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Injuries Due To Violence Extreme (Firearm) In an Urban Population 3 Years Analysis

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Abstract

Background: Injuries from violent methods in emerging tourist cities have increased alarmingly. The objective of this review was to know the prevalence of violent firearm injuries.

Material and Method: A descriptive and cross-sectional study on patients with penetrating firearm trauma over a period of 3 years (2017-2019).

Results: During the period 235 homicides were committed in this city and our hospital treated 88 (37%) cases that survived the initial aggression and were admitted to the shock unit; 51 (58%) cases were gunshot injuries; 19 cases entered in shock.

Discussion: In a study over a period of 4 years (2014-2017), there were 26 cases of penetrating injuries, 2 cases per firearm, with an annual rate of 0.8 / 100,000 inhabitants. However, in the last 3 years (2017-2019) there were 51 cases of firearm injuries with an annual rate of 20.4 / 100,000 inhabitants.

Conclusions: Criminal violence affects health services because they entail catastrophic expenses, however, the results obtained in the care of victims who were admitted to the hospital was treated efficiently with low morbidity and mortality.

Keywords: Trauma; Violence; Gunshot wounds; Mortality; Violence

Background

Injuries from violent methods have been present in Mexico for years but in emerging tourist cities such as Playa del Carmen, Quintana Roo. México, this phenomenon had not occurred since its foundation until recently. Currently, deaths and injuries caused by firearms have been exponentially presented both by the population growth of the same city as well as the diversity of its population that is heterogeneous by national and international migration in this new tourist development pole [1]. The objective of this review is to know the prevalence of these violent injuries in the city during the last 3 years (2017-2019) and to take into consideration the hospital services required for the care of patients presenting with these injuries.

Material and Method

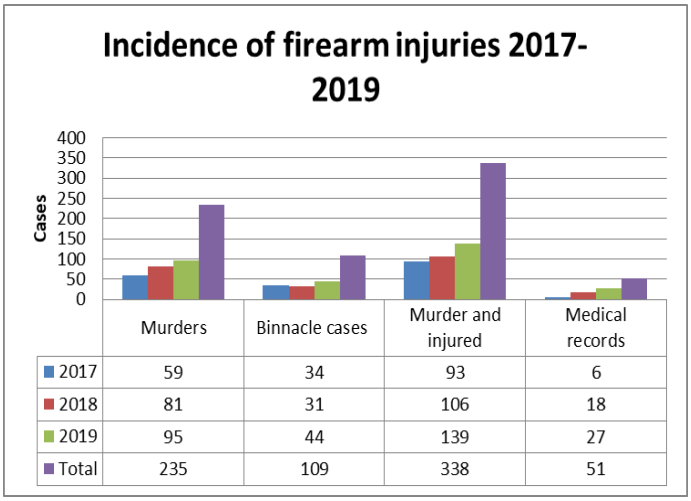
A descriptive and cross-sectional study on patients with penetrating firearm trauma in any part of the body for a period of three-years (2017-2019).

Inclusion criteria: patients admitted to the shock area due to penetrating firearm injuries, of both sexes, of all ages, and with a complete file.

Exclusion criteria: all patients admitted to the shock unit for causes not due to this means of physical aggression, incomplete files or no records. Descriptive statistics were used for analysis.

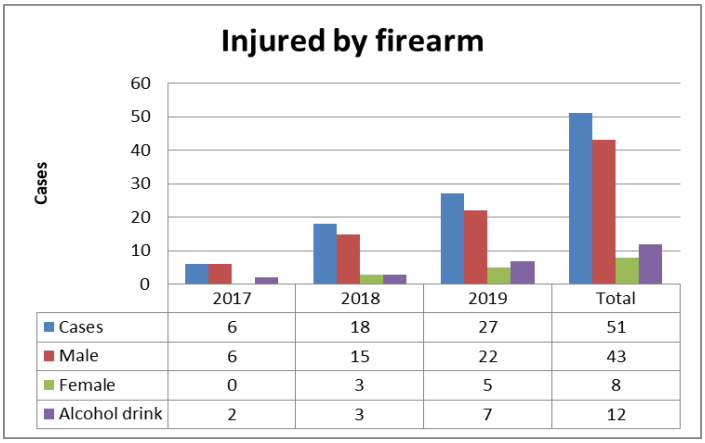
Results

During the years 2017-2019, 235 homicides were committed in this city and our hospital treated 51 patients who survived the initial aggression and were treated in the shock unit, operating room, intensive care, and hospitalization; with the support of X-rays, Laboratory and Blood Bank (Figure 1).



	Murders	Binnacle cases	Murder and injured	Medical records
2017	59	34	93	6
2018	81	31	106	18
2019	95	44	139	27
Total	235	109	338	51

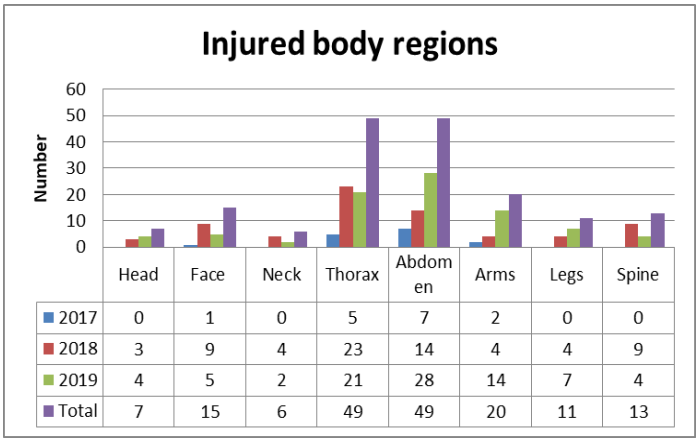
Figure 1: *Incidence of firearm injuries.*



	2017	2018	2019	Total
Cases	6	18	27	51
Male	6	15	22	43
Female	0	3	5	8
Alcohol drink	2	3	7	12

Figure 2: *Characteristics of the gunshot wounded.*

Of the 51 (100%) cases treated, 43 (84%) corresponded to the male sex and 8 (16%) to the female sex, and 12 (24%) were related to alcohol intake (Figure 2), 19 (37%) entered the resuscitation unit in a state of shock, 15 (29%) had a pleural catheter, 40 (78%) went to the operating room once stabilized, 11 (22%) presented postoperative complications, 21 (41%) were admitted to the Intensive Care Unit and there were 3 (6%) deaths in the operating room and the Intensive Care Unit (Figure 3).



	Head	Face	Neck	Thorax	Abdomen	Arms	Legs	Spine
2017	0	1	0	5	7	2	0	0
2018	3	9	4	23	14	4	4	9
2019	4	5	2	21	28	14	7	4
Total	7	15	6	49	49	20	11	13

Figure 3: *Injured body regions in patients treated for gunshot wounds.*

The most injured regions were left thorax with 18 (35%), right thorax 27 (53%) and abdomen with 27 (53%) cases operated by exploratory laparotomy with various lesions to intra-abdominal organs of the digestive system and 4 (8%) With renal injury, all cases were resolved with the established protocols for emergencies and / or with rescue surgery and subsequent second look. The facial injuries were treated by maxillofacial surgery, the upper and lower limb injuries by Orthopaedics and the head injuries by neurosurgery. There was only a third level transfer in the case of severe lung damage. Regarding the statistical analysis for age and in-hospital days, there was no significant difference due to the homogeneity of the injured group (Tables 1 and 2).

Table 1: *Variables of patients treated for gunshot wound.*

Variables	Years and percentages						Total
	2017	%	2018	%	2019	%	
Shock	4	21	6	32	9	47	19
Pleural catheter	1	4	10	44	12	52	23
Laparotomy	4	10	16	40	20	50	40
Complications	1	8	4	36	6	56	11
Admission ICU	2	13	5	33	8	54	15
Voluntary discharge	0	0	1	50	1	50	2
Mortality	0	0	1	33	2	67	3
Renal injury/nephrectomy	2	50	1	25	1	25	4

Table 2: *Age and Long of stays (LOS) of bullet wounded.*

Years	Parameter	Average	Median	Mode	SD	Range	Min	Max
2017	Age	29	29	N/A	10.5	30	17	47
	LOS	6	5	N/A	5.3	14	1	15
2018	Age	30	30	40	9.8	35	16	51
	LOS	10	7	3	9.4	31	1	32
2019	Age	30	30	33	9.23	32	16	48
	LOS	7	5	3	9	39	1	40

Discussion

In a previous study on the subject during a period of 4 years (2014-2017) there were 26 cases of penetrating injuries, two cases by firearm, with an annual rate of 0.8 / 1000,000 inhabitants in that period.1 Without, However, in the last 3 years (2017-2019) there were 51 cases of various injuries with an annual rate of 20.4 / 100,000 inhabitants [2]. In Mexico, during the period 2000-2007 78,784 homicides were occupying the second place after the traffic accidents, but the first cause in the individuals between 15 and 44 years of age. In that same period, it had a rate of 10.5 / 100,000 inhabitants; the demographic aspects of those involved in acts of violence have a large component of socioeconomic inequities in such a way that the individuals who present these injuries lack formal work, low educational level and lack of values [3]. In a 6-year study at the Central Military Hospital, 246 patients were treated for gunshot wounds with results similar to ours. Report that this type of injured repeat their activities and normally return to the hospital for new injuries of the same origin [4,5]. Alcohol has little participation in this class of injuries because the reasons are different from the injuries caused by other means and for other reasons (assault, quarrels, self-inflicted) since in our study we only had 12 cases (24%) with this association [6]. The caliber of firearms and the injured region are the cause of the great non-hospital mortality observed in our environment [7]. So that the projectile's behaviour during its trajectory and will modify its effects on body tissues are speed, profile, stability, power of expansion and/or fragmentation and the presence of secondary impacts. Speed is probably the most important factor in the evaluation of a gunshot wound, since it is what determines the trajectory of the projectile, at a higher speed the trajectory is straighter and if the distance is short, the projectile keeps practically all its energy. Projectiles are not sterile and it is necessary to indicate antibiotics from the beginning of care. The only indications for removing a PAF would be when they are intracardiac, intra-articular or in the vicinity of an important joint and / or vessel [8]. In their study over a period of 7 years, found that firearm injuries have increased and with the hospital costs for their care [9]. The lesions found in these patients are multiple (colon; solid organs; vascular; spine) [10-15].

Prehospital management is of vital importance and individuals with the first contact with the injured should know how to control the bleeding, immobilize the patient, triage so that they can arrive alive at the hospital [16]. In Ciudad Juárez, Chihuahua, Mexico, a Citizen Security, and Coexistence Observatory was implemented through the efforts of local universities, the Pan American Health Organization whose objective is to propose strategies and recommendations of public policies for the prevention and control of violence and its consequences also with the participation of the three levels of government (federal, state and municipality) a successful model to be replicated in cities where violence has increased recently [17]. South Africa implemented observatories with positive results for the reduction of violence [violence, injury and trauma observatory (VITO)]. The Delphi project is another effort aimed at reducing violence and its consequences [18,19]. It is recommended that the health personnel who treat these patients interact with them to raise awareness of their problems and try not to suffer unnecessary relapses that once again put the life of the injured at risk [20]. On the part of the authorities it is advisable to take practical measures to deal with this situation and among them are: increase in the number of police officers, increase in patrols, incorporate body cameras to patrol elements, Shots potter audio technology, and detection of the number of license plates. All vehicles that pass through the city with its database. Increase the number of cameras, more mobile observation platforms and an anonymous interactive alert from the Network (iCan) community like Camden, New Jersey, United States [21]. Another important aspect is related to the documentation of care for the injured such as the number of injuries, which caused the injuries, type of injuries, associated injuries, entry and exit of the injury, patient status, studies performed, etc., which they are legal for the investigation of the facts and that corresponds to the doctors accusation in these details [22].

Conclusion

Criminal violence affects health services because they entail catastrophic expenditure that is difficult to cover, however, the results obtained in the care of victims who entered our hospital were duly treated with minimal in-hospital mortality.

Conflict of Interests

The author declare no conflict of interest

Financing

There were no sources of funding for this work

Ethical Responsibilities

Protection of people and animals: The author declare that no experiments were performed on humans or animals for this research.

Confidentiality of data: The author declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent: The author declares that no patient data appear in this article.

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