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THE STUDY OF ASSAULT CASES IN CLINICAL FORENSIC MEDICINE UNIT AT APEX INSTITUTE

Forensic Medicine

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ABSTRACT

Background: The present study has been carried out at the casualty and Emergency Department in tertiary care hospital and Medical College during the period of November 2010 to October 2012, on 813 medicolegal cases of interpersonal violence brought for treatment and injury certification were studied comprising 606 males and 207 females in the age range of 11 to 70 years.

Objectives: The study was carried out to evaluate the patterns of injuries in the victims of interpersonal violence with respect to age and gender of the victims, time of occurrence, residence of victims, places of occurrence, patterns of injuries sustained, time interval between the incident of interpersonal violence and the reporting of the victims to the emergency department. To evaluate the assailants involved in attacking their victims with respect to their number, gender, relationship with the victim and the predisposing factors behind the assault. To evaluate various kinds of weapons used by the perpetrators in executing their attacks according to the places of occurrence of the attacks and the gender of the victims.

Conclusions: Young males residing at urban areas are most common victims of interpersonal violence. They are often attacked on streets at night, by a single, stranger male while females are usually targeted indoors by spouse. Most important predisposing factor behind the assaults was financial dispute. Injury certification and treatment of female victims is usually delayed due to late reporting. Perpetrators prefer blunt weapons and target head neck face regions of the victims. Hard and blunt weapons are predominantly used indoors on females than outdoors on males. More than half of the violent episodes on males were associated with alcohol consumption by the victim.

KEYWORDS:

Assault, Interpersonal violence, Type of injury.

Introduction

The history of trauma parallels the history of the evolution of man, with his aggressive instincts, creative ability, and endless ambition to conquer the environment without regard to the price he must pay to achieve his goals.[1] In recent years, violence has been identified as an important health problem in industrialised societies. The reasons are very complex, and may have less to do with absolute increases in the amount of violence than in the realisation that problems such as domestic violence exist and that the severity of injuries from assaults has increased with the increase in lethal weapons.[2,3] Factors such as territory, overcrowding, gender, culture and intrusion of media all influence the incidence of urban crowd violence.[4] Chronic high rates of such violence deter investment, erode social cohesion, limit access to employment and educational opportunities, drain state resources, and threaten governance at various levels.

Currently in most developed nations programmes are in place to control the burden of violence in the community, but developing countries do not have such surveillance or report system in place.[5] The World Health Organization has provided guidelines to initiate violence prevention activities in all countries, the first step of which is the surveillance of violence related deaths and injuries. An integrated approach between law and order authorities and medical facilities has been used in other countries. Combined police and emergency department data have been used to develop a comprehensive system for tracking weapon related injuries in Massachusetts.[6]

According to the WHO burden of disease estimates in the year 2004, in all forms of violence accounted for a total of 1,642,000 deaths and was equivalent to 2.8 % of deaths due to all causes.[7] Nevertheless, patterns of violence and its related risk factors vary in different parts of the world. The pattern differs in various parts of the world according to financial and legal differences and availability of weapons.[8] The National Crimes Records Bureau (NCRB), Ministry of Home Affairs, Government of India 2011 report states that a total of 256,329 violent crimes were reported in India in year 2011 and the crimes under Indian Penal Code (IPC) have registered a 2.5% rise in 2011 over previous year.[9]

Injury data provide a measure of serious violence which is independent of police measures — which are often inaccurate or incomplete. Recording injuries treated in emergency departments has the potential for largely complete coverage of serious community violence. Such recording provides local information of importance to the police — location, time, weapon, type of incident, relationship with attacker — that will help them respond. Injury data would provide a new performance indicator of policing at police force level. The injury data can include outcome information on the injured victim, which is currently lacking in police reports. Also injury data provide a set of measures which are compatible with other data sources.[10] A detailed evaluation of mechanism and causation of the injuries due to interpersonal violence in a developing country like India has not been described previously. Hence the present study was designed to demonstrate the distribution of mechanical injuries sustained as a result of interpersonal violence.

Material and Methods:

The study is a prospective study confined to the victims of non fatal assault related injuries brought for treatment and medicolegal evaluation at the emergency department of this medical college. The study comprised of total 813 cases of assault. A full informed consent was taken from the victims participating in this study. In case of unconscious, un-cooperative patients incapable of giving a valid consent; the consent was obtained from the close relatives accompan ying them. Institutional ethical committee approval for conducting the study was obtained.

Observations and Results

Age and gender wise distribution of the victims

It was observed that out of the total 813 cases included in this study 606 victims (74.53%) were males and 207 victims (25.47%) were females. The age groups 11 to 20 years and 21 to 30 years constituted the maximum numbers of the victims as 310 (38.13%) and 244 (30%).

Table 1: Age and gender wise distribution of the victims

Age (in years)	No. of victims		Total
	Males	Females	
0 to 10	00	00	00
11 to 20	188	56	244
21 to 30	222	88	310
31 to 40	96	36	132
41 to 50	65	19	84
51 to 60	26	8	34
61 to 70	09	00	09
71 to 80	00	00	00
Total	606	207	813

Place of occurrence of assault

It was observed that out of total 813 victims of assault, 466 victims (57.31%) were attacked on the streets followed by 225 victims (27.67%) at home, 65 (8%) victims at bars and pubs while 25 (3%) victims were attacked at the workplaces.

Table 2 Showing place of occurrence of Assault

Sr. No.	Place of Occurrence	No. of incidents	No. of victims	
			Males	Females
1.	Street	466	454	12
2.	Home	225	40	185
3.	Bars	65	65	00
4.	Workplace	25	21	04
5.	Others	27	21	06
6.	Unknown	05	05	00
Total		813	606	207

Time of reporting to hospital

Out of total 606 male victims, 542 (89.43%) reported to emergency department within 24 hours of the incident and 64 (10.57%) Were reported after 24 hours of the incident. Among 207 female victims only 59 (28.5%) victims had reported within first 24 hours of the incident while the reporting in 148 (71.5%) cases was delayed beyond 24 hours.

Gender-wise distribution of the assailants

Out of total 813 cases in as many as 725 (89.17%) incidents the assailants were males. The victims of these male assailants were males in 592 (72.81%) cases and females in 133 (16.35%) cases. Females were assailants in 33 (4.05%) cases; however their victims were females only. Both males and females were involved in 49 (6%) incidents and women were their more common targets.

Relation of the assailant with the victim

Male victims were most commonly attacked by strangers as seen in 378 (62.37%) cases followed by acquaintances as seen in 190 (31.35%) cases. These were followed by neighbours 28 cases (4.62%) and family members 10 cases (1.65%)

Place of occurrence and weapons used in assault

Hard and blunt objects were the most commonly used weapons by the assilants in 568 (58.61%) cases. Sharp edged weapons were used in 194 cases (20.02%). Pointed weapons were used in 168 (17.33%) incidents of assaults. Heavy cutting weapons and firearms though used very rarely they were mostly confined to street assaults.

Table 3 Showing place of occurrence and weapons used in assault

Place of occurrence	Kind of the weapon used					Total
	Hard Blunt	Sharp	Pointed	Heavy cutting	Firearms	
Streets	301	117	111	18	14	561
Homes	184	55	30	00	00	269
Bars	41	13	18	01	00	73
Workplaces	20	04	03	02	01	30
Others	20	03	04	02	01	30
Not Known	02	02	02	00	00	06
Total	568	194	168	23	16	-

Site of the injury over the body

Head neck and face were the most commonly involved sites as seen in 591 (41.29%) cases followed by upper limbs in 445 (31.09%) cases. Chest and lower limbs were respectively involved in 163 (11.39%) and 107 (7.47%) cases. Injuries to perineum were seen only in 11 cases and were exclusively in males.

Types of injuries sustained to victim (n=813)

Contusions were the most frequently observed type of injury, seen in 485 cases (27.63%) followed by lacerations in 420 cases (23.93%) and abrasions in 243 cases (13.83%). Fractures amounted for 210 cases (11.90%). Stab wounds and incised wounds were observed in 168 (9.57%) and 190 (10.82%) victims respectively. Firearm injuries and chop wounds were relatively rare as seen in 23 (1.31%) and 16 (0.9%) cases respectively and were exclusively limited to male victims. About 570 cases suffered from more than one type of injury.

Fracture of bones in body

It was observed that 210 (25.83%) victims sustained at least one fracture. Multiple site involvement was seen in 41 (5.04%) victims. Most of the fractures were confined to the head neck face region (166 factures, 66.66%). Cranial fractures (84 cases, 33.73%) were most commonly seen followed by fractures of facial bones (82 cases, 32.93%). Bones of upper limbs were fractured in 65 cases (26.10%). Rib fractures were least common.

Discussion

WHO report of 2002 on violence states that interpersonal violence leads to premature mortality and 90% of this mortality occurs in the low and middle income countries. It also states that most violence results in nonfatal injuries. Until recently this aspect was dealt with only through the criminal justice system. With the launch of the WHO report on violence, there is growing recognition of the necessity to have a surveillance system in place as the first step in the effort to control violence and its consequences.[11]

Out of total 813 victims of interpersonal violence observed in this study 75% were males and 25% victims were females. Maximum numbers of the victims were confined to age groups 21 to 30 years and 11 to 20 years which constituted 38% and 30% victims respectively. The peak age of presentation for both male and female victims was between 21 to 30 years. The mean age for the victims was 27.38 years. The mean age for female victims was 26.58 years while that for male victims was [27.65] years. These findings were consistent with that of Shepherd et al12, Breiting et al[13], Fothergill et al[14], Butchart et al[15], Van Gledermalsen et al[16], Wright et al[17]. This gives an indication over the socio-economic implication on the family and society, more so in India because the middle aged groups are involved and they are more likely to be earner for the family. Preponderance of the male victims in the study could be due to the inherent nature of the males who are more aggressive and more inclined towards violent behavior, presence of aggravating factors like use of alcohol and drugs and the fact that they are out doors and are at more risk.

It was observed that 78% victims from this study were natives of urban areas whereas 22% victims were from rural areas. This hospital serves as a tertiary medical care center mainly for urban population.

Streets were the most common places of assault. As many as 57% victims were attacked on streets followed by homes where 28% victims were attacked. 8% victims were assaulted at pubs and bars, and 3% were attacked at workplaces. Similar findings were observed by Shepherd et al[12], Hocking et al[18], Wright et al[17], J George[19].

89% male victims were brought to emergency departments within 24 hours of the alleged assault while as far as female victims were concerned only 28% of them were able to make it to the emergency department within 24 hours of the attack. As many as 82% female victims of domestic violence were brought after more than 24 hours had elapsed since the incident. The reporting of domestic violence by female victims to the police and then subsequently to the emergency departments is often delayed as most of females will conceal true nature and cause of their injuries through fear, embarrassment or feeling of isolation despite being given the opportunity to discuss it.

We observed that, 62% male victims were attacked by strangers followed by 31% by acquaintances. Neighbours (5%) and family members (10%) were less commonly involved. No case of spouse perpetrated assault on male victim was seen. Similar findings of males being more common victims of stranger perpetrated assaults were observed by M A hocking et al[18], Fothergill et al[14], George[19], Hofnera et al[20]. Considering female victims of physical assaults we observed that they were most commonly victimized by spouse (54%) followed by family members (29%) and neighbours (12%). Female victims were least commonly targeted by strangers as observed only in 2 cases. The findings were in accordance with Van geldermalsen et al16, Hofnera et al20. Also, Van Glendermalsen et al[16].

We observed that financial dispute (44%) was the most predominant one. Alcohol intoxication predisposed in 26% cases. 111 (13%) cases of violence in the hands of husband (intimate partner violence) were noted in this study wherein various factors such as argument, economic constraints, dowry, infidelity, suspicion etc. resulted in physical assaults.

Hard and blunt (59%) objects were the most frequently used weapons followed by sharp edged weapons (20%) and pointed weapons (17%).

Use of heavy cutting weapons and firearms were extremely rare. The findings were in accordance with Brink et al[8], Fothergill et al[14], Van Geldermalsen et al[16], Wright et al.[17]. Hard and blunt weapon use was more common at home (68%) than on streets (54%). While sharp and pointed weapons were more frequently used at the streets (40.64%) than that at homes (31.59%). As far as workplaces were concerned hard and blunt weapons (67%) were most frequently used. The findings were consistent with Gunay et al[21] who had observed that hard and blunt weapons were used more frequently at homes (55%) than outdoors (42%) also, sharps were commonly used outdoors (29%) than at homes (18%). They reported that assaults at workplaces more commonly involved hard and blunt weapons (44%) than sharps (30%).

Head neck face region (41%) was most commonly involved followed by upper limbs (31%). Chest and lower limbs involvement was respectively seen in 11% and 7% cases. When the gender wise distribution of injuries was considered head neck face involvement was seen more frequently in females (55%) than in males (37%). Injuries to upper limbs were slightly more common among females (33%) than males (30%). Injuries to chest and abdomen were predominantly seen in males than females. The preponderance of injuries over head neck and face region might be due to intent of assailant and the reaction of the victims. The upper limbs must have been used to protect themselves from an impending attack.

Contusions (28%), lacerations (24%) and abrasions (14%) were the most commonly observed injuries. Fractures were present in 12% cases. Stab wounds and incised wounds were seen in 9% and 11% cases respectively. Firearm injuries and chop wounds were extremely rare. When the gender distribution in type on injuries sustained was assessed we observed that contusions and abrasions were more commonly seen in female victims (35% and 18% respectively) than those in males (25% and 12% respectively). Remaining injuries were more common among male victims. The findings were consistent with that of Shepherd et al[12] who had observed that contusions were more common in female victims (85%) as compared to male victims (62%). Similary Mollen et al22 had reported that females were more likely than males to sustain a contusion or abrasion. We observed that, 32 (5.28%) male and 17 (8.21%) female victims in our study were exposed to strangulation attempts.

Total of 249 fractures were noted in this study. It was observed that 210 (25.83%) victims sustained at least one fracture. 41 victims had sustained fractures at multiple sites. Most of the fractures were located in head neck face region (67%). Upper limb bones were fractured in 26% cases. Similarly, in their two studies, Shepherd et al12, had observed that as many as 89% and 83% fractures respectively were located over the face. These findings were also consistent with that of Wright et al17. Considering gender wise distribution, most frequent fracture site for males was skull (38%) and that for females was face (67%). Facial fractures were more commonly seen in females (67%) than males (25%). The findings were consistent with that of Fothergill et al14, who had observed that facial fractures were seen in 67% males and 78% females.

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