Profile of medicolegal autopsies conducted at tertiary medicolegal centre in southwestern India

Dr. KV Radhakrishna*, Dr. CS Makhani**, Med Cadet Nikhil Sisodiya***, Dr.SachinChourasia****, Dr.Sarala M****, Dr. RN Khan*****

*Assistant Professor, Dept of Forensic Medicine & Toxicology, Armed Forces Medical College, Pune, Maharashtra, India
**Assistant Professor, Dept of Forensic Medicine & Toxicology, Armed Forces Medical College, Pune, Maharashtra, India (Corresponding Author)
*** Undergraduate Student, V Term- MBBS II, Armed Forces Medical College, Pune, Maharashtra, India
**** Postgraduate Trainee, Dept of Forensic Medicine & Toxicology, Armed Forces Medical College, Pune, Maharashtra, India
***** Graded Specialist, Dept of Forensic Medicine & Toxicology, Armed Forces Medical College, Pune, Maharashtra, India (Till 2013)

Corresponding author: Dr CS Makhani

Abstract
The present study is a record based study of postmortems performed at the Medicolegal Centre of a tertiary healthcare centre in Pune, a metropolitan city in Southwestern India, from October 2008 to October 2013 comprising 1328 cases. This study was conducted to determine and evaluate the socio-demographic profile of different types of cases and to assess the nature and cause of their death. Of these cases 991 (74.62%) were males, 337 (25.37%) were females and 1192 (89.75%) were identified whereas 136 (10.24%) were unidentified. Of the 1328 the cause of death could be determined immediately after autopsy in 1204 (90.66%) cases. Of these in 388 (29.21%) the manner of death was natural, whereas in 816 cases (61.44%) it was unnatural. Of the rest 124 cause of death was ascertained by viscera analysis in 121 (97.58%) cases and could not be determined in 03 (0.22%) autopsies due to advanced stage of putrefaction. Accidents, suicide and homicidal deaths were 577 (70.71%), 195 (23.89%) and 44 (5.39%) respectively. Among the natural deaths, cardiovascular pathology was the most significant and was seen in 201 (51.80%) cases, respiratory pathology in 122 (31.44%) cases, gastrointestinal pathology in 22 (5.67%) cases, central nervous system pathology in 10 (2.57%) cases, genitourinary pathology in 03 (0.77%) and multi organ failure in 30 (7.73%) cases respectively. Rail track injuries, road traffic injuries, burn injuries and drowning were responsible for 121 (19.7%), 275 (44%), 65 (7%) and 50 (5%) of unnatural deaths. Hanging, poisoning, self-immolation and others were responsible for 80 (40%), 50 (25%), 40 (20%) and 20 (10%) of suicidal deaths respectively.

Key words: Autopsy, Natural Deaths, Unnatural Deaths, Road Traffic Injuries, Burns, Hanging
Introduction:
The term ‘Autopsy’ originates from ancient ‘Autopía’ which is derived from ‘Autos’ i.e. ‘Oneself’ and ‘Opsis’ i.e. ‘to see for oneself‘. An autopsy is frequently done in cases of sudden death where a doctor is not able to give a death certificate or when death is believed due to an unnatural cause. [1]
Section 174 and 176 Code of Criminal Procedure (Cr.P.C.) mention the concept of a medico-legal autopsy during the investigations of a sudden, suspicious, unnatural death. [2] The objective of medicolegal post-mortem examination is to establish the identity of a body, when not known; to ascertain the time since death and the cause of death; and whether the death was natural or unnatural and if unnatural, whether it was homicidal, suicidal or accidental. In case of newborn infants, the question of live birth and viability assume importance and should be determined. [3] The term "postmortem examination" is often used as a simile for "autopsy." Basically, it is not. [4] A postmortem examination means only what it says that the body was examined after death. It can mean and often does mean that the physician merely looked at the body, fully clothed, or that he "viewed" the body at a funeral home or in a morgue. A complete autopsy involves opening all body cavities and all organs of the trunk, chest, and head. [5] In all cases, a complete and not a partial examination are more necessary in this country on account of the imperfectness of the preliminary evidence as to the possible cause of death. [6]

Material and Method:
The present study is a record-based study of medicolegal autopsies performed at a Medicolegal Centre of a tertiary healthcare centre in Pune, a metropolitan city in Southwestern India from October 2008 to October 2013. Necessary permission was taken from the IEC and IRC. During the said period total number of medicolegal autopsies performed were 1328. Data were collected using a pre-designed format from Post mortem registers/records, Inquest papers and Post mortem reports maintaining confidentiality. The data was tabulated using Microsoft excel work sheet and analysis was done using Epi-info software (version 3.2).

Observations:
Demographic profile:
Out of total 1328 cases 74.62% were Male and 25.37% were Female. A significant number i.e. 71% were in the age group of 20 – 59 years. 89.75% were Identified ,10.25% were Unidentified. Of the identified 77% were Hindu, 11% Muslim, 2% were Sikh. 87% were Urban denizen and 03% were Rural residents. In 10% cases Religion and Residential status could not be determined.

Manner of death:
Of the 1328 the cause of death could be determined immediately after autopsy in 1204 (90.66%) cases. Of these in 388 (29.21%) the manner of death was natural, whereas in 816 cases (61.44%) it was unnatural. Of the rest 124 cause of death was ascertained by viscera analysis in 121 (97.58%) cases and could not be determined in 03 (0.22%) autopsies due to advanced stage of putrefaction. Accidents, suicide and homicidal deaths were 577 (70.71%), 195 (23.89%) and 44 (5.39%) respectively.

Cause of death:
Cause of Natural death:
Among the natural deaths, Cardiovascular pathology was seen in 201 (51.80%) cases, Respiratory pathology in 122 (31.44%) cases , Gastro-intestinal pathology in 22 (5.67%) cases , Central nervous
system pathology was present in 10 (2.57%) cases, Genitourinary pathology in 03 (0.77%) and Multi organ failure was present in 30 (7.73%) cases respectively

**Cause of Un-Natural death:**

Accidents, suicides, and homicides deaths were 577 (70.71%) , 195 (23.89%) and 44(5.39%) respectively. Rail track injuries, Road traffic injuries, Burn injuries and Drowning were responsible for 121 (19.7%), 275 (44%), 65 (7%) and 50 (5%) of Unnatural deaths. Hanging, poisoning , self-immolation and others were responsible for 80 (40%), 50(25.%) .40(20%) and 20(10%) of suicidal deaths respectively. Out of total 121 undetermined deaths poisoning was responsible for 86 (71.07%) cases.

In railway track injuries , road traffic accidents hanging and poisoning males were predominant whereas in burn injuries female were predominant.

**Discussion:**

Out of 1328 cases in 388 (29.21%) the Manner of death was Natural, whereas in 816 cases (61.44%) it was Unnatural.

Unnatural death is one of the indicators of the level of social and mental health. Responsibility for prevention of violence in our society does not rest only on the law-enforcement personnel. Public health and other human service agencies must assist in preventing primary violence as they have done to prevent other major causes of morbidity and mortality.

Out of total 1328 cases most of the postmortem were in the age group of 20–59 years which is the most productive year in ones life , also in the same age group males accounted for 69% (Table 1).

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>No. Of persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>59</td>
</tr>
<tr>
<td>11-20</td>
<td>123</td>
</tr>
<tr>
<td>21-30</td>
<td>340</td>
</tr>
<tr>
<td>31-40</td>
<td>253</td>
</tr>
<tr>
<td>41-50</td>
<td>194</td>
</tr>
<tr>
<td>51-60</td>
<td>155</td>
</tr>
<tr>
<td>61-70</td>
<td>117</td>
</tr>
<tr>
<td>71-80</td>
<td>47</td>
</tr>
<tr>
<td>81-90</td>
<td>18</td>
</tr>
<tr>
<td>91-100</td>
<td>01</td>
</tr>
<tr>
<td>Unknown</td>
<td>21</td>
</tr>
</tbody>
</table>

Table – 1 , Age wise distribution

Among the natural deaths cardiac pathology was predominant (51.80%). In the present study it was observed that 78% were males and 22% were females which are more or less similar to most of the studies done in past (Table 2). Murthy et al studied 150 cases out of which 123 (82%)
males and 27(18%) were females. Singh et al [6] studied 200 cases with 170 (85%) males and 30 (15%) females. Padmavati [7] and Tandon [8] found 66.5% males and 33.5% females. Similarly Bhargava et al [9] studied 74.8% males and 24.2% females in their study. The reason being that as males are bread earners and females usually doing house hold work, which makes the males more vulnerable to accidents, violence and stress. Also males indulge more in smoking; alcoholism etc.

<table>
<thead>
<tr>
<th>System Involved</th>
<th>No. Of persons/Sex Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardio Vascular</td>
<td>201,M-157, F-44</td>
</tr>
<tr>
<td>Respiratory</td>
<td>122,M-80, F-42</td>
</tr>
<tr>
<td>Gastro Intestinal</td>
<td>22,M-14, F-8</td>
</tr>
<tr>
<td>Central Nervous</td>
<td>10,M-7, F-3</td>
</tr>
<tr>
<td>Genito-Urinary</td>
<td>03,M-2, F-1</td>
</tr>
<tr>
<td>Multi system</td>
<td>30,M-21, F-9</td>
</tr>
</tbody>
</table>

Table -2 , Distribution of deaths due to natural deaths and its sex wise distribution

Vehicular accidents claiming about 70.71% share of the total unnatural deaths in the present study, suggests that modernization and rapidity of the various means of transport have accelerated the pace of human life on one hand, while on the other, it has added to the woes of mankind.

The age group, 11-30 years, was most prone to suicide, accounting for 73 % suicidal deaths. This is in conformity with the various studies conducted at different places [6-9] The number of road-traffic fatalities, observed in our study is similar to the reports from other parts of India that have registered a regular increase [10-12].

The present study reveals that poisoning was not the commonest method employed for suicides but it was hanging .[Fig-1] Different reports published from time to time have reported a suicide rate in India as 43 per 100,000 [13], 28.57 per 100,000 [14], 38 per 100,000 [15], 29 per 100,000 [16] & 22.83 per
Among the natural deaths cardiac pathology was predominant (51.80%) In the present study it was observed that 78% were males and 22% were females which are more or less similar to most of the studies done in past. Murthy et al [18] studied 150 cases out of which 123 (82%) were males and 27 (18%) were females. Singh et al [19] studied 200 cases with 170 (85%) males and 30 (15%) females. Padmavati [20] and Tandon [21] found 66.5% males and 33.5% females. Similarly Bhargava et al [22] studied 74.8% males and 24.2% females in their study. The reason being that as males are bread earners and females usually doing house hold work, which makes the males more vulnerable to accidents, violence and stress. Also males indulge more in smoking; alcoholism etc.

**Conclusion:**
The above study radically evaluates data pertaining to medicolegal cases brought for autopsy at a Medicolegal Centre at a tertiary healthcare centre. Medicolegal Autopsies form an integral and indispensible part of an investigation of a sudden suspicious death. The skills and experience of a Autopsy surgeon facilitate the law enforcement agencies in administration of justice and bring the guilty to the gallows. The data generated would facilitate the medicolegalist in having a greater insight in the baffling occurrence of a sudden suspicious death in their area of jurisdiction.

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**Conflict of Interest:** None

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