **Kumar et al (2015)**[19] concluded that RTA accounted for maximum number of MLCs, followed by assault , mechanical injuries , poisoning and fall from height. In another study conducted by **Junaidi et al (2020)**[6] observed that RTA was most common cause of death (57.9%), followed by poisoning including snake bite (17%) & burns including electrocution and lightening (11.3%). Findings in these studies are partly similar to the present study.

Chaliha(2018)[10] observed regarding the cause of death that road traffic accidents accounted for the highest number of cases, followed by hanging, natural death, burn, poisoning and drowning. **Baral et al (2020)**[13] observed regarding the cause of death, the highest number of cases presented for autopsy were due to blunt injury, immediately followed by death due to hanging (16.38%) followed by deaths due to disease resulting in 14.06% of cases.

Abdellah et al (2018)[9] observed that firearm injuries were the cause of death in (34.44%) cases, blunt trauma was the second cause of death(13.31%) followed by stab wounds in (12.72%) deaths. Poisoning represented 12.13% of deaths, and (8.61%) of deaths were caused by asphyxia. In another study conducted by **Goel et al (2017)**[5] concluded that road traffic accident was the most common cause of death causing (46.49%) deaths followed by poisoning with (12.28%) victims and (10.52%) deaths occurred due to use of firearm weapons. Hanging, strangulation, suffocation and drowning together claimed (10.52%) lives. The above findings are different from the present study.

The pattern of cause of death differs from place to place and depends upon the social, ethnic and environmental conditions of the place. The pattern of the cause of death in medicolegal cases also depends on the security arrangements in the state, which decides the amount of crime on the place or region. Thus, various studies can be discussed as under stating the cause of death at their place of study.

Goel et al (2017)[5] in its study observed that most victim's dead bodies were brought to mortuary for autopsy within 12- 24 hours after death (48.24%), only two cases (1.75%) were brought for autopsy whereby time since death was more than 36 hours which partially correlates with the finding of the present study.

CONCLUSION

The profile of the pattern of the autopsy depends on the area of the study, crime graph of the region as well as the security of the state. These are the main deciding factors of the medicolegal deaths at any place. Autopsy plays a pivotal role in assessing cause of death, time since death, mode, manner and mechanism of death, thus helps in dispensation of justice in medicolegal cases. Multi-disciplinary study would yield far reaching results and would be better informative. Number of unidentified cases can be reduced by introducing more personal identification parameters in police investigation. Pendency of cause of death can also be reduced by appointing more skilled staff and increasing infrastructure of Chemical analysis Labs and Pathology Labs.

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