Original Research Article

Profile of Medico-Legal Autopsies Conducted at Tertiary Medico-Legal Centre in Northern Madhya Pradesh along with Effect of Lock Down

Jai Prakash Soni[1], Sarthak Juglan[2]

[1]Assistant Professor, Dept. of Forensic Medicine, GRMC Gwalior, Madhya Pradesh, [2]Professor, Dept. of Forensic Medicine, GRMC Gwalior, Madhya Pradesh.

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Abstract

Introduction: Medico-legal post-mortem examinations are performed as mandatory legal procedures for establishing the cause of death for people dying in sudden, suspicious and unnatural circumstances. When COVID-19 came to India and Indian government declared a complete lockdown, the autopsy profile is changed.

Aims & Objectives: Demographic study and effect of lockdown on autopsy profile.

Methods: The present study is a retrospective study carried out in the Department of Forensic Medicine and Toxicology, GRMC, Gwalior Madhya Pradesh during the period of 1st January 2020 to 31st December 2020 and analysis of a total of 2170 cases, brought to the mortuary for medico-legal autopsy examination. Later on, the effect of lockdown is evaluated on the autopsy profile.

Result: The majority of victims were male 1571 (72.4%) cases and female 599 (27.6%) cases. The maximum number of post-mortem done in the age group 21-40 years was 1131 (52.12 %) cases and the minimum in the age group 0-10 year were 56 (02.58%) cases. Manners of death due to natural causes were 170 (07.8%) cases and unnatural 2000 (92.20%) cases. The Indian government declared a complete lockdown on the evening of 24 March 2020 for 21 days, which was further extended with some relaxation. Due to this event; the least number of autopsies was done in April (4.5%) which increased to its normal pattern by the end of June (10.6%). During this period i.e. April; there was a slight decrease in male victims (64.3%) and a slight increase in female victims (35.7%).

Conclusion: This study was conducted to determine the effect of lockdown on the autopsy profile. Our study shows that the effects of lockdownwere majorly seen in April month and later on, there was almost no effect of l ockdown.

Keywords: Autopsy profile, Covid-19, Lockdown, Suicide

Introduction

The term 'Autopsy' originates from ancient word 'Autopsia' which is derived from 'Autos' i.e. 'Oneself' and 'Opsis' i.e. 'to see for oneself'.[1] Post-mortem

Corresponding Author: Jai Prakash Soni, Assistant Professor, Dept. of Forensic Medicine, GRMC Gwalior, Madhya Pradesh.

E-mail: dr.jaiprakashsoni@gmail.com

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examination is just another term used for Autopsy. If we look in to the history, Imhotep (2980-2900 BC) who was the chief justice and chief physician to Pharaoh Zoster, the king of Egypt considered as a first medico-legal expert.[2]

Basically Autopsy is of two types: (1) Medico-legal and (2) Pathological. Here we discus about medico-legal autopsy. Medico-legal autopsy is done when police feels that death is sudden ordue to unnatural cause. In India, medico-legal autopsy is performed as a result of police or magistrate inquest i.e. 174CrPC or 176CrPC in a sudden, suspicious and unnatural death.[3] During autopsy all the body cavities are opened and examined.[4] Specific samples are preserved as per history and findings of autopsy to ascertain the cause of death. The basic aim of autopsy is to find out, cause of death, time since death and manner of death. In case of foetus, autopsy is performed to ascertain the viability status, live or dead born foetus along with sexing of foetus.[5] In case of unknown or decomposed dead bodies or human remains, the objective of autopsy is to find out the cause of death, time since death, manner of death and identification.

In India most of the centres for autopsy shows highest percentage of road side accident cases in its total autopsy profile. But when COVID-19 came in India and Indian government declare complete lockdown on the evening of 24 March 2020 for 21 days. Later on, Govt. extends this lockdown for more days with some relaxation.[6]

Aim and Objectives

Demographic study and effect of lockdown on autopsy profile.

Material and Methods

The present study is a retrospective study carried out in the Department of Forensic Medicine and Toxicology, GRMC, Gwalior Madhya Pradesh during the period of 1st January 2020 to 31st December 2020 and analysis of total 2170 cases, brought to the mortuary for medico-legal autopsy examination.

Data were collected using a pre-designed format from Post mortem registers/records, Inquest papers and Post mortem reports maintained in the department by keeping confidentiality strictly intact. The data was tabulated and analysis was done. Descriptive results are presented in table form.

Result and Discussion

Table no. 1: Age wise distribution of cases

Age group	No. of autopsies	Percentage %
Non-viable foetus	10	0.46
0-10 years	46	2.12
11-20 years	210	9.67
21-30 years	651	30
31-40 years	480	22.12
41-50 years	322	14.84
51-60 years	254	11.71
>60 years	197	9.08

Table no. 3: Sex and month wise distribution

Months	Male	Female	Total Post-mortem
January	112 (71.8%)	44 (28.2%)	156 (7.2%)
February	124 (78%)	35 (22%)	159 (7.3%)
March	128 (69.9%)	55 (30.1%)	183 (8.4%)
April	63 (64.3%)	35 (35.7%)	98 (4.5%)
May	120(69.8)	52 (30.2%)	172 (7.9%)
June	174 (75.6%)	56 (24.4%)	230 (10.6%)
July	139 (70.9%)	57 (29.1%)	196 (9%)
August	133 (72.3%)	51 (27.7%)	184 (8.5%)
September	140 (73.7%)	50 (26.3%)	190 (8.7%)
October	144 (72.4%)	55 (27.6%)	199 (9.2%)
November	139 (73.5%)	50 (26.5%)	189 (8.7%)
December	155 (72.4%)	59 (27.6%)	214 (9.9%)
Annual autopsy	1571 (72.4%)	599 (27.6%)	2170 (100%)

As per Table no. 1 majority of the autopsies done in the age group of 21-30 years where number of autopsies were 651 (30%) followed by the 31-40 years age group where 480 (22.12%) autopsies performed. In addition to this, a minimum number of autopsies was done in the age group of 0-10 years i.e. 46 (2.12%) including non-viable foetus i.e. 10 (0.46%). The findings of this study are consistent with the findings of Mugadlimath et al.,[7] Radhakrishna et al.,[8] Khanna et al.,[9] Patel et al.,[10] and Wasnik et al.[11] which shows similar trends in their studies. This is generally seen because 20-40 years age group are very active and economically productive and most of them perform daily commute for their livelihood.

Table no 2: Month and cause of death wise distribution

Month	Pathological	RSA	Poisoning	Hanging	Burn	Homicide	Drowning	Electrocution	snakebite	miscellaneous (decomposed bodies, skeleton, foetus, dog bite	Total
January	15(9.6%)	78(50%)	16 (10.3%)	13 (8.3%)	11 (7.1%)	15 (9.6%)	3 (1.9%)	1 (0.6%)	0 (0%)	4 (2.6%)	156
February	14(8.8%)	84(52.8%)	11(6.9%)	16(10.1%)	14(8.8%)	12(7.5%)	2(1.3%)	2 (1.3%)	0(0%)	4 (2.5%)	159
March	18 (9.8%)	90 (49.2%)	15 (8.2%)	20 (10.9%)	22 (12%)	10 (5.5%)	5 (2.7%)	1 (0.6%)	0 (0%)	2 (1.1%)	183
April	14 (14.3%)	27 (27.6%)	6 (6.1%)	23 (23.5%)	19 (19.4%)	3 (3.1%)	1 (1%)	1 (1%)	1 (1%)	3 (3%)	98
May	16 (9.3%)	84 (48.8%)	12 (7%)	19 (11%)	23 (13.4%)	10 (5.8%)	0 (0%)	2 (1.2%)	1 (0.6%)	5 (2.9%)	172
June	20 (8.7%)	102 (44.3%)	37 (16.1%)	32 (13.9%)	10 (4.3%)	14 (6.1%)	4 (1.8%)	7 (3%)	0 (0%)	4 (1.8%)	230
July	12 (6.1%)	93 (47.4%)	19 (9.7%)	32 (16.3%)	18 (9.2%)	8 (4.1%)	0 (0%)	4 (2%)	5 (2.6%)	5 (2.6%)	196
August	11 (6%)	75 (40.8%)	12 (6.5%)	31 (16.8%)	12 (6.5%)	11 (6%)	8 (4.3%)	9 (4.9%)	11 (6%)	4 (2.2%)	184
September	13 (6.8%)	95 (50%)	28 (14.8%)	20 (10.5%)	13 (6.8%)	9 (4.7%)	3 (1.6%)k	4 (2.1%)	4 (2.1%)	1 (0.6%)	190
October	8 (4%)	95 (47.7%)	22 (11.1%)	39 (19.6%)	17 (8.6%)	6 (3%)	1 (0.5%)	4 (2%)	4 (2%)	3 (1.5%)	199
November	14 (7.4%)	98 (51.9%)	26 (13.8%)	25 (13.2%)	16 (8.5%)	7 (3.7%)	1 (0.5%)	0 (0%)	0 (0%)	2 (1%)	189
December	15 (7%)	116 (54.2%)	20 (9.3%)	35 (16.4%)	16 (7.5%)	6 (2.8%)	2 (0.9%)	0 (0%)	0 (0%)	4 (1.9%)	214
Total	170 (7.8%)	1037(47.8%)	224(10.3%)	305(14.1%)	191(8.8%)	111(5.1%)	30(1.4%)	35 (1.6%)	26(1.2%)	41 (1.9%)	2170

As per Table no. 2, most of the victims were male i.e. 1571 (72.4%) followed by females i.e. 599 (27.6%) A similar finding was observed in a study by Mujadlimath et al.[7]Costache et al.,[12] Radhakrishna et al.,[8]Khanna et al.,[9] Saurav et al.,[13] males were in the range of 76.77% to 91% and females 9% to 24.23% cases. This is because in our society, generally earning members are males, while females are usually engaged in household work. So males are more prone to accidents and violence-related deaths.

As per Table No. 2, the maximum number of autopsy cases was done in the month of June i.e. 230 cases (10.6%) while the minimum in April i.e. only 98 cases (4.5%). Further, a trend was observed that the majority of autopsies were done in the month of June to December i.e. 1402 cases (64.6%) while minimum autopsies were done from January to May i.e. 768 cases (35.3%). This is slightly different from the findings of Singh et al[14] where more autopsy cases occurred between April to July (45.75%). Similar findings are seen in studies by Patel et al.[10] and Awdesh et al.[15] This change in trend was because of the nationwide lockdown implemented on 24th March 2020 for 21 days which was extended for further more days with some relaxation. This lockdown in March and later days led to fewer autopsies in earlier months and after relaxation in lockdown, movement of people increased which was responsible for majority of autopsies from June and later months.

As per Table no. 3, the leading cause of death was RSA about 1037 cases (47.8%) followed by hanging about 224 cases (14.1%), poisoning 224 cases (10.3%), Burn 191 cases (8.8%), pathological causes 170 cases (7.8%), homicide 111 cases (5.1%) and rest of cause of death share small percentage like drowning, electrocution, snake bite etc. Trends of RSA in our study are similar to the study of Radhakrishna et al.,[8] Junaidin et al.,[16]Amakiri et al.,[17] and Odesanmi et al.,[18] were RSA ranged from 55.7% to 78% cases. In a study conducted by Radhakrishna et al.,[8] found that death due to hanging was 40% and poisoning 25% cases which is similar as compared to the study done by us 14.1% and 10.3% cases respectively. In studies done by Mujadlimath et al.,[7] and Shrivastava et al.,[19] noticed higher 22.6% to 37.5% cases of death due to burns as compared to our study of burns 8.8% cases.

In April suddenly the rate of RSA, homicide, and drowning dropped significantly and the rate of pathological deaths, hanging, and burns increased as compared to other months. This sudden change in trend is due to lockdown policy of India government.

Conclusion

This retrospective study was done in the department of Forensic Medicine & Toxicology, GR Medical College, Gwalior, Madhya Pradesh to know the profile of autopsies done during 1st January 2020 to 31st December 2020. Total of 2170 autopsy details are noted. In our study we found that majority of victims are male. Age group from 21-40 years are mostly involved. Most of the autopsies were done after June. RSA is the major cause of death followed by hanging. Sudden drop in autopsy rate of RSA, homicide and drowning while rise in pathological deaths, hanging and burn in the month of April. The study will help the government and there policymakers to make necessary changes or improvement in health polices for effective implementation of medical and public health services.

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Conflict of Interest: None

Ethical Concerns: As per the law of India, if an autopsy is performed in a medicolegal case the consent of the family member is not desired. Identity and credentials of the victim are kept confidential and the clearance from the institutional ethics committee is not warranted.

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