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ORIGINAL ARTICLE

Evaluate the Pattern of Firearm Injuries Based on Gender in Hyderabad, Sindh, Pakistan

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ABSTRACT

Aim: To assess the pattern of firearm injuries and different effecting factors based on gender in Hyderabad, Sindh, Pakistan.
Study Design: Retrospective and descriptive
Place and duration of study: Depart. Forensic Medicine & Toxicology, BMC LUMHS Jamshoro 01-01-2017 to 31-12-2019.
Methodology: Three hundred and nineteen autopsies based on purposive sampling method were revealed the death due to firearm injuries. The demographic information, pattern of death due to firearm and which part of body involved based on variables.
Results: There were 267 males and 52 were females and 95 firearm autopsies were between 31 to 40 years. It was revealed that in 38 autopsies, head was involved, 78 autopsies chest was involved, 76 autopsies abdomen was involved while 267 were from homicidal. Moreover, the cause of death due to firearm in maximum patients was hemorrhage followed by septicemia in 106 autopsies. According to gender wise, 38 autopsies involved head part 30 were male and 8 were female, 78 autopsies involved chest part 65 were male and 13 were female, 76 autopsies involved abdomen part 66 were male and 10 were female.
Conclusion: The high impact on the health care setups of country, which needs the immediate attention. The firearm injuries have an impact on young and older adult population.
Key words: Firearm injury, Gender, Age

INTRODUCTION

The violent injuries are among the top ten causes of deaths around the world. The violence has been declared as one of the leading problems globally[1]. Avoiding the firearms injuries and associated factors can reduces the burden of deaths caused by violent deaths. Besides being the cause of death, the firearm injuries can cause the significant morbidities, psychological and physical disabilities for individual and even communities[2].

The incidence of violent deaths specifically the firearm injuries have been increasing commonly and reflecting the worsening conditions of law in the society[3]. These are the common factors in the developing countries. The rate of violent deaths and related to firearm injuries in the developing societies are the twice as compared to high income countries[4]. A study conducted in the Northern Italy showed the mortality rates approximately 0.84 per every 100000 residents in year 2006, however the average of 12.6 cases yearly[5,6].

The firearm injuries are the causes of disabilities and mortalities in low-income societies depending on the gun access, jurisprudence, and legal regulation[7]. The low-income countries have a greater number of cases and firearm personal possessions along with the law of gun countries[8,9]. However, the fire arm related deaths cases are significantly lower than the accidental deaths, and vehicle related morbidities, the extremely higher cost for the vehicle deaths were estimated as 6 billion US dollars calculated specifically calculated for the fire arm cost in year 2014[10].

The data available on the deaths cases shows that firearm injuries cases are lower in European countries, the 200 deaths per years were reported by the Sweden possibly due to the suicidal attempts[11]. There is a constant need of documenting the firearm injuries and fire arm related mortalities which might exclude out the information and discrepancies of available data in the record of health system. According to the "health care utilization project (HCUP)" The medical literature and medical reports on the firearm injuries is too small which need to be collected[12].

The firearm injuries have also been increasing in Pakistan past two decades. The firearm injuries are the rare cause of trauma among the individuals. The increase has been observed in the firearms deaths around 14% of total mortalities due to head trauma[13]. Generally, the factors associated to the fire arm injuries and mortalities are bad prognostics skills and no availability of grade wise classifications may lead to severe outcomes, such as requirement of surgery[14]. The bad management of firearm injuries is influence by multiple factors, which recommends the conservative treatment and aggressive management eventually leading to the post-discharge care and rehabilitation[15].

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The objective of the study was to assess the pattern of firearm injuries and different effecting factors based on gender in Hyderabad, Sindh, Pakistan

MATERIALS AND METHODS

According to Law of Islamic Republic of Pakistan, if any type of firearm injury will happen in the country it should be reported in the concerned major hospital of the city. Further, the proceedings were maintained and handled officially in the medicolegal department of the hospital and fulfils all the protocols i.e., post-mortem and autopsy. The current study was designed to analyzed the pattern of firearm injuries in medicolegal department of Liaquat University of Medical and Health Sciences Jamshoro and Hyderabad from 1st January 2017 to 31st December 2019 after approval from IRB. The study was focused on three variables gender, age and locality. A total of 319 autopsies based on purposive sampling method were revealed the death due to firearm injuries. For the purpose of the study, firearm death was defined as "death due to firearm weapons either by oneself or a third person." Whoever meets this criterion was included in the study irrespective of any socio demographic variables. Informed consent was also taken from the concerned department for collection of data. The age equal or more than 20 years and less than 70 were included in the study. The demographic information, pattern of death due to firearm and which part of body were recorded. The data were descriptively explained using Microsoft excel.

RESULTS

There were 267 males and 52 females and maximum firearms autopsies were present in males as compared to females. While there are five categories of age in which maximum age of firearm autopsies were from 31 to 40 years and the frequency was 95 followed by 79 from 51 to 60 years of age (Table 1).

Out of 319 autopsies, it was revealed that in 38 autopsies, head was involved, 78 autopsies chest was involved, 76 autopsies abdomen was involved, 32 autopsies upper limb was involved, 42 autopsies lower limb was involved, 27 autopsies head and abdomen and 26 autopsies lower limb and abdomen was involved (Table 2).

It was clearly stated that 267 were from homicidal, 38 were from suicidal act and 14 were accidentally mode due to firearm (Table 3). The cause of death due to firearm in maximum patients was haemorrhage followed by septicemia in 106 autopsies while 35 had coma and 39 deaths due to some other reason (Table 4).

Table 5 described the parts involved in firearm on the basis of gender that shows the trend of firearms according to gender wise. Different parts were involved such as head, chest, abdomen, upper limb, lower limb and combinations. According to gender wise, 38 autopsies involved head part 30 were male and 8 were female, 78 autopsies involved chest part 65 were male and 13 were female, 76 autopsies involved abdomen part 66 were male and 10 were female, 32 autopsies involved upper limb part 26 were male and 6 were female, 42 autopsies involved lower limb part 33 were male and 9 were female, 27 autopsies involved head and abdomen part 23 were male and 4 were female and 26 autopsies involved lower limb and abdomen part 24 were male and 2 were female.

Table 1: Frequency of age and genders (n=319)

Variable	No.	%
Gender		
Male	267	75.85
Female	52	24.15
Age (years)		
20 - 30	43	13.47
31 - 40	95	29.78
41 - 50	56	17.55
51 - 60	79	24.76
61 - 70	46	14.42

Table 2: Frequency of parts involved in firearm injury (n=319)

Parts involved	No.	%
Head	38	11.91
Chest	78	24.45
Abdomen	76	23.82
Upper limb	32	10.03
Lower limb	42	13.16
Head and abdomen	27	8.46
Lower limb and abdomen	26	8.15

Table 3: Mode of death due to firearm (n=319)

Mode of death	No.	%
Homicidal	267	83.70
Suicidal	38	11.91
Accidental	14	4.39

Table 4: Cause of death due to firearm

Cause of death	No.	%
Hemorrhage	139	43.57
Septicemia	106	33.23
Coma	35	10.97
Others	39	12.22

Table 5: Parts involved in firearm based on gender (n=319)

Variable	Body parts involved						
	Head (n=38)	Chest (n=78)	Abdomen (n=76)	Upper limb (n=32)	Lower limb (n=42)	Head & abdomen (n=26)	Lower limb & abdomen (n=26)
Male	30 (78.95%)	65 (83.33%)	66 (86.84%)	26 (81.25%)	33 (78.57%)	23 (85.19%)	24 (92.30%)
Female	8 (21.05%)	13 (16.67%)	10 (13.16%)	6 (18.75%)	9 (21.43%)	4 (14.81%)	2 (7.70%)

DISCUSSION

Our study revealed the male gender was predominate in firearm injury cases, however the females were in minority representing 24.1% similar findings were published by the study.[16] There are several factors involves in the firearm injuries for that the age groups showed majority of cases 24.7% within the range of 51-60 years. Kaufman et al[17] conducted on the age group also supports the finding of our study. In the present study, firearms showed the similar findings, the chest was among majority of cases representing the 24.4%. Among the least fining of parts involved were lower limb and abdomen showing the results 8.1%.[18] The gender distribution in fire arm injuries showed

the relevant results to the previous studies, as head injuries were more frequent among males compared with females showing the 78.9% contribution which is in accordance with the study.[19] We have found in our study that fire arm injuries effect the people inappropriate, cases regardless of gender sometimes the cases have been found in the study[20]. The trends have been reported widely in worldwide studies. Similarly in our study the injury cases represent the accidental cases and these trends are followed by un-intentional scenarios.[21] The findings are in accordance with studies. The global research supports that 60% of unintentional accidental cases.[3] Unlike the results of another study the cases of our study showed more deaths in homicidal injuries, which is quite deviate from the referenced studies[16].

The suicidal cases were way less than the homicidal which is a point of exception. The violence of firearms continues to be the major public health concern united states and these cases are worse condition in developing countries. The head and abdomen injuries were predominantly found in males, resulting the 92.3% cases collectively which shows the agreement to the results of study conducted previously[22]. Firearms homicides involving the male gender particularly the older adults have been seen in assault cases, and crime cases are dominants in our study. The data indicate the consistent results of researches among older adults[23]. Our findings indicate the causes of deaths due to hemorrhages around 43.5% however the majority of death cases were declared by hemorrhage among all other possibilities which indicates the similarity of our results with the previous research study[24].

The deaths followed by the comas were 10.9% which slightly deviates from the findings of the study conducted on the medio-legal findings on firearm injuries on data of 2005-2010.[4] The septicemia cases and leading to deaths were declared in 33.23% of cases were similar with the results of study showing the coma cases less than 50%.[25] The firearm injuries are not only a concern of deaths cases but daily threat at workplaces, neighborhoods, at public and private places in all countries. The policy makers are in continuous struggle to build and strengthen the ACP policies. Our study is subject to few limitations since lack of complete information plays a role in these scenarios. The firearm injuries effect the people of all ages particularly older adults and hence has a huge impact on the overall health care setups.

CONCLUSION

The study demonstrates the high impact on the health care setups of country, which needs the immediate attention. The firearm injuries have an impact on young and older adult population. The appropriate autopsy findings require the expert staff in the intensive care units (ICU) which can support and persuade the importance of autopsies in teachings and quality assurance programs related to clinical autopsies along with the collaboration of pathology experts as part of cost supporting team.

Conflict of interest: Nil

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