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Assessment of gunshot deaths in forensic department

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Abstract

Background: Assault, mechanical asphyxia, blunt head injury and shooting are the common methods of homicides. The present study was conducted to assess gunshot deaths.

Materials & Methods: The present study was conducted in the department of Forensic Medicine. It comprised of 52 deaths due to gunshot injuries of both genders. An autopsy of bodies was done. Manner of deaths, site of injury, and reason of death was recorded.

Results: Out of 52 patients, males were 38 and females were 14. Out of 52 deaths, 10 were accidental, 8 were suicidal and 34 were homicidal. The reason of death was septicemia in 12, hemorrhage in 26 and coma in 14 cases. The site of injury was head in 23, face in 10, back in 4 and abdomen in 15 cases. The difference was significant ($P < 0.05$).

Conclusion: Authors found maximum deaths due to homicidal, site was head and male predominance was observed.

Keywords: homicidal, gunshot, deaths

Introduction

India's rates of violence vary greatly from state to state, and city to city, ranging from relatively high to negligible^[1]. These rates are reflected in the nation's well-known diversity in languages, literacy, economic status, and cultural customs^[2]. As in most metro cities, including Mumbai the violent crimes - especially homicides - continue to be a cause for concern over various agencies. Assault, mechanical asphyxia, blunt head injury and shooting are the common methods of homicides. Firearm as mode of homicide is increasing throughout the world. In the United States, the risk of death from firearms injuries versus death by RTA is relatively high^[3].

The common feature of all gunshot wounds is the presence of damage to the soft tissues at the site of entry along with the presence of a rim of bruising at the vicinity of the entry wound, which is also called contusion hematoma^[4]. Depending on the type and energy of the bullet, and the distance from which the round was fired, additional signs may also be visible. For example, wounds inflicted by close range shots are characterized by the presence of gunpowder tattoo-particles of gunpowder embedded in the skin and skin burn due to hot exhaust gases from the barrel. Unfortunately, these changes are not clearly seen in the soft tissues undergoing post-mortem decomposition and change^[5]. The present study was conducted to assess gunshot deaths.

Materials & Methods

The present study was conducted in the department of Forensic Medicine. It comprised of 52 deaths due to gunshot injuries of both genders. Institutional ethical approval was taken prior to the study. General information such as name, age, gender etc. was recorded. An autopsy of bodies was done. Manner of deaths, site of injury, and reason of death was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I: Distribution of patients

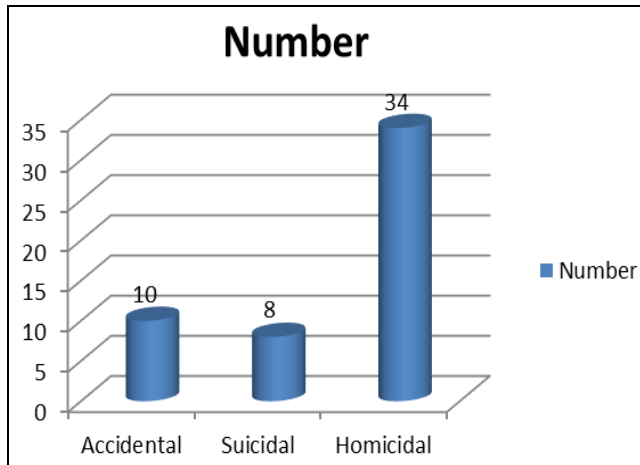
Gender	Total- 52	
	Males	Females
Number	38	14

Table I, graph I shows that out of 52 patients, males were 38 and females were 14.

Table II: Manner of deaths

Manner	Number	P value
Accidental	10	0.01
Suicidal	8	
Homicidal	34	

Table II, graph I shows that out of 52 deaths, 10 were accidental, 8 were suicidal and 34 were homicidal. The difference was significant ($P < 0.05$).



Graph I: Manner of deaths

Table III: Reason of death

Reason	Number	P value
Septicemia	12	0.04
Hemorrhage	26	
Coma	14	

Table III shows that reason of death was septicemia in 12, hemorrhage in 26 and coma in 14 cases. The difference was significant ($P < 0.05$).

Table IV: Site of injury

Site	Number	P value
Head	23	0.04
Face	10	
Back	4	
Abdomen	15	

Table IV shows that site of injury was head in 23, face in 10, back in 4 and abdomen in 15 cases. The difference was significant ($P < 0.05$).

Discussion

In 2012, India officially reported total national firearm murder cases 2818 (9.8%) out of 34305 homicidal deaths. Percentage wise it is nearly equal for year 2012 (10.98%) and for 2013 (10.90%) [6]. In the era of gang war and encounter in Mumbai there were significant contribution of firearm deaths in total homicides. But the decline in the rate of murder committed with firearms is especially striking compared to trends in other violent crimes, which declined only slightly over the period [7]. The present study was conducted to assess gunshot deaths.

In this study, out of 52 patients, males were 38 and females were 14. Out of 52 deaths, 10 were accidental, 8 were suicidal and 34 were homicidal. The difference was significant ($P < 0.05$). Brogdon *et al.* [8] found retrospective cross-sectional study carried out on the victims of FA injuries referred to the mortuary. Of the autopsies conducted during study, 2.09% were firearm-related deaths. Of the cases, males (92.42%) notably outnumbered females in a ratio of 12.2:1. Homicidal attacks were maximum, and

unlicensed, illegal country-made weapons were the preferred choice. Suicides were least. Result signifies that illegal country-made weapons should be strictly limited to save the precious lives. A holistic approach encompassing public awareness, behavioral modification, and stringent management of law and order is the need of the hour.

We found that reason of death was septicemia in 12, hemorrhage in 26 and coma in 14 cases. The difference was significant ($P < 0.05$). The site of injury was head in 23, face in 10, back in 4 and abdomen in 15 cases. Amiri *et al.* [9] found that 74.4% deceased were victims of homicidal attacks, 21% of suicide and 4.6% of accidental deaths. Maximum suicidal firearm deaths were done by police persons (66%). Male from 21-30 age group were most common deceased in firearm deaths. Chest (36.9%) was most common site of involvement of entry wound of firearm. Pistol or revolver weapon most commonly used (51.17%) in both homicide and suicide cases. The most common reason behind the homicidal firearm death or killing of person was the personal rivalry (46.51%).

Bullet calibre and length of the gun barrel affect the initial speed of the projectile and its effective range. The ability to penetrate the tissue depends on the material the bullet is made of, flight trajectory and angle of penetration. Unjacketed, relatively soft bullets passing through the tissues are readily deformed-flattened or distorted. Hitting bony structures may change the trajectory of a bullet-deflect it from the straight line or ricochet. Jacketed bullets fired from rifles, some hand guns and automatic guns have significantly higher barrel exit velocity, and thus energy, than unjacketed bullets. The external cover makes them less prone to shape change and distortion during the initial contact with soft tissues. Contact with bone may lead to burst fracture, with minimal change in the trajectory of the bullet. Shotgun shells contain multiple small beads or lead slugs that exit the barrel at a lower speed; however, the large number of small projectiles can cause extensive damage to the body, particularly with close range gunshots [10].

Conclusion

Authors found maximum deaths due to homicidal, site was head and male predominance was observed.

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