Sudden Deaths in Mthatha Area of South Africa

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Abstract

Background: A sudden unexpected death in South Africa is considered an unnatural death, and requires an autopsy to determine the cause of death. These deaths were classified under a vague term, collapse, by investigating officers and relatives of the deceased.

Objectives: To assess the incidence of sudden deaths in Mthatha.

Method: This is a record review from 1993 to 2004 of the medico legal autopsies in Umtata General Hospital (UGH). All cases of unnatural deaths are brought by police to UGH mortuary**.**

Results: Four hundred and thirteen cases of sudden deaths were recorded over a period of 12 years (1993-2004) with an average of 11 deaths/100 000 population. The highest (22.7/100 000) was recorded in 1997, and the lowest (4.5/100 000) in 1996. Males outnumbered females 3.2:1. The commonest age group involved is between 31 and 40 years. The commonest underlying cause of death is pneumonia.

Conclusion: There is an increasing trend of sudden deaths in the population in Mthatha and it is most prevalent among males between 31 and 40 years.

Keywords: *sudden, death, natural*

Introduction

Sudden deaths are unexpected resulting from various causes, and in layman terms as called 'collapse.' Sudden death is defined as unexpected death occurring as a result of natural causes where loss of all functions occur instantaneously or within 6 hours of the onset of symptoms or collapse.[1] Sudden cardiac deaths cause between 300 000 and 400 000 deaths a year. It is the leading cause of death in men between 20 and 65 years of age.[2]

The HIV/AIDS epidemic in South Africa continues to grow at a rapid rate. Various projections of the demographic impact of HIV, based on the antenatal survey results, suggest that the disease will have a considerable impact on mortality in South Africa. While projections differ somewhat, they suggest that between 2000 and 2010, somewhere between 4 and 7 million South Africans will die from HIV/AIDS. Several studies showed that there is a role of HIV in sudden deaths directly or indirectly.[4,5] A number of studies comparing HIV infected and uninfected drug users have noted an increased sudden deaths from overdose for HIV infected. In Amsterdam the rate was 0.39/100 persons years for the uninfected but 1.42/100 person years for the HIV infected.[6]

The majority of sudden cardiac deaths in the young are due to inherited forms of heart muscle disorder and irregular heart function.[7] With an estimated US population of 296, 766, 821, this implies 163, 221 out-of-hospital sudden cardiac arrests occur annually in the US.[8] Hundreds of fit and healthy adults are dying annually in England for no apparent reason- and little concerted preventive action is being taken largely because there is no agreed term to describe the syndrome. [9] A French study on 1000 autopsies of those under 65 years showed a cardiac cause of death in 848 (85%). In 152 no cause was found.[10] Italian Law requires every athlete to have

an annual "Fitness Certificate" before they are permitted to participate in a sports club and schools have to take responsibility for their students' fitness to participate. [11]

The problem of death in individuals with HIV infection is of importance not only to individuals infected with HIV but also to health care professionals trying to provide accurate information concerning the natural history of HIV.[12] Sudden death in HIV-infected drug users have been reported. [4] There is an increased risk of sudden cardiac deaths if erythromycin and protease inhibitors are taken at the same time. [5] The purpose of this study is to estimate the cases of sudden deaths in this region.

Methods

This retrospective study covers the period January 1993 to December 2004, and was carried out in Umtata General Hospital (UGH) mortuary. This is located on the hospital premises, the teaching hospital of the University of Transkei in the Eastern Cape, South Africa. Now it is a level 1 hospital but remains a teaching institution. The mortuary provides services to Mthatha (Umtata) and Ngqeleni magisterial districts, which together have a population of approximately 400 000. Annually more than 1200 autopsies are carried out in this mortuary. All deaths from unnatural causes in the region are notifiable to the police, who then request medico legal autopsies. All cases of sudden deaths are brought to this mortuary and a medico legal autopsy is conducted.

Results

Four hundred and thirteen cases of sudden deaths were recorded over a period of 12 years (1993-2004) with an average of 11 deaths/100 000 population. The highest deaths 22.7/100 000, were recorded in 1997, and least 4.5/100 000, were in the year 1996. Males outnumbered females 3.2:1 (Table 1). The commonest age group involved is the one between 31 and 40 years with 24.4% of deaths, and least in the age group 1 to 5 years (5.2%) (Table 2). The systems involved in these sudden deaths were respiratory 19 (28.3%), cardiovascular and nervous 9 (13.4%) each (Table 3).

Table 1. Sudden deaths in Mthatha area of South Africa (1993 to 2004) (N=413).

Year	male	Female	Total	Sudden deaths/100 000 population per year
1993	27	6	33	8.2
1994	33	7	40	10
1995	38	5	43	10.7
1996	16	2	18	4.5
1997	71	20	91	22.7
1998	30	11	41	10.2
1999	30	4	34	8.5
2000	24	11	35	8.7
2001	22	5	27	6.8
2002	25	14	39	9.8

***Cont...*Table 1. Sudden deaths in Mthatha area of South Africa (1993 to 2004) (N=413).**

2003	56	9	65	16.3
2004	42	21	63	15.8
2005	54	13	67	16.7
Mean	40.2	10.5	34.4	13.9

Table 2. Age groups in sudden natural deaths in Mthatha area of South Africa 1996-2004 (N=365).

Age group	Male	Female	Total
1 to 10	11 (3%)	8 (2.2%)	19(5.2%)
11 to 20	17 (4.6%)	10 (2.7%)	27 (7.3%)
21 to 30	47 (12.9%0	13 (3.5%)	60 (16.4%)
31 to 40	69 (18.9%)	20 (5.5%)	89 (24.4%)
41 to 50	56 (15.3%)	14 (3.8%)	70 (19.1%)
51 to 60	42 (11.5%)	7 (1.9%)	49 (13.4%)
60+	35 (9.6%)	16 (4.4%)	51 (14%)
Total	277(75.9%)	88 (24.1%)	365 (100%)

Table 3. System related causes of death on autopsies in 2005 (N=67).

S.No	System	Number
1.	Respiratory system	19 (16 pneumonia, 2 PTB, 1 COPD)
2.	Cardiovascular system	9 (8 Cardiomyopathy, 1 CAD)
3.	Central nervous system	9 (4 meningitis,3 Subarachnoid Haemorrhage, 2 epilepsy)
4.	Gastrointestinal system	4 (1 enteritis, 1 infarction, 1 hepatic, 1 hernia)
5.	Reproductive system	1 (abruption placenta)
6.	Miscellaneous	8 (3 septicaemia, 1diabetes, 1 nephropathy,
7.	Undetermined	17

Discussion

This retrospective record review is only enquiry in this area related with sudden deaths. It provides important information that justifies expanded efforts to initiate and develop a programme for a well planned study. It is a trend in the mortuary to declare a person collapsed where there is no visible injury on body, and no circumstantial history is available at the time of death. This trend has been prevalent for years among investigating officers, mortuary staff, and medical officers who conduct autopsies. The problem of sudden death is not only important to the relatives of the deceased, but also to the health professionals trying to provide accurate information concerning the cause of death. This is more important in low resource areas such as Mthatha. Mthatha (Umtata) was the capital of former black homeland of Transkei. Facilities for health care services including medico legal investigations are at lower end of the spectrum in South Africa.

There is a lack of statistics on sudden deaths, and therefore it is difficult to compare with the findings of this study. Sudden cardiac deaths causes between 300 000 and 400 000 deaths a year in United States. [2] Four hundred and thirteen cases of sudden deaths were recorded over a period of 12 years (1993-2004) with an average of 13.5 deaths/100 000 population (Table 1). There is an increase in the number of sudden deaths from 1993 to 2004, but it is not a steady pattern. The peak was in 1997(22.7 per 100 000 deaths) (Table 1). There is no explanation for this sharp rise in 1997. However, the medico legal officers certifying deaths have changed. This is much higher than reported by a North American study, where the annual incidence of sudden cardiac arrests is 0.55 per 1, 000 population. With an estimated population of 296 million in the United States, this implies that about 163, 221 out-of-hospital sudden cardiac arrests occur. [6] There were only 9 deaths in 2005 as a result of cardiovascular disease. Of this only one had coronary artery disease, and 8 were due to cardiomyopathy. Ischemic heart disease is not common among African people. A study carried out by Seedat et al (1996) showed that coronary artery disease is still uncommon among the black population of South Africa. [13] Hypertrophic Cardio Myopathy is common. A study by Maron (1995) showed that 1 in 500 people have Hypertrophy Cardiomyopathy.[7] The ratio of males to females is 3.2:1. This is because males are much less bothered about their illnesses than females and they are detected only at autopsy.

It is surprising that sudden deaths in 2005 were due to pneumonia and pulmonary tuberculosis, 18 out of 19 involving the respiratory system, and meningitis 4 out of 9 involving the central nervous system (Table 3). Deaths from tuberculosis (TB) are increasing but TB-related sudden death (TBRSD) is rarely reported in the literature. The most common cause of TBRSD was tuberculous bronchopneumonia in 64%.[14] This infectious disease is opportunistic infections in immunocompromised such as HIV. Many HIV- seropositive patients who present with pneumonia have obvious clinical features of immunodeficiency. The possibility of mycobacterium tuberculosis infection should always be considered in immunocompromized patients. [15] A post mortem study carried out in Edinburgh showed that 9% of deaths are associated with AIDS. Significant encephalitis is also present in post-mortem diagnosis of AIDS.[12] The commonest age group involved in sudden deaths is 31 to 40 years, 24.4% **(**Table 2). It is the same age group who also has the highest rate of HIV infection. The prevalence of HIV was highest among women aged 25-34 years-more than 1 in 3 is estimated to be living with HIV.[16]

Conclusion

There is an increasing trend of sudden deaths and infectious diseases contribute to this trend. The need to investigate thoroughly the cause of sudden death is emphasized.

Ethical issue: Ethical permission was granted by the University of Transkei ethical committee (approved project No. 4114/1999). The names of all the cases were kept anonymous and not divulge to anyone.

Conflict of Interest: None

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