AGE AND SEX RELATION TO MANNER AND CAUSE OF DEATH AMONG CASES AUTOPSIED IN THE CANAL ZONE (MAY 2003 - JANUARY 2005)

BY

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ABSTRACT

Study of causes of death and its trends in the countries may assemble information to aid in decision-making with regard to prevention policies. The present study was carried out on 100 post mortem forensic cases, which had been autopsied in the area covered by Port Said medico-legal department, in the period between May 2003 and January 2005. The cases were 86 males and 14 females. The age groups of both males and females were 67 cases below 40 years and 33 cases above 40 years. The causes of death were classified into traumatic (78%) and non traumatic (22%). It was observed that the most frequent cause of death in the studied cases was firearm injury (26%). The next frequent cause was stabbing wound (18%), followed by insecticide intake (12%) and hanging and head trauma (7% for each). Drowning, falling from height and strangulation constituted 4% for each, followed by fatal burn (3%); cut throat, cancer, multiple trauma and traffic accidents (2% for each). Other rare causes of deaths were anaphylactic shock, blunt trauma, cardiac sudden death, domestic food deprivation, fractured tibia and surgical malpractice (1% for each). The majority of suicidal post mortem cases in the present study were males. Also, most of homicidal deaths in the present work were young males.

Key words: Causes of death, manner of death, suicide, homicide, accidental.

INTRODUCTION

Causes of death involving injuries are classified according to intent or manner of death (e.g., unintentional or accident; or intentional, which can be suicide, homicide or legal intervention, or undetermined intent) in the International Classification of Diseases, Tenth Revision (ICD-10) (World Health Organization, 1992).

Injury deaths are those caused by acute exposure to physical agents, e.g., mechanical force or energy, heat, electricity, chemicals, and ionizing radiation, in amounts or at rates that exceed the threshold of hu-

man tolerance (Fingerhut and Warner 1997).

An injury death may also be the result of a sudden lack of an essential substance (e.g., oxygen in the case of drowning) (Baker et al., 1992 and Fingerhut and Warner 1997).

Causes of death involving injuries are prominent among the leading causes of death in the United States. In 2001 more than 100,000 persons died as the result of an unintentional injury, making this category the fifth leading cause of death overall. Unintentional injuries were the leading cause of death for those under age 35 years, accounting for 28 percent of all deaths in this age category (Anderson et al., 2003)

Suicide and homicide were also among the 15 leading causes of death in the United States, ranking 11th and 13th, respectively, and combining for approximately 50,000 deaths in 2001. Among those aged 15-24 years, homicide was the second leading cause of death and suicide ranked third; among those aged 25-34 years, suicide was second and homicide third (Anderson et al., 2003).

Yunes (1993), has studied mortality from violent causes and its trends in the countries of the Americas. The study focused on persons under 24 years of age and utilized information from 1980 and 1986 taken from the data base of the Pan American Health Organization. The causes of death were grouped in accordance with the International Classification of Diseases, (ICD, Ninth Revision). Accidental deaths were separated from intentional deaths by means of the following classification: traffic accidents, other accidents, homicides, suicides, and "unknown causes." The information on violent deaths was compared with information on deaths from infectious diseases during the same period. The results indicated that in 1986, 517,465 deaths from violent causes were recorded in the 28 countries of the Region. Violent deaths as a proportion of total deaths ranged from 3.7% in Jamaica to 26.8% in El Salvador.

The aim of the present work is to clarify age and sex related pattern of death in studied autopsied cases and to find out the most common causes and manners of death in the canal zone.

SUBJECTS AND METHODS

The present study was carried out on 100 post mortem forensic cases, which had been autopsied in the area covered by Port Said medico-legal department, in the period between May 2003 and January 2005.

Cases :

All forensic cases had different causes

and manners of death, had been autopsied in the area covered by the Port-Said medico-legal department, and the exclusion criteria were putrefied, decomposed cases. and children younger than 12 years. They had different social classes, with mostly no history about education. The fixed and common criteria in this study were that all of the cases are forensic cases in certain geographic region, which is consisted of three governorates in the canal zoon. One hundred cases among three governorates in the Canal Zone covered by the official autopsy work of Port-Said medico legal department were randomly selected for the present study. Twenty-seven cases were studied from Port Said and the same number from North Sinai and 46 cases from Ismailia governorate. The cases were 86 males and 14 females. The age groups of both males and females were 67 cases below 40 years and 33 cases above 40 years. The causes of death were classified into traumatic and non-traumatic causes. Traumatic causes of death included: firearm injuries; stabbing wounds; hanging; head trauma; falling from height; strangulation; burn; multiple trauma; traffic accidents; cut throat; blunt trauma; electrocution and complicated fractured tibia. Non-traumatic causes included: insecticide intake; drowning; pathological causes "included cardiac sudden death and cancer; food deprivation; anaphylactic shock and medical malpractice.

3- **Methods :**

All cases in the present study were subjected to autopsy. The forensic autopsy involved the routine external and internal examination. The dissection was done by the standard midline incision with an almost straight line from laryngeal prominence to pubis, deviating to avoid the umbilicus. The upper end of the incision should not, basically, be prolonged above the larynx unless there was a necessity. In strangulation, hanging and any condition where neck might be damaged by an antemortem insult, the Y-incision was to be preferred. The primary incision were as it should be, shallow over the neck to avoid cutting underlying structures. The thorax was cut down to the sternum. In the abdomen, a light cut was done to incise skin and fat. Then a small puncture was made in the peritoneum and a finger was inserted to left it away from the abdominal viscera. Then the cut was made outwards along the abdomen to avoid penetrating the intestines. The incision for access to the skull was made from behind each ear, meeting over the crown of the head (Knight, 1991).

STATISTICAL ANALYSIS

Data were run on an IBM compatible personal computer and analyzed using SPSS (Statistical Package for Social Sciences) Version 10 (SPSS Inc., Chicago, IL, USA). Variables were presented as num-

ber and percentages. Chi- Square (χ^2) test was used for comparison between groups. P Value was considered to be statistically significant if ≤ 0.05 (Armitage, 1983).

RESULTS

Table (1) showed the demographic data of the studied autopsied cases as regard age, sex and governorate. The mean age of the studied cases ranged from 17 to 72 years with a mean of 33.35 year. The age of the studied cases was divided into two age groups; the first group was below 40 years (67%). The second age group was 40 and above 40 year (33 %). The studied cases included 86 males (86%) and 14 females (14%).The majority of cases were autopsied in Ismailia Governorate (46 %). Cases from Port Said and North Sinai were 27 % for each of them.

Table (2) revealed the different manners of death among the studied autopsied cases. Homicidal cases represented 59%, while suicidal, accidental and pathological cases were 29, 9 and 3% respectively.

As regard causes of deaths, there was a great variation as shown in table (3). Different causes of deaths were categorized into two groups; traumatic (78%) and non traumatic (22%). It was observed that the most frequent cause of deaths in the studied cases was firearm injury (26%). The next frequent cause was stabbing wound (18%), followed by insecticide intake (12%) and hanging and head trauma (7% for each). Drowning, falling from height and strangulation constituted 4% for each, followed by fatal burn (3%); cut throat, cancer, multiple trauma and traffic accidents (2% for each). Other rare causes of deaths were anaphylactic shock, blunt trauma, cardiac sudden death, domestic food deprivation, fractured tibia and surgical malpractice (1% for each).

Table (4) showed the different causes of suicidal deaths in both males and females. Suicidal deaths in the studied autopsied cases included 29 cases. Insecticide intake represented the largest group (12 cases; 9 males and 3 females) followed by suicidal hanging (7 cases; all were males). Falling from height was found to be the cause of suicidal death in 4 cases (3 males and one female); firearm injuries were found in 3 males whereas burn was found in 3 females.

Table (5) showed the different causes of homicidal deaths in both males and females. Homicidal deaths included 59 cases. Firearm injuries represented the largest group (23 males) followed by stabbing wound (18 cases; 15 males and 3 females). Head trauma was found to be the cause of deaths in 6 males; strangulation in 3 males and one female. Each of cut-throat and multiple trauma was the cause of death in 2 males. One male died due to homicidal

blunt trauma; one male died due to fractured tibia and one male died due to pedestrian traffic accident while one female died due to food deprivation.

Table (6) revealed the different causes of suicidal deaths in the different age groups of the studied autopsied cases. Among the suicidal insecticide intake (12 cases), 9 cases aged below 40 year and 3 cases aged 40 year or more. The majority of hanging suicidal deaths (6 from 7 cases) aged below 40 year. Half of falling from height cases aged below 40 years while 2/3 of suicidal firearm injury cases aged below 40 year. In suicidal burn, all cases were below 40 year.

Table (7) revealed the different causes of homicidal deaths in the different age groups of the studied autopsied cases. Among the homicidal deaths, firearm injuries were found in 15 cases aged below 40 year and 8 cases aged 40 year or more. Among stabbing homicidal deaths, 13 cases aged below 40 year and 5 cases aged 40 year or more. Two cases of homicidal head trauma aged below 40 year while 4 cases aged 40 year or more. In strangulation homicidal cases, 1/3 of cases aged 40 year or more while the two cases of homicidal cut throat aged 40 year or more.

DISCUSSION

Mortality statistics are frequently used to measure health status of the population and to assess importance of public health problem. Also, to know the leading causes of death in the countries to make the prevention strategies (Schumacher and Brockert,1994).

De Freitas et al.(2000), found that there was an increase of 34.6 % in the number of deathes in Brazilians from external causes between 1988-1994.

Anderson et al.(2003) found that the five leading mechanisms of injury death among americans were motor vehicle traffic, firearm, poisoning, falls, and suffocation, accounting for 78 percent of all injury deaths.

So that, the present work was designed to clarify age and sex related pattern of death in studied autopsied cases and to find out the most common causes and manners of death in the canal zone.

An autopsy was done by the routine external and internal examination for every case that fulfilled the inclusion criteria to determine the cause and manner of death for each case. The demographic data of the studied autopsied cases (N= 100) was illustrated in table (1) .

As regard age distribution, the mean

age of the autopsied cases was 33.35 year. They were divided into two age groups, the first was below 40 year (67 cases) and the second was 40 or above 40 year (33 cases). They were 86 males and 14 females. Forty-six cases were from Ismailia; 27 cases were from Port Said and 27 cases from North-Sinai.

The autopsied cases had different manners of deaths as shown in table (2), homicidal cases (59 %); suicidal cases (29 %), accidental cases (9%) and pathological cases (3%).

The relatively low incidence of suicidal postmortem cases (29%), when compared to the homicidal cases (59%), could be attributed to religious believes because the Islamic religion strongly prohibits the suicide. In accordance to the present results, the results obtained by Abu-Al Raghab and Hadidi (1998) who mentioned that the low incidence of suicide among Jordanians is attributed to religious believes. In contrast, studies in various European countries have found an increased suicide risk among abusers (Kaplan and Sadok`s, 1998).

The majority of suicidal post mortem cases in the present study were males (22 cases, 75.9%). On the other hand, females were 7 cases (24.1 %) as shown in table (4). This is in agreement with studies from Europe, the Americas, Asia and Australia. They indicated that while females are three times more likely than males to attempt suicide, males are three times more likely to complete suicide (Lynskey et al. 2000).

Of the 29 cases of suicidal deaths in the present study, 12 cases (9 males and 3 females) were due to insecticide intake. Hanging and firearm injury were found in 7 and 3 males respectively while burn was found in three females as shown in table (4). Among suicidal deaths most of cases were young; 23 cases aged below 40 year and 6 cases above 40 year. Nine deaths due to insecticide intake aged below 40 year and six cases died due to suicidal hanging were found to be below 40 years as shown in table (6) and figure (8). This agrees with the reports of Darke and Ross (2001) who mentioned that the rates of completed suicide increase among adolescent males.

Most of homicidal deaths in the present work were young males. Of the 59 cases of homicidal deaths; 54 cases were males and 36 cases aged below 40 years as shown in tables (5; 7). This agrees with the report of Madan et al. (2001) who mentioned that interpersonal violence is a cause of injury that is particularly prevalent in young age and that young men commonly are victims of homicide.

In the present study, the most common

cause of homicidal deaths was firearm injuries, which was found in 23 males; 15 males aged below 40 year and 8 males above 40 year. As we didn't put motor car accidents in our classification because in most cases they are the concern of hospitals. This results coincide with the results of Anderson et al.(2003) who found that firearm injuries represented the second leading cause of death(19%) after motor car accidents (27%).

The majority of cases autopsied in the present work died due to trauma (78%) as shown in table (3) this results coincide with the results of Anderson et al.(2003) who found that the five leading mechanisms of injury death among americans were motor vehicle traffic, firearm, poisoning, falls, and suffocation, accounting for 78 percent of all injury deaths. In the present study the most common causes of traumatic deaths were firearm injuries (26%) and stabbing wound (18%). Non traumatic causes of deaths included insecticide intake (12%); drowning (4%); cancer (2%) and food deprivation, cardiac death, anaphylactic shock and medical malpractice (1% for each).

The study pointed up the need to promote further research on the phenomena of violence and relate it to the total population in order to aid in decision-making with regard to prevention policies.

Table (1): Demographic characteristics of the studied autopsied cases.

Parameters	Total number n = 100	Percentage (%)
Age: Mean : 33.35 Minimum: 17.00 Maximum: 72.00 X_±SD : 13.08		
Age groups: < 40 Y ≥ 40 Y	67 33	67 33
Sex: Males Females	86 14	86 14
Governorate: Ismailia Pt.Said N.Sinai	46 27 27	46 27 27

Table (2): Different manners of deaths among the studied autopsied cases.

Manners of deaths	Total number n = 100	Percentage (%)
Homicidal	59	59
Suicidal	29	29
Accidental	9	9
Pathological	3	3

Table (3): Different causes of deaths among the studied autopsied cases.

Causes of deaths	Number n = 100	Percentage (%)
(I) Traumatic:	78	78
Firearm	26	26
Stabbing	18	18
Hanging	7	7
Head trauma	7	7
Falling from height	4	4
Strangulation	4	4
Burn	3	3
Cut throat	2	2
Multiple trauma	2	2
Traffic accident	2	2
Blunt trauma	1	1
Electrocution	1	1
Fractured tibia	1	1
(II) Non traumatic:	22	22
Insecticide intake	12	12
Drowning	4	4
Cancer	2	2
Food deprivation	1	1
Cardiac	1	1
Anaphylactic shock	1	1
Malpractice	1	1

Table (4): Different causes of suicidal deaths in both males and females.

Causes of suicidal deaths	Total		Sex			
			Males		Females	
	no.	%	no.	%	no.	%
Insecticide intake	12	41.3	9	75	3	25
Hanging	7	24.1	7	100	-	-
Falling from height	4	13.7	3	75	1	25
Firearm injuries	3	10.3	3	100	-	-
Burn	3	10.3	-	-	3	100
Total	29	29	22	75.8	7	24.2

Table (5): Different causes of homicidal deaths in both males and females.

Causes of homicidal deaths	Total		Sex			
			Males		Females	
	no.	%	no.	%	no.	%
Firearm injuries	23	38.9	23	100	–	–
Stabbing	18	30.5	15	83.3	3	16.7
Head trauma	6	10.2	6	100	–	–
Strangulation	4	6.8	3	75	1	25
Cut throat	2	3.4	2	100	–	–
Multiple trauma	2	3.4	2	100	–	–
Blunt trauma	1	1.6	1	100	–	–
Fractured tibia	1	1.5	1	100	–	–
Pedestrian traffic accident	1	1.6	1	100	–	–
Food deprivation	1	1.6	–	–	1	100
Total	59	59	54	91.5	5	8.5

Table (6): Different causes of suicidal deaths in the different age groups of the studied autopsied cases.

Causes of suicidal deaths	Total		Age groups			
			< 40 year		≥ 40 year	
	no.	%	no.	%	no.	%
Insecticide Intake	12	41.3	9	75	3	25
Hanging	7	24.1	6	85.7	1	14.3
Falling from height	4	13.7	2	50	2	50
Firearm injuries	3	10.3	2	66.7	1	33.3
Burn	3	10.3	3	100	-	-
Total	29	29	22	75.8	7	24.2

Table (7): Different causes of homicidal deaths in the different age groups of the studied autopsied cases.

Causes of Homicidal deaths	Total		Age groups			
			< 40 year		≥ 40 year	
	no.	%	no.	%	no.	%
Firearm injuries	23	38.9	15	65.2	8	34.8
Stabbing	18	30.5	13	72.2	5	27.8
Head trauma	6	10.2	2	33.3	4	66.7
Strangulation	4	6.8	3	75	1	25
Cut throat	2	3.4	-	-	2	100
Multiple trauma	2	3.4	1	50	1	50
Blunt trauma	1	1.6	-	-	1	100
Fractured tibia	1	1.5	-	-	1	100
Pedestrian traffic accident	1	1.6	1	100	-	-
Food deprivation	1	1.6	1	100	-	-
Total	59	59	36	61.2	23	38.8

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دراسة العلاقة بين العمر ونوع الجنس وأسباب الوفاة فى الحالات التى تم إجراء الصفة التشريحية عليها فى منطقة القناة فى الفترة من مايو ٢٠٠٣ إلى يناير ٢٠٠٥

المشتركون فى البحث

أ. د. عبدالعزيز أبوالفتوح غانم — د. سعاد محمد مسعد

د. محمود السيد عوض — ط. عمرو محمد الغزالى*

من أقسام الطب الشرعى والسموم الإكلينيكية - كلية الطب - جامعة المنصورة

ومصلحة الطب الشرعى بوزارة العدل ببورسعيد*

أجرى هذا البحث على مائة حالة من الحالات التى تم تشريحها خلال عام وثمانية أشهر فى ثلاث من محافظات القناة (٤٦ حالة من الاسماعيلية و ٢٧ حالة من كل من بورسعيد شمال سيناء) وكان المتوسط العمرى للحالات ٣٣ر٥ سنة وكانت نسبة الذكور (٨٦٪).

وقد تم تقسيم أسباب الوفاة لتلك الحالات إلى أسباب إصابية (٧٨٪) وأسباب غير إصابية (٢٢٪)، أما بالنسبة لطرق الوفاة فقد كانت حالات القتل ٥٩٪ من الذكور، والانتحار ٢٩٪ من الذكور، وكانت حالات الوفاة العرضية ٩٪ والوفاة المرضية ٣٪، وقد تبين أن نسبة الإصابات النارية كانت كبيرة فى حالات القتل (٢٣ حالة جميعهم من الذكور) تليها نسبة الإصابات الطعنية (١٨ حالة معظمهم من الذكور) بينما كان تناول المبيدات الحشرية هو الأكثر شيوعاً فى حالات الوفاة الانتحارية (١٢ حالة من الذكور تلاها نسبة حالات الشنق (٧ حالات جميعهم من الذكور).