

Prospective Study of Mechanical Asphyxial Deaths

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ABSTRACT

Introduction: Asphyxia is a condition caused by interference with respiration due to lack of oxygen in inspired air due to which the tissues are deprived of oxygen (together failure to eliminate CO₂) causing unconsciousness or death. \ Study aimed to know the total incidence of Mechanical asphyxial deaths and to know the incidence of types of Mechanical asphyxial deaths with age and sex wise distribution.

Material and Methods: The autopsies conducted at mortuary of Government General Hospital, Guntur during the period of one year. The material consists of –Inquest reports, Perusal of police papers, Postmortem reports, Information collected from the police officers, relatives and friends of the deceased accompanying the dead bodies.

Results: During the period of one year 1035 deaths were autopsied in the morgue out of which 54 were of mechanical asphyxial deaths. The incidence of Mechanical Asphyxial deaths was 5.23% out of the total number of cases autopsied. The most common form of mechanical asphyxial death was hanging 35 (64.8%) drowning 11 (20.1%) out of 54 cases of mechanical asphyxial deaths. The sex wise distributions of mechanical asphyxial deaths were little more in females 28 cases (51.8%) than males 26 cases (48.2%).

Conclusion: Out of 1035 cases of unnatural deaths in which autopsy was conducted over the period of one year 54 (5.21%) cases were mechanical asphyxial deaths in which 35(64.8%) cases were dead by using the mode of suicidal hanging irrespective of age and sex. Hence the numbers of suicidal hanging cases are increasing day by day.

Key words: Mechanical Asphyxia, Hanging, Strangulation, Drowning, Suffocation

INTRODUCTION

Death is inevitable, but man and woman always tries to fight against it. He or she in search of ways to avoid the natural courses of life leading to death like ageing, disease process etc. as well as the unnatural ways like mechanical asphyxial deaths i.e., Hanging, Strangulation, Drowning and Suffocation. A prospective study was under taken in the department of Forensic Medicine, Guntur Medical College, Guntur, Andhra Pradesh, over a period of one year. Asphyxia is a condition caused by interference with respiration due to lack of oxygen in inspired air due to which the tissues are deprived of oxygen (together failure to eliminate CO₂) causing unconsciousness or death^{1,2}. The term Mechanical asphyxia is here applied to circumstances in which mechanical interference either (a) impedes access of air to the lungs or (b) reduces the blood supply to the head and neck or (c) causes sudden cardiac arrest due to stimulation of the carotid sinus – Vagal reflex mechanism. Example: Hanging, Strangulation, Drowning and Suffocation. The term suffocation embraces

the causes by which death is produced by impediment to respiration not due to pressure externally and immediately applied to the wind pipe. Strangulation is defined as a form of violent asphyxia caused by constricting the neck by some means other than body weight. Drowning is defined as a term of death which occurs when atmospheric air is prevented from entering lungs due to submersion of body in water other than fluid. Hanging is a type of violent, mechanical, anoxic (asphyxial) death brought about by constriction of neck due to suspension. The suspending force is generally the weight of the body and sometimes only the head. The amount of pressure necessary to compress the jugular veins is 4.4 lb. the carotid arteries 11 lb, compressing the trachea requires 33 lb and the vertebral arteries 66 lb.

Study aimed to know the total incidence of Mechanical asphyxial deaths and to know the incidence of types of Mechanical asphyxial deaths with age and sex wise distribution.

MATERIAL AND METHODS

The present study was a prospective study. The victims who died due to mechanical asphyxia and brought to the mortuary of Government General Hospital, Guntur Medical College, Guntur over the period of one year, the details of the incident given by the relatives of the deceased were taken. Information collected from various sources like hospital case sheets, post mortem reports, inquest reports, FIR reports Perusal of police papers, information collected from the police officer, relatives and friends of the deceased accompanying the dead bodies. During the period of one year all the data of mechanical asphyxial deaths was collected for evaluation and study to know the cause and nature of death. The cases were studied for to know the total incidence of Mechanical asphyxial deaths and incidence of types of Mechanical asphyxial deaths with age and sex wise distribution.

Total number of post-mortems conducted over the period of one year were 1035 out of which 54 were of mechanical asphyxial deaths. The FIR and inquest reports were collected for all mechanical asphyxial deaths which have

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come to the mortuary for Postmortem Examination to know the complete case history which includes the nature of incidence, precipitating cause, the time of occurrence, accompanied persons and the time of death and the cause of death which were known during the investigation made by the concerned Investigating Officer. The incidence and prevalence of mechanical asphyxial deaths were discussed in comparison with the present state, past and with other countries information.

STATISTICAL ANALYSIS

Descriptive statistics like mean and percentages were used for the analysis. Microsoft office 2007 was used for the analysis.

RESULTS

The Prospective study was under taken in the Department of

Forensic Medicine, Guntur Medical College, Guntur, over a period of one year. A total number of 1035 cases were autopsied in the morgue out of which 54 cases of asphyxial Deaths were taken as study material. Each case was studied following studied proforma and the detailed observations are narrated below. The incidence of asphyxial death cases was of 5.23% out of total number of cases autopsied.

Total number of deaths due to mechanical asphyxia were 54 deaths. Out of 54 deaths 28 were female (51.8%), 26 were male (48.2%). It shows mild preponderance of female sex over male in mechanical asphyxial deaths. Out of 28 female deaths, deaths due to hanging were 19, deaths due to strangulation were 4, deaths due to drowning were 3 and deaths due to suffocation were 2. Out of 26 male deaths, deaths due to hanging were 16, deaths due to drowning were 8, death due to suffocation was one and death due

S. No.	Type of Mechanical Asphyxial Deaths	Male	Female	Total
1	Hanging	16	19	35((64.8%)
2	Drowning	8	3	11(20.1%)
3	Strangulation	1	4	5 (9.3%)
4	Suffocation	1	2	3(5.6%)
5	Sexual Asphyxia	0	0	0
	Total	26(48.2%)	28(51.8%)	54(100%)

Table-1: Sex wise distribution of different types of mechanical asphyxial deaths

S.No	Type of Mechanical Asphyxial Death	0-10 M F	11-20 M F	21-30 M F	31-40 M F	41-50 M F	51-60 M F	>60 M F	Total
1	Hanging	0 0	2 8	5 6	6 5	2 0	1 0	0 0	35
2	Strangulation	0 0	0 0	0 2	0 1	0 0	0 0	1 1	5
3	Drowning	1 1	1 0	1 0	4 1	1 0	1 0	0 0	11
4	Suffocation	0 0	0 0	0 0	0 0	0 0	1 0	1 1	3
5	Sexual Asphyxia	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0
	Total	1 1	3 8	6 8	10 7	3 0	1 2	2 2	54

Age and Sex distribution of different types of Mechanical Asphyxial Deaths (Table-2)

S. No.	Type of Mechanical Asphyxial Deaths	Suicidal	Homicidal	Accidental	Total
1	Hanging	35	0	0	35(64.81%)
2	Drowning	4	1	6	11(20.3%)
3	Strangulation	0	5	0	5(9.25%)
4	Suffocation	0	3	0	3(5.5%)
5	Sexual Asphyxia	0	0	0	0
	Total	39(72.2%)	9(16.7%)	6(11.1%)	54(100%)

Table-3: Manner of death wise distribution of type of Mechanical Asphyxial Deaths

S. No.	Motive	Male	Female	Total
1	Family Disputes	6	11	17(31.4%)
2	Depression	6	8	14(25.9%)
3	Not Mentioned	10	2	12(22.2%)
4	Harassment	1	5	6(11.1%)
5	Ill Health	2	1	3(5.5%)
6	Financial Problems	1	1	2(3.7%)
7	Personal Affairs	0	0	0
8	Mental Status	0	0	0

Table-4: Motive Vs Sex Distribution in Mechanical Asphyxial Deaths

to strangulation was one. Out of 54 deaths of mechanical asphyxia, 35 deaths (64.8%) were due to hanging, 11 deaths (20.1%) were due to drowning, 5 deaths (9.3%) were due to strangulation and 3 deaths (5.6%) were due to suffocation. No deaths were reported due to sexual asphyxia (Table-1)

Out of 54 deaths due to mechanical asphyxia, 17 deaths occurred in 31-40 years age group followed by 14 deaths in 21-30 years age group, 11 deaths in 11-20 years age group, 4 deaths in >60 years age group, 3 deaths each in 41-50 years and 51-60 years age groups and 2 deaths in <10 years age group. Most of the deaths among males occurred in 21-30 years age group (10 deaths) followed by 6 deaths in 21-30 years age group. Among females most deaths occurred in 11-20 years and 21-30 years age groups (8 deaths each) followed by 7 deaths in 31-40 years age group (Table-2).

Among 54 deaths of mechanical asphyxia 35 deaths (64.81%) were due to hanging, 11 deaths (20.3%) were due to drowning, 5 deaths (9.25%) were due to strangulation, 3 deaths (5.5%) were due to suffocation and no deaths were reported due to sexual asphyxia. Among 35 deaths of hanging all deaths were suicidal. Among 11 deaths of drowning 6 deaths were accidental, 4 deaths were suicidal and one death was homicidal. Among 3 deaths of suffocation all deaths were homicidal (Table-3).

Out of 54 deaths due to mechanical asphyxia family disputes were the motives in 17 deaths, depression in 14 deaths, motive not mentioned in 12 deaths, harassment in 6 deaths, ill health in 3 deaths and financial problems were motive in 2 deaths. Among males 10 deaths were due to not mentioned causes, depression was the cause in 6 deaths, family disputes was cause in 6 deaths. Among females family disputes was leading cause in 11 deaths, depression was the cause in 8 deaths followed by harassment was the cause in 5 deaths (Table-4).

DISCUSSION

A prospective study was undertaken in the department of Forensic Medicine, Guntur Medical College, Guntur, Andhra Pradesh, over a period of one year to know the total incidence of Mechanical asphyxial deaths and to know the incidence of types of Mechanical asphyxial deaths with age and sex wise distribution.

The Autopsies conducted at modern mortuary, Government General Hospital/Guntur Medical College, Guntur during the period of one year were 1035, out of which 54 cases were Mechanical asphyxia deaths. Total number of deaths due to mechanical asphyxia were 54 deaths. The incidence rate of mechanical asphyxial deaths in the present study was 5.20%. The finding of the present study was similar with the studies of Chaurasia N, Pandey SK et al³ i.e. 6.95% and Patel A, Bhoot Rajesh et al⁴ i.e. 5.63%. However Azmak D⁵ (15.70%), Lalwani S⁶ (11.21%) observed higher incidence. The reason for variation in incidence of mechanical asphyxial deaths in different regions of the world may be due to geographical, genetic, ethnic and cultural differences.

Out of 54 deaths 28 were female (51.8%), 26 were male (48.2%). It shows mild preponderance of female sex over

male in mechanical asphyxial deaths. Out of 28 female deaths, deaths due to hanging were 19, deaths due to strangulation were 4, deaths due to drowning were 3 and deaths due to suffocation were 2. Out of 26 male deaths, deaths due to hanging were 16, deaths due to drowning were 8, death due to suffocation was one and death due to strangulation was one. Out of 54 deaths of mechanical asphyxia, 35 deaths (64.8%) were due to hanging, 11 deaths (20.1%) were due to drowning, 5 deaths (9.3%) were due to strangulation and 3 deaths (5.6%) were due to suffocation. No deaths were reported due to sexual asphyxia. In our study the incidence among male were 26 (48.15%) and females were 28 (51.85%). This is in accordance with other studies which showed 68% in males.

Out of 54 deaths due to mechanical asphyxia, 17 deaths occurred in 31-40 years age group followed by 14 deaths in 21-30 years age group, 11 deaths in 11-20 years age group, 4 deaths in >60 years age group, 3 deaths each in 41-50 years and 51-60 years age groups and 2 deaths in <10 years age group. Most of the deaths among males occurred in 21-30 years age group (10 deaths) followed by 6 deaths in 21-30 years age group. Among females most deaths occurred in 11-20 years and 21-30 years age groups (8 deaths each) followed by 7 deaths in 31-40 years age group. This study shows age wise distribution of Mechanical Asphyxial deaths in the age group of 21-40 years are more (57.4%) which was found to be more prevalent among males in comparison to females in between age group of 21-40 years. The findings of the present study were similar with the studies of Copeland AR⁷, Auer A⁸, Majumdar BC⁹, Lalwani S et al⁶ and Chaurasia N et al³.

Among 54 deaths of mechanical asphyxia 35 deaths (64.81%) were due to hanging, 11 deaths (20.3%) were due to drowning, 5 deaths (9.25%) were due to strangulation, 3 deaths (5.5%) were due to suffocation and no deaths were reported due to sexual asphyxia. Among 35 deaths of hanging all deaths were suicidal. Among 11 deaths of drowning 6 deaths were accidental, 4 deaths were suicidal and one death was homicidal. Among 3 deaths of suffocation all deaths were homicidal. Among all these Mechanical asphyxia suicidal deaths by mode of hanging were 64.81% followed by drowning 20.1% are common. Study has shown that people belong to the age group 21-40 years are common victims of hanging in other countries. The findings of the present study were similar to the study of Copeland⁷, Auer A⁸, Majumdar BC⁹, Lalwani S et al⁶, Chaurasia N et al³ and Patel et al⁴. 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. 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, 39 (72.2%) cases were married, 10

(18.5%) victims were unmarried and in 5 (9.3%) cases marital status was not known. Furthermore, 29(53.7%) cases belonged to lower socioeconomic class followed by 13(24.1%) victims belonging to middle socioeconomic status. These findings were differs to the results of a prospective study by Vijayakumari N¹⁰.

The present study majority 40 (74.1%) of the victims were illiterates, 8 (14.8%) of the victims are Literates and 6 (11.1%) of the victims were not known. This differs from the study of Pathak¹¹.

Describes the Asphyxial death causes with relation to age and sex, it is observed that irrespective of sex, Maximum Incidence could be encountered in the age group of 31-40 years followed by 21-30 years.

Deaths due to suicide constitute prime slot of mechanical asphyxial deaths. In the present study 72.22% of mechanical asphyxial deaths were suicidal in origin, followed by homicidal (16.67%) and accidental (11.11%).

Out of 54 deaths due to mechanical asphyxia family disputes were the motives in 17 deaths, depression in 14 deaths, motive not mentioned in 12 deaths,harassment in 6 deaths, ill health in 3 deaths and financial problems were motive in 2 deaths. Among males 10 deaths were due to not mentioned causes, depression was the cause in 6 deaths, family disputes was cause in 6 deaths. Among females family disputes was leading cause in 11 deaths, depression was the cause in 8 deaths followed by harassment was the cause in 5 deaths. This study shows that in majority of Asphyxial Deaths Precipitatory factors attributed, which revolves around – Family disputes, Financial Problems, Depression, Harassment etc. In Females Family disputes, harassments and depression are leading causes particularly in women. Where as in males family disputes and depression are leading causes.

CONCLUSION

Our study shows out of 1035 cases of unnatural deaths conducted autopsy in the period of 1 year 54 (5.21%) cases are Mechanical Asphyxial deaths in which 35(64.8%) cases are dead by using the mode of suicidal hanging irrespective of Age and Sex. Hence the numbers of suicidal hanging cases are increasing day by day. Advised to the Public to cope up with the present scenario's causing mental stress in turn caused by Unemployment, Financial problems, Family Disputes etc. And to younger generations are regarding studies and love matters. Advising media not to exploit the situations. In the present scenario there are so many factors precipitating suicidal deaths for ex:- Unemployment, Mental Stress, Financial Problems, Family Disputes, Harassment, Educational Stress and Love Affairs. For these stress, person may become dull with social life disturbance which lead to Depression leading to outrage of live fare finally leads to Suicide. In order to avoid these factors instead they may be resolved by simple means of discussing and sharing facts with close friends, family Members and colleagues and do practising Meditation, Yoga etc, to relieve Mental stress and its consequences.

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