Analysis of sudden deaths: An autopsy study

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Abstract

The incidences of sudden death are approximately 10 % of all death. In this study total 50 cases of sudden death were observed. Most of the sudden deaths were in 41 to 60 years of age with male predominance. Cardiovascular causes were the main causes among all sudden deaths contributing 58% of total sudden deaths. Coronary artery disease was the most common cause of not only cardiovascular deaths but also of all sudden deathscontributing 40% of total deaths and about 70% of cardiovascular sudden deaths.

Keywords: Sudden deaths; autopsy study.

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Introduction

Sudden death is defined as an unexpected death of a person within a short period (one hour) after the onset of terminal illness. WHO define sudden death as when a person not known to have been suffering from any dangerous disease, injury and poisoning; dies within 24 hours after the onset of terminal illness (1). Sudden death is natural death and it excludes all deaths due to poison and injury. Incidence of sudden deaths has been steadily increasing all over the world including India. Pathology in sudden death is concealed and find out only at the time of post mortem examination (2). The purpose of this study was to analyse sudden deaths. The analysis of sudden deaths may be useful indicator to provide invaluable information in the interest of public health by identifying public health risks and monitoring disease trends (3).

Material and Methods

A prospective autopsy study of 50 cases of sudden deaths was observed at MBS Hospital associated with Government medical college, Kota Rajasthan. Information regarding death was collected from history by relatives, inquest paper and treatment record and correlate with detailed post mortem examination and histopathology findings.

Inclusion criteria

Dead body brought for post-mortem at MBS Hospital mortuary with history of Death within 24 hours after onset of symptoms and fulfil the criteria of sudden death.

Exclusion criteria:

Death due to trauma, poisoning and diagnosed disease was excluded.

Results

Total 50 cases of sudden death were observed out of which 39 cases were male and 11 cases were female. This study was done for 50 cases of sudden death in which the most common age group was observed in 51 years to 60 years accounting 16 cases (32%). Out of 16 cases 14 (87.5%) cases were male and 02 cases were female. out of 50 cases 36 (72%) cases were observed in the age group of 31 years to 60 years.

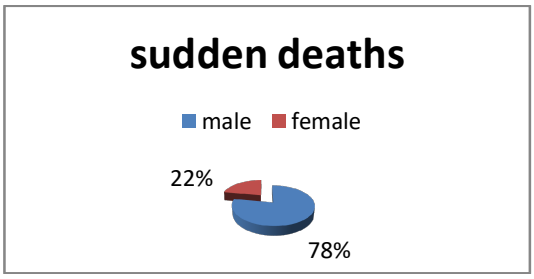

Fig.1. Pie chart no.1 showing % of male female in sudden death

Table 1: Distribution of sudden death according to age

Age (years)	Male	Female	Total
<10	00	01	01
11- 20	01	02	03
21- 30	03	02	05
31- 40	07	01	08
41- 50	10	02	12
50-60	14	02	16
>60	04	01	05
Total	39 (78%)	11(22%)	50(100%)

Out of 36 cases only 05 cases were female.

Our study showed that 29 deaths (58%) were due to cardiac pathology followed by 10 cases (20%) due to pathology of respiratory system and 5 deaths (10%) as a result of disease of central nerve system. 02 deaths were observed due to pathology of genito- urinary system and 01 case observed due to pathology of alimentary system. In two cases cause of death was notascertain. One death observed due to hypoglycaemic coma due to administration of excessive insulin.

Table 2: Showing distribution of cases according to system involved

System	Male	female	Total	Percentage
CVS	28	01	29	58%
CNS	03	02	05	10%
Respiratory	06	04	10	20%
Alimentary	O1	00	01	02%
Genitourinary	00	02	02	04%
Metabolic	00	01	01	02%
No cause	01	01	02	04%
Total	39	11	50	100%

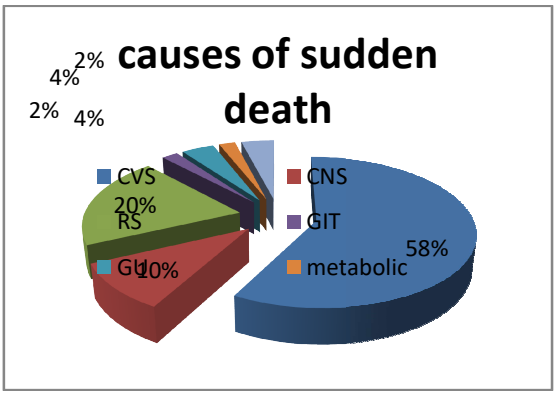

Fig. 2. Pie chart no.2 showing percentage of sudden death with system involvement.

Out of 29 deaths due to cardiac pathology 28 cases (96.5%) were male and 01 case was female. The microscopic findings showed coronary arteries disease in 20 cases (68.9%), myocardial infarction in 04 cases (13.7%). 01 case for each reported with myocarditis, left ventricular hypertrophy, obstructive cardiomyopathy, rapture of infarction and valve disease. Most common effected age group for coronary artery disease was 31 years to 60 years and for MI 40 years to 60 years of age.

Table 3: Showing number of cases with CVS pathology

CVS pathology	Male	Female	Total
CAD	20	00	20
M.I.	04	00	04
Myocarditis	01	00	01
LVF	01	00	01
OCM	01	00	01
Rupture of infarction	01	00	01
Valve pathology	00	01	01
Total	28(96.5%)	01(3.5%)	29(100%)

We observed 10 cases (20%) of sudden death due to pathology of respiratory system. Out of 10 deaths 06 (60%) cases were male and 04 (40%) cases were female. 06 cases showed findings of pneumonia, 01 case with laryngeal oedema,01 case with pulmonary embolism,01 case with aspiration of gastric content and 01 death due to chocking by foreign body.

Our study showed that 05 deaths (10%) due to involvement of central nerve system. Out of which 02 death due to pontine haemorrhage, 01 cases with cerebral haemorrhage, 01 case with cerebellar haemorrhage and 01 death due to meningitis. 02

deaths were observed with pathology of genito-urinary system out of which 01 death due to rupture of ectopic pregnancy and one death due to rupture of uterus.

Table 4: Showing number of cases with pathology of respiratory system

Pathology	Male	Female	Total
Pneumonia	03	03	06
Laryngeal oedema	01	00	01
Pulmonary embolism	00	01	01
Aspiration	01	00	01
Choking	01	00	01
Total	06	04	10

Table 5: Showing no. of cases with CNS pathology

CNS pathology	Male	Female	Total
Cerebral haemorrhage	01	00	01
Cerebellar haemorrhage	00	01	01
Pontine haemorrhage	02	00	02
Meningitis	00	01	01
Total	03	02	05

Discussion

When a healthy person is found dead without any history of trauma, disease and poison, creates suspicious of foul play and in few cases treating physician cannot determine cause of death. In such cases after complete autopsy outcome may often reveal some natural disease.

In present study out of 50 cases of sudden death 39 cases (78%) were male and 11 cases (22%) were female. Same findings also observed by Thomas et al (73.9%) and Nondrum et al (79.6%)and less than Shanti et a l(94%) and Naresh et al (84.8%) (2)(4)(5)(6)(7).

Our study showed most of cases belongs to age group 51 to 60 years of age followed by 41 to 50 years of age. Similar results also observed by others authors (2)(5)(6)(8)(9).

Cardiovascular causes were observed the most common cause of sudden death with male predominance in this study. Similar findings also noted by Sandesh et al, Nondrum (7), Kuller (10) and Sibini (11) et al. coronary artery disease was the main pathology amounting 40% with male dominance. These findings consist with other studies (4)(5)(7)(8)(11).

Out of 50 sudden deaths, 10 cases (20%) died due to involvement of respiratory system. These observation were similar to other studies (4)(6)(11)(8). Sandesh et al (25.7%) and Nareshet al (27.2%) observed little higher numbers of sudden deaths due to respiratory pathology. Narayan also said that sudden deaths due to respiratory system pathology contribute about 15 to 23 % of total sudden deaths (1).

Conclusion

This study concludes with:

1. Male were significantly more than female. (78% male and 22% female)
2. Age group of 41 to 60 years of age were most vulnerable to sudden death.
3. Cardiovascular system account about 58% of total sudden deaths.
4. Coronary artery disease was the most common cause of not only cardiovascular deaths but also of all sudden deaths.
5. Deaths due to causes of respiratory system were 20% and central nerve system was 10%

This type of study can be useful in death of an apparently healthy person and relatives complain of negligence of hospitals and also helpful in investigation of any criminal offence and custodial deaths. In young person atherosclerosis of coronary arteries, high blood pressure and cardiac component are the important factors for sudden deaths. During intense physical activity and emotional liable person the sympathetic stimulation and adrenaline release trigger for sudden death. So detail autopsy examination and proper histopathology examination should be done in sudden deaths.

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Conflict of interest

None declared

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