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Recent Trends of Violent Asphyxial Deaths in Barpeta, Assam

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Abstract

Asphyxial death is a common incident in forensic practice and determination of the manner of death whether suicidal, homicidal or accidental is of utmost significance. This study was conducted in the Department of Forensic Medicine, Fakhruddin Ali Ahmed Medical College, Barpeta, Assam, India. A total of 89 cases of violent asphyxial deaths occurred during the period of 1st January to 31st December 2016 were studied. In this study, an attempt has been made to investigate and assess various parameters and sociodemographic profile of violent asphyxial deaths in and around Barpeta area, Assam, India.

Keywords: *Violent asphyxial deaths, suicide, homicide, forensic practice*

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INTRODUCTION

Asphyxia is broadly defined as the interference with the intake or utilization of oxygen, combined with the failure to eliminate carbon dioxide [1]. The usual relevance of asphyxial death in forensic context is violent asphyxia. In violent asphyxial deaths, exchange of air between atmosphere and lung bed is prevented by some violent mechanical means.

With the increase in crime, the count and variety of medicolegal deaths has increased tremendously in the recent years. Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides, homicides and accidents. With urbanization, rural areas are also not left aloof and this can be seen from the increasing incidence of such cases from these areas [2].

Violent asphyxial deaths have contributed considerably to unnatural homicidal, suicidal and accidental deaths. Violent asphyxial deaths are of common occurrences and classified as hanging, drowning, strangulation, suffocation and traumatic asphyxia. Hanging and drowning are commonly seen in suicidal cases while strangulation including throttling is usually homicidal. In addition to these accidental compression or trauma to chest that prevent in respiratory movement, known as traumatic asphyxia or crush injury is also one of the cause of violent asphyxial deaths [3, 4].

In this study an attempt has been undertaken in the view to gain further knowledge and insight in the recent trends of asphyxial deaths in and around Barpeta district, Assam, India to add in the existing volume of knowledge in the subject with the view to help the process of scientific crime investigation and administration of justice.

MATERIALS AND METHODS

The autopsies conducted at the mortuary of FAAMCH, Barpeta, Assam, India during 1st January to 31st December 2016 were considered for this study.

The data were collected from the police requisition form and through detailed interviews with friends, relatives and accompanying police personnel. Meticulous postmortem examination was carried out with standard autopsy method followed in our department.

The data were then collected and analyzed statistically. Decomposed bodies and cases lacking complete history were excluded from the study.

RESULTS

Incidence of violent asphyxial death in our study was 18.35%. The total number of autopsies conducted during the study period was 485, out of which 89 were violent asphyxial deaths. Hanging was the commonest cause of asphyxial deaths, comprising 73% of all asphyxial deaths. Drowning (18%) was second most common cause followed by strangulation (9%) as shown in Tables 1–3.

In the present study, 56 (62.9%) cases belonged to Hindu community and 33 (37.1%) cases were from Muslim community. A total of 60 (67.4%) incidence occurred in rural areas and 32.6% deaths occurred in urban areas. A maximum of 25.8% victims were students, followed by farmers i.e., 19 (21.3%). Ten (11.3%) cases were service holders, 8 victims were retired persons and five (5.6%) victims were daily wage laborers. The educational qualification of majority of the cases in the current study were under metric i.e., 24 (26.9%), followed by 20 (22.5%) cases who were illiterate.

A total of 15 (16.8%) cases studied up to primary school level, 13 (14.6%) up to high school and 10 (11.3%) up to higher secondary level. Seven (7.9%) cases did their graduation or further studies. In the present study, 51 (57.3%) cases were married and 38 (42.7%) victims were unmarried. About 55% cases belonged to middle socioeconomic class followed by 28 (31.5%) victims belonging to lower economic status (Figure 1). Most of the deaths occurred in summer season i.e., 52 (58.4%), followed by autumn 20 (22.5%) and spring 17 (19.1%).

Table 1: *Gender-wise Distribution of Various Methods of Asphyxial Deaths.*

Methods	Male		Female		Total	
	Nos.	%	Nos.	%	Nos.	%
Hanging	41	46.1	24	26.9	65	73
Drowning	11	12.4	5	5.6	16	18
Strangulation	3	3.4	5	5.6	8	9
Total	**55**	**61.9**	**34**	**38.1**	**89**	**100**

Table 2: *Manner of Asphyxial Deaths.*

Cause of Death	Suicidal		Homicidal		Accidental		Total	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Hanging	63	70.8	0	0	2	2.2	65	73
Drowning	7	7.9	0	0	9	10.1	16	18
Strangulation	0	0	8	9	0	0	8	9
Total	**70**	**78.7**	**8**	**9**	**11**	**12.3**	**89**	**100**

Table 3: *Age and Sex-Wise Distribution of Cases.*

Age (Years)	Male		Female		Total	
	Nos.	%	Nos.	%	Nos.	%
0–10	03	3.4	03	3.4	06	6.8
11–20	10	11.3	12	13.4	22	24.7
21–30	18	20.3	08	8.9	26	29.2
31–40	09	10.1	03	3.4	12	13.5
41–50	05	5.6	02	2.2	07	7.8
51–60	03	3.4	03	3.4	06	6.8
61–70	05	5.6	03	3.4	08	09
71–80	02	2.2	0	0	02	2.2
Total	**55**	**61.9**	**34**	**38.1**	**89**	**100**

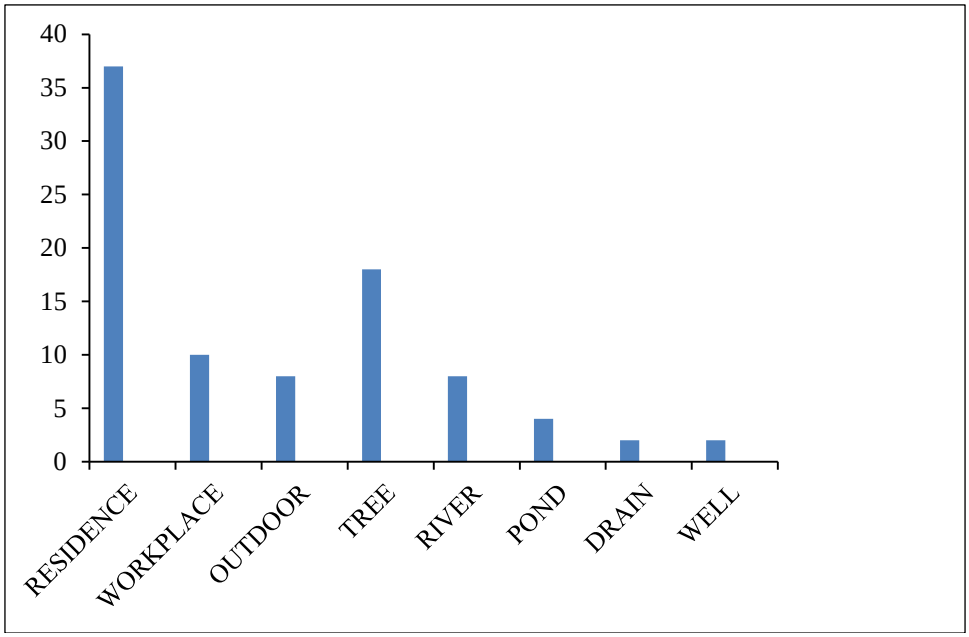

Fig. 1: *Distribution of Cases According to Place of Occurrence.*

DISCUSSION

In the present study, we found that the incidence of violent asphyxial deaths was 18.35%. This incidence rate closely resembles to the study conducted by Reddy *et al.* [5] and Azmak [6], but contrasts with the study by Singh [7], and Chaurasia *et al.* [8], who found lower rate of incidence in their respective studies. Variations of geographical location, culture, ethnicity etc. are the reasons for the difference of incidence rate. Hanging was the commonest cause of asphyxial deaths, comprising 73% of all asphyxial deaths. Drowning (18%) was second most common cause followed by strangulation (9%). Hanging was found to be commonest cause of violent asphyxial deaths by Singh *et al.* [9], Azmak [6], and Chaurasia *et al*. [8] in their studies on the similar topic.

In the present study, 55 (61.9%) victims were male and 34 (38.1%) were females. A total of 48 (53.9%) victims were between 11 to 30 years of age, indicating preponderance of asphyxial deaths in young individuals in our society. The findings of the present study were similar to the study of Copeland [10], Auer [11], Majumder [12], Lalwani *et al.* [13], Chaurasia *et al.* [8] and Patel *et al.* [14]. Teenage and adulthood are the most active phases of life wherein exposure to anxiety, stress, strain and various adverse circumstances occur. Economic problems, unemployment, failure in love, alcohol addiction, and emotional instability were the alleged reasons for committing suicide in this age group.

About 78.7% of total violent asphyxial deaths were suicidal, followed by 11 (12.3%) accidental deaths due to asphyxiation. All the eight (9%) cases of strangulation were found to be homicidal. Hanging (70.8%), as the method of suicide, was found to be more prevalent among all suicidal deaths; the reason being it is painless, materials required are easily available, wide range of ligatures can be used and has a very high mortality rate. Amongst the accidental deaths of 11, drowning cases were nine (10.1%). The results of present study was similar with the findings of Davidson and Marshall [15], Majumder [12], Lalwani *et al*. [13], Azmak [6], Kanchan *et al.* [16], Chaurasia *et al.* [8], Patel *et al*. [14] and Mohammed *et al.* [17]. The high rate of suicides may be attributed to the increasing number of population resulting in all round deficiencies of food, shelter, educational and health facilities, job opportunities which put the population of the present society at risk of all sorts.

In the present study, a maximum of 25.8% victims were students, followed by farmers, i.e., 19 (21.3%). Ten (11.3%) cases were

service holders, eight victims were retired persons and five (5.6%) victims were daily wage laborers, which is similar to the study by Majumder [12]. In the present study, majority, i.e., 24 (26.9%) of the victims was under-metric, followed by 20 (22.5%) illiterate cases. Victims who did their graduation or higher studies were the least affected group, i.e., seven (7.9%). This differs from the study of Pathak [18] who found maximum number of cases among victims with educational level up to high school standard. Low level of education of the victims found in the study is correlated with the fact that victims either remain unemployed or competition for the job is one of the major anxiety factors among them. Again number of illiterate people committing suicide is also high, poverty and struggles for survival being the main reason among this group of people which increased the number of incidence of suicide among them. Again failure in exams, increased competition for better performance and also failure in love affairs is one of the common causes of suicide among school- and college-going students.

In the present study, 51 (57.3%) cases were married and 38 (42.7%) victims were unmarried. Furthermore, 55% cases belonged to middle socioeconomic class followed by 28 (31.5%) victims belonging to lower economic status. These findings were similar to the results of a prospective study by Vijayakumari [19]. In the present study, 37 (41.6%) incident occurred at their residence, 20.2% on the tree, 11.3% at their working place, 9% each in the outfield and in the river, 4.5% in the pond, 2.2% each in the well and in the drain, which is consistent with the study of Vijayakumari [19].

CONCLUSION

Medicolegal autopsies not only give the cause and manner of death but also give important statistical data related to legal incidents in the cities and regions where the autopsies are conducted. In the present study, hanging (73%) was found to be the most commonly encountered violent asphyxial death. Most of the victims were males with male-to-female ratio of 1.62:1. Most commonly involved age group was 21–30 years, followed by the age group of 11–20 years. A total of 63 out of 65 cases of hanging were suicidal and two were accidental in nature. Nine out of 16 cases of drowning were accidental and remaining seven were suicidal. All the eight strangulation cases were homicidal in nature.

Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides, homicides and accidents. This avoidable loss of valuable manpower causes big harm to India's social, cultural and economic stability and progress. Compilation of such primary data originating from the postmortem departments from various regions and different times could give us a deep insight into various trends and predisposing factors contributing to it, and as such help us in devising interventions to decrease the incidence of mechanical asphyxial deaths in our community.

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