

## Study of Presenting Complaints and Survival Time in Cases of Sudden Death

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### Abstract

Sudden death is a major cause of mortality in adults and older individuals and the medicolegal autopsy in such cases is common to rule out any unnatural cause. This autopsy based study was undertaken to analyze the presenting complaints of the patients at the time of hospitalization and to calculate the survival time, so the appropriate treatment can be offered to the patients to reduce the morbidity and mortality. It was a prospective, longitudinal cohort study done in cases of sudden deaths, which were brought to us for autopsy examination during the one year period. In our study sudden unconsciousness (32.59%) were the most common presentation of the victims in casualty, followed by uneasiness (22.76%) and acute chest pain (17.4%). At the time of the onset of symptoms, the majority of the victims (41.96%) were engaged in their daily routine work followed by the victims who were resting (37.50%). The cases were also analyzed according to the duration of survival of the victim after the onset of symptoms and we found that the 53.55% victims died almost immediately within one hour of the appearance of symptoms and brought dead to the hospital while 18.75% victims could survive a duration of 1-6 hours followed by the victims who survived 6-24 hours (13.40%) after the onset of symptoms. This study highlights the importance of identification of the victims of sudden cardiac arrest by recognizing their presenting complaints and immediate and timely providing basic and advanced life support with rapid transportation can reduce the mortality and morbidity.

**Keywords:** Cardiac Death; Sudden Death; Presenting Complaints; Autopsy; Natural Death.

### Introduction

Sudden and unexpected death occurring within 24 hours of the onset of the symptoms in a person who is not known to be suffering from any disease, injury or poisoning. In the majority of these cases, the individuals are apparently healthy and died suddenly and unpredictably due to unknown reason and hence the medicolegal autopsies are performed to determine the exact cause of death and to rule out any unnatural manner. Numerous studies on sudden

death and its various aspects have been reported by various authors [1-5], but the issues related to the presenting complaints of the victim and survival period has been less discussed. Hence, the present study was undertaken to analyze the presenting complaints of the victim at the time of hospitalization and to calculate the survival time, so the mortality can be reduced by offering them appropriate medical help during the precious time of life.

### Material & Methods

This prospective and longitudinal cohort study was conducted during the period of one year from 1<sup>st</sup> March 2013 to 28<sup>th</sup> February 2014 after taking the permission from the Institutional Ethics Committee. The sample size for this study belongs to the population of Vadodara city irrespective of age, sex, religion and caste and all the cases belonged to the category of sudden death (deaths occurring within

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24hr from the onset of signs and symptoms) were taken into the consideration. Detailed history regarding the circumstances of death with special reference to chief complaints and time of appearance of symptoms was taken from the near relatives and investigating officer and clinical records of the casualty department. A detailed medico legal autopsy was performed in each case and the routine viscera for histopathology examination were sent to know the exact cause of death and toxicological analysis were carried out to rule out any poisoning. After receiving the reports of analysis data were analyzed and the conclusion was drawn.

## Results

During the one year period of this study, total 2240 medico-legal autopsies were performed and the incidence of sudden death was 10% (224 cases). Table-1 shows the distribution of sudden deaths, according to the complaint presented at the time of admission in hospital and it was observed that in about one third of cases (32.59%), the victims presented with sudden unconsciousness followed by uneasiness in 22.76% cases and acute chest pain with sweating in 17.4% cases. In 14.3% cases, presenting complaints could not be ascertained due to unavailability of the proper history and clinical data. Table 2 is showing distribution of sudden death cases, according to the activity of deceased in which he/she was involved at the time of onset of symptoms and we found that the 41.96% victims were engaged in their daily routine work while 37.50% victims were at rest and only 3.57% were doing some strenuous activity or sleeping (7.59%) or travelling (4.91%). Table-3 showing distribution of cases according to their duration of survival after the onset of symptoms and it shows that 14.30% victims were found dead on the scene, 53.55% victims were either brought dead to the hospital or died within 1 hour of their admission, while the rest 18.75% victims survived for a period of 1-6 hours and 13.40% survived for a period of 6-24 hours in hospital with medical help.

**Table 1:** Distribution of sudden deaths, according to the complaint presented

Presenting Complaints	No. of Cases	%
Sudden Unconsciousness	73	32.59%
Uneasiness in Chest	51	22.76%
Acute Chest Pain with sweating	39	21.42%
Vomiting and diarrhea	15	6.7%
Vertigo/ Convulsion	5	2.23%
No Preceding Symptoms	32	14.3%
Total	224	100%

**Table 2:** Distribution of Sudden deaths, according to activity of deceased at the time of onset of symptoms

Activity	No. of cases	%
Not known	10	4.47%
Rest	84	37.5%
Routine Activity	94	41.96%
Strenuous Activity	8	3.57%
Sleeping	17	7.59%
Travelling	11	4.91%
Total	224	100%

**Table 3:** Distribution of Sudden deaths, according to duration of survival after onset of symptoms

Survival Period after Onset of symptoms	No. of cases	%
Found Dead	41	14.30%
Brought dead / < 1 hr	111	53.55%
Up to 6 hrs	42	18.75%
Up to 24 hrs	30	13.40%
Total	224	100%

## Discussion

Sudden death by definition, cannot be diagnosed as it has already happened. In the developed countries majority of the cases the cause of sudden deaths is either due to fatal arrhythmias or acute myocardial infarction or rarely may be due to intracranial hemorrhage/massive stroke (cerebrovascular accident), massive pulmonary embolism or acute aortic catastrophe [6]. In the present study, we have tried to find out the major presenting complaints of the victim of sudden death and duration of survival of the victim so the appropriate medical help can be provided to them in a time sensitive manner whenever possible. Though the studies have reported in which there is no preceding symptoms before sudden death [7,8]. In this study sudden unconsciousness, uneasiness in the chest, acute chest pain with sweating, vomiting-diarrhea and vertigo/convulsions were observed in the form of presenting complaints and in the majority of the victims the presenting complaint was either the sudden unconsciousness (32.59%) or uneasiness (22.76%) in the chest due to dyspnoea. There were no preceding symptoms in 14.3% cases before sudden death. Table-1 shows that even a healthy individual with minor complaints like uneasiness, chest pain and vomiting should be taken seriously and carefully monitored to rule out the cardiac arrhythmias and rapid transport to the nearest cardiac center with supportive treatment by a trained medical team is paramount to reduce the morbidity and mortality in such cases.<sup>9</sup> Oxygen saturation and cardiac monitoring in such cases is of an immense importance at this stage. Jones and Slovis<sup>10</sup> have reported the

pitfalls in the evaluation of myocardial ischemia and explained the possibility of missing the diagnosis in younger patients and woman with atypical symptoms. Although vigorous exercise can trigger sudden cardiac death and acute myocardial infarction<sup>11</sup> but in this study, we observed that only 3.57% victims were engaged in some strenuous activity and the majority was engaged either in their daily routine work or resting at the time of onset. Braggion-Santos et al [12] have found in their autopsy based study on sudden cardiac death in Brazil that more than half of the deaths occurred at home (53.3%) followed by the deaths occurred in emergency rooms (37.8%). It is worth noting that 8.2% of all events occurred in public places and six men died (0.7%) during physical activity practice (mean age 35 years). Duration of survival of the patient after the onset of symptoms shows that the two third of the victims (67.85%) in this study were either found dead or brought dead to the casualty department, while 18.75% victims survived a period of 1-6 hours and 13.40% survived up to 24 hours duration. In the Maastricht study [7], 80% of the cardiac arrests occurred at home and 40% were unattended and hence we should be able to recognize the warning symptoms of cardiac arrest to provide basic and advanced life support to the victims by emergency service providers. Recently much attention has been given over the use of public access defibrillation by the nonphysicians through a widely distributed automated external defibrillators [13], which should be available at all common places where cardiac arrest can occur. Recognition of the presenting complaints of the patients and immediate transportation through a well equipped ambulance with trained medical staff in these cases can help to reduce the mortality. Training of cardio pulmonary resuscitation and basic knowledge to recognize the alarming symptoms should be given to common peoples especially at school levels can improve the statistics of mortality and morbidity in cases of sudden and unexpected death.

### Conclusion

This study highlights the importance of identification of the victims of sudden cardiac arrest by recognizing their presenting complaints and immediate and timely providing basic and advanced life support with rapid transportation to reduce the mortality and morbidity.

### Conflict of Interest

None.

### Source of Funding

Nil.

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