



DROWNING DEATHS: A FORENSIC AUTOPSY BASED STUDY IN A TERTIARY CENTRE OF ASSAM, INDIA

Forensic Medicine

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ABSTRACT

Drowning deaths is a very commonly encountered finding in the news and often, forensic expertise is called upon to investigate such deaths. According to WHO, Drowning is the 3rd leading cause of unintentional injury death worldwide, accounting for 7% of all injury-related deaths. A retrospective study was done on the drowning deaths brought for autopsy in a tertiary centre of Assam, India. The study was carried out over the period of 1st January 2021 to 31st December 2022 with the aim of studying various epidemiological parameters. 66 total cases of drowning were found in the study period. Drowning related deaths were found to be high in males and in the age group of 21-30 years. November and December were the most common months. Maximum cases were observed after the victim fell into the river. The study results suggest that there may be a need for drowning prevention strategies that are tailored to specific need of this geographical region.

KEYWORDS

Drowning, Autopsy, Epidemiological, Prevention

INTRODUCTION:-

Drowning deaths is a very commonly encountered finding in the news and often, forensic expertise is called upon to investigate such deaths. Drowning can be accidental, suicidal, and homicidal. Dead bodies can be thrown into running water, and the fact of finding a dead body in water does not mean that, death was caused by drowning. Victims may be murdered or poisoned first, and then thrown into water to avoid detection of crime.

According to WHO, Drowning is the 3rd leading cause of unintentional injury death worldwide, accounting for 7% of all injury-related deaths.¹

Drowning is a form of asphyxia due to aspiration of fluid into air passages caused by submersion in water or other fluid. Submersion of mouth and nose alone is sufficient to cause death by drowning, entire submersion of the body is not necessary.²

91% of unintentional drowning deaths occur in low and middle-income countries. Both China and India have particularly high drowning mortality rates and together contribute 43% of all drowning deaths worldwide.³

With such frequent occurrence, drowning has not received due importance as a public health problem which needs correction.

OBJECTIVES:-

To study and analyze the incidence, epidemiology, manner and circumstances of drowning deaths

MATERIALS AND METHODS

A retrospective study was done on the drowning deaths brought for autopsy in a tertiary centre of Assam, India. The study was carried out over the period of 1st January 2021 to 31st December 2022 with the aim of studying various epidemiological parameters. The study includes, only the dead bodies which were retrieved from water sources and having history of drowning, brought for post mortem examination. Detailed history and relevant information was collected from police inquest and requisition (Panchanama) regarding the age, sex, address, marital status, occupation, education, religion, supposed cause etc

OBSERVATIONS

66 total cases of drowning were found in the study period out of 320 autopsies performed in the study period.

Out of these 52 were male and 14 were female.

Table 1 showing Age distribution of cases

Age group	Number of cases
0-10 years	5

11-20 years	11
21-30 years	22
31-40 years	12
41-50 years	8
51-60 years	6
60 years and above	2
	66

The most involved age group was 21-30 years followed by 31-40 years. Children were invariably involved who were left unattended.

Table 2 showing Monthly distribution of cases

Month	Number of cases
January	6
February	4
March	4
April	3
May	2
June	5
July	5
August	7
September	5
October	3
November	9
December	13
	66

Highest number of cases were noted in the month of November and December.

In terms of occupation students and daily wage workers were the highest affected.

Maximum deaths were observed in unmarried people (n=42)

In terms of socio economic distribution middle class(n=31) and lower economic class(n=33) showed similar distribution. Only 2 cases were noted involving the upper socio economic class.

Table 3 showing Place of incidence

Place	Number of cases
Ponds	22
Canal	12
Well	2
Drain	3
River	27
	66

Maximum cases were observed after the victim fell into the river.

Among the deaths 54 cases were accidental and 12 were documented to be suicidal. No cases of homicidal drowning was noted in the study period.

DISCUSSION

Drowning related deaths were found to be high in males. This is in accordance with the study conducted by Kumar et al, Phad et al, Quan L, Shetty et al⁽⁴⁻⁷⁾. The reason could be men have more opportunities to drown in that they have greater probability of high exposure activities where submersion is possible.

The probable reason behind preponderance of 21-30 years age group in drowning is carelessness and adventurous nature usually seen in youngsters while swimming or doing recreational activities in or around water source leading to accidental deaths. This is followed by the age group of 31-40 years. This is in accordance with the study conducted by Kumar et al, Phad et al, Quan L, Shetty et al⁽⁴⁻⁷⁾.

Increased number of cases in the winter months of November and December could be due to the reason that the study area is a hotspot for picnic and recreational activities which sees an increase during these months.

The preponderance of students in drowning deaths often reveals the careless attitude and failure to exhibit safety behaviour among them.

The increased number of unmarried cases reflect the risk free attitude amongst the same. This corresponds to the study by Gorea R et al⁸.

The place of incidence corresponds to the study area which has a free flowing river and abundance of water bodies. Most of the deaths were accidental which is in agreement to the study conducted by Raja Sekhar Uppu, BVS Ananda Rao, Beemsetty Rajesh⁹ where accidental deaths due to drowning is high.

CONCLUSION

From this study it is very clearly evident that drowning amounts to significant number of deaths in young males in the age group of 21 – 30 Years. Most of them died due to lack of safety measures in the water bodies. This can be rectified if people are employed in the canals surrounding water bodies with watchers and also improve safety by committing rescue teams after identifying the places with high activity and save those victims.

The study results suggest that there may be a need for drowning prevention strategies that are tailored to specific need of this geographical region. The government should draft specific policy, plans, provide budget and implement strategy for drowning prevention.

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