

Weapon Related Injuries in Cairo During A Turn of Civilian Violence in 2013: An Overview



Medical Science

KEYWORDS : Firearm injury; gunshot wounds; wounded civilians.

Gamal M SAIED

Department of General Surgery, Faculty of Medicine, Cairo University, Egypt.

Karim G MOUSTAFA

National Research Center (Affiliation ID60014618) Ministry of Scientific Research, Egypt.

ABSTRACT

Armed violence in Egypt during the recent years has involved civilians resulting in extensive injuries and when severe, death. During a 3 months episode in 2013, a total of 841 hospital files of firearm - wounded victims were analyzed. The hospitals were near Tahrir Square where chaos was at a maximum. Some of the victims were clinically examined. Emphasis on medical neutrality, the rights of the wounded and the need for social and psychiatric support to the victims is implied. Results have shown that 72% of the victims were young males wounded in their lower extremity in 29.8 %, upper in 22.6%, globe in 19.0% and trunk in 4.4%. In 13.08% wounds affected more than one region of the body. Social support to the injured was inadequate, but positive steps are being taken and improvement is anticipated.

BACKGROUND

Facing armed demonstrators, measures used by the security forces to control chaos were physical or chemical (Ballantyne, 2006) Physical means included sticks, water cannons, projectiles and live ammunition. All result in wounds, and sometimes cause death ($\pm 3\%$). The resultant wounds could be successfully managed with adequate healthcare service (Zwi & Garfield, 2002; Mercy et al., 2002). Fortunately, civilian firearms cause more focal injuries than professional military weapons with the main impact on limbs, trunk and lastly the head and neck (Eisman, 1980). Fatalities depend on the distance of the shot, anatomical area of contact, and the timing & efficiency of the management (Solaber, 2003). For this variability, new treatment concepts are always in progress, acting principally on the extent of local wound manipulation, success of infection control, and the type of skeletal fixation used. Even though, there is no standard classification for these measures in recent literature, Haggard described three prerequisites to accomplish acceptable management: confident knowledge of the anatomy, achievement of hemorrhage control, and the timely use of potent analgesics (Henrich, 2014). Additionally these injuries have long term consequences as physical disabilities, loss of limbs, and mental health problems (Zwi & Garfield, 2002). They also cause appreciable economic loss.

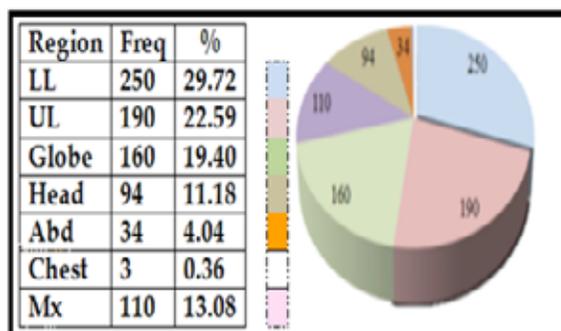
This article will evaluate the patterns of firearm injuries involving civilians during a violence episode in 2013.

METHODS

Using a convenience assignment sample, an observational study utilizing Mixed Methods Research, documented the distribution of injuries and their possible cause (Kendall, 2003; Johnson, Onwuegbuzie & Lisa, 2007). The outline of the study and its details were approved by the Ethics Committee of Surgery Department, Cairo University. The data used during a 3 month period were collected from 2 hospitals nearby Tahrir square and Cairo City Center where active civilian armed violence was occurring. The surveyed data were collected using a subsample of 841 wounded and were loaded into a table. Chemically injured victims and those having penetrating wounds were excluded.

RESULTS

Seventy two percent of cases were young males, (mean age: 30.54 ± 10.22 years). Twenty nine percent of wounds involved the lower extremity, 22.6% the upper extremity, while 19.02% were localized to eye zone. Some wounds affected more than one region of the body. All shootings were from short-distance, but some were induced by snipers from long distance



Abbreviations- Freq: frequency LL: lower limb UL: upper limb Abd: abdomen Mx: multiple anatomical regions

Figure 1: Injury by anatomical region of 841 firearm wounded victims

Procedures: There was evidence that a special pattern of wounds is present. For limbs, arterial injuries were very frequent and required immediate transport, followed by an attempt at repair as soon as the victim reached the hospital. The results were discouraging due to bad transportation amidst the overcrowded streets and one third of them required amputation due to delay, infection or both. For eye trauma it was rarely possible to save the affected globe, while for the 3 cases of isolated chest injuries only an on-site underwater seal was made. For neck trauma, the injury was exceptionally severe with no survivors, while for head trauma more than half the cases died at an early stage and survivors required dural repair under cover of broad spectrum antibiotics. Hand-gun shots to the abdomen were mostly in the lower half; principally causing single wounds with a definite exit site after injuring the small intestines or colon that were in its path. The liver & spleen were infrequently involved and all cases required exploration. In liver injuries, extensive packing was used to stop bleeding while limited injuries were managed with placement of buttress sutures. Small intestinal injuries were dealt with by resection and anastomosis, while colostomy was used for covering colonic damage. In 2 cases of kidney trauma, the patients were kept under observation and it was possible to salvage the organ in both. Vertebral injuries were treated conservatively and referred quickly to hospitals where operative intervention was the rule. Nerve damage generally resulted in permanent disabilities, while multiple skeletal injuries were dealt with by immediate maneuvering excluding those involving the pelvis, jaws and spine, where expert teams were always standing-by elsewhere. No effort was made to remove retained shots and bullets except if their presence was hazardous.

DISCUSSION

Having a sense of unfairness, young people got easily provoked and have vowed to struggle against the community through a variety of means, some nonviolent and some less so. Though many of them have criminal records, they were nominated as peaceful activists or martyrs when the turbulence was over (Fals-Stewart, Leonard & Birchler, 2005; Moran, 1999; Niaz & Shujah, 2013). The present survey illustrates that low-velocity (<600 meter/second) hand guns resulted in intentional wounds, while professional weapons caused devastating fatal injuries (Bartlett, 2003; Alberti et al., 2010). Low-energy weapons created wounds that had particular features depending on bullet energy, vital structures involved, wound characteristics, presence of fractures, efficiency of submitted medical service and the degree of wound contamination. In this analysis, most common injury sites were in the limbs, trunk and finally the head and neck, which are in accordance with previously published work (Volga, Stannard & Alonso, 2005). Shots to the extremities were multiple, associated with either vascular or nerve damage causing severe morbidity. In chest trauma the hemodynamic status of the patient dictated the management. For stable survivors, insertion of a chest tube was life saving, a universally approved policy, while unstable patients were subjected to immediate exploration (Meyer 2007; Bastos et al., 2008). In patients having abdominal wounds, authors found that Focused Abdominal Sonar for Trauma (FAST) or peritoneal lavage are very helpful with an accurate diagnostic yield, obviating the need for standard sonography or helical computed tomography (CT) as recommended by other workers (Shanmuganathan et al., 2001; Múnera, et al., 2004). Gunshots to the spine were not immediately life-threatening and field physicians followed a protocol of doing a CT or magnetic resonance imaging (MRI) to obtain an accurate diagnosis (Turgut et al., 1994). Skull injuries were constantly fatal, and bullet removal was not recommended even in a comatose patient. For survivors, dural wounds required only debridement, evacuation of hematoma and repair, under cover of broad spectrum antibiotics. (Aldrich, Eisenberg, & Saydjari, 1992). Victims having neck wounds were immediately transported to the nearest hospital with sophisticated services in order to uncover deep injuries involving arteries by Doppler study or CT angiography as stressed by many researchers (Doctor & Farwell, 2007). In the final analysis of the studied files, judgments as the usefulness of the plastic surgeon, dentist and the ophthalmologist being at the scene of injury, had been based not only on their efficiency in doing accurate repair of jaw fractures but also on sharing decision making concerning the need for immediate patient transport.

Though research in the social and legal consequences of civil violence is still growing, it is understandable that we need to find ways to spur interest in developing this issue, particularly concerning medical neutrality and the rights of the wounded. In 2002, the WHO released its first World Report on Violence and Health giving opportunities to the wounded and security forces to be dealt- with equally by [health](#) care providers without attacking and misusing medical facilities, transport, and personnel. Violation of medical neutrality rules constitutes a gross deviation of the [International Human Rights Law](#), [Medical Ethics](#) and the [Humanitarian Law](#) and comprises crimes outlined in the [Geneva Conventions](#) (1949). Additionally, we are still believers in the subject of community-acquired care giving psychological support to the victims. Different types of psychological trauma are recognized sequelae of mass injuries. Hobfoll et al. in 2007, being prominent advocates in this address assembled a panel of experts who identified five intervention principles that must be employed in this respect: a sense of safety, persuading calming, giving a sense of self and community efficacy, connectedness, and increasing the feeling of hope. As a vivid example, these principles were successfully implemented for Rwandans who survived the insult of genocide in the last century by creation and transmission of positive stories carrying their hope, challenges and aspiration to others (Lala et al., 2014). Such important themes, were loosely taken in our case, and were not seriously considered in the agenda of the authorities in charge. This study also highlights the need for participation of both the government and society (through independent non-governmental organizations NGOs) for psychological monitoring of victims, and for a sufficient time. This should include adequate schemes of governmentally funded programs for after-care and rehabilitation as well as for immediate financial compensation to those having no work. Our suggestion is to include these in the context of the proposed new system for health insurance in Egypt.

CONCLUSION

Handguns were the commonest weapons used in civilian firearm injuries in Cairo during turbulence in 2013. Young males were the core victims, wounded mainly in their limbs ending with severe morbidity. Living with a physical or moral disability is more than a medical condition and requires social and psychological support. This was not adequate in our case and is anticipated to improve.

REFERENCE

- [1]Alberti KP, Grellety E, Lin YC, Polonsky J, Coppens K, Encinas L, Rodrigue M, Pedalino B, Mondonge V.Violence against civilians and access to health care in North Kivu, Democratic Republic of Congo: three cross-sectional surveys. *Confl Health* 2010; 4:17 | [2]Aldrich EF, Eisenberg HM, Saydjari C. Predictors of mortality in severely head-injured patients with civilian gunshot wounds: a report from the NIH Traumatic Coma Data Bank. *Surg Neurol* 1992; 38: 418-423 | [3]Ballantyne B. Medical management of the traumatic consequences of civil unrest incidents: causation, clinical approaches, needs and advanced planning criteria. *Toxicol Rev*. 2006; 25(3):155-197. | [4]Bartlett CS. Clinical update: gunshot wound ballistics. *Clin Orthop Relat Res* 2003; (408): 28-57 | [5]Bastos R, Baisden CE, Harker L, Calhoun JH. Penetrating thoracic trauma. *Semin Thorac Cardiovasc Surg* 2008; 20: 19-25. | [6]Doctor VS, Farwell DG. Gunshot wounds to the head and neck. *Curr Opin Otolaryngol Head Neck Surg* 2007; 15: 213-218 | [7]Eisman B. Civilian gunshot wounds. *J R Soc Med* 1980; 73: 5-13 | [8]Fals-Stewart W, Leonard KE, Birchler GR. The occurrence of male-to-female intimate partner violence on days of men's drinking: the moderating effects of antisocial personality disorder. *J Consult Clin Psychol*. 2005;73:239-248 | [9]Henrich C. Evaluating the legacy of civil war medicine: amputations, anesthesia, and administration. In *TCR Singles Vol.20* (2) 2014; Will Fitzhugh ed. *Civil War Medicine*. <http://www.createspace.com/4623649>. Accessed April 22, 2015 | [10]Hobfoll, SE, Watson P, Bell CC, Bryant RA, Brymer MJ, Friedman MJ, Friedman M, Gersons BPR, de Jong JTVM, Layne CM, Maguen S, Neria Y, Norwood, A. E., Pynoos, R.S., Reissman D, Ruzek J, Shalev AY, Solomon Z, Steinberg A M and Ursano RJ. Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. *Psychiatry*; 2007;Vol. 70, No. 4: 283-315 | [11]Johnson RB, Onwuegbuzie AJ, Lisa A. Turner LA. Toward a definition of mixed methods *Research Journal of Mixed Methods Research* 2007; 1(2): 112-133 | [12]Kendall JM. Designing a research project: randomized controlled trials and their principles *Emerg Med J* 2003;20:164-168 | [13]Lala G, McGarty C, Thomas E et al. Messages of hope using positive stories of survival to assist recovery in Rwanda. *JSPR*, 2014; Vol. 2(1): 450-466 | [14]Mercy J, Butchart A, Farrington D, Cerda M. Youth violence. In: Krug E, Dahlberg L, Mercy J eds. *World report on violence and health*. Geneva: World Health Organization, 2002; 23-56. | [15]Meyer DM. Hemothorax related to trauma. *Thorac Surg Clin* 2007; 17: 47-55 | [16]Moran P. The epidemiology of antisocial personality disorder. *Social Psychiatry Psychiatr Epidemiol*. 1999;34:231-242 | [17]Múnera F, Morales C, Soto JA et al. Wounds of abdomen: evaluation of stable patients with triple-contrast helical CT. *Radiology* 2004 ; 231 (2): 399-405 | [18]Niaz K, Shujah I. Civilian perspective of firearm injuries in Bahawalpur. *J Pak Med Assoc*. 2013 ;Vol. 63, No.1: 20-24 | [19]Shanmuganathan K, Mirvis SE, Chiu WC, Killeen KL, Scalea TM. Triple-contrast helical CT in penetrating torso trauma: a prospective study to determine peritoneal violation and the need for laparotomy. *Am J Roentgenol* 2001; 177:1247-1250 | [20]Solaber BA. Epidemiology and outcome of gunshot injuries in a civilian population in West Africa. *Eur J Trauma* 2003; 29: 92-96. | [21]The Geneva Conventions of 1949 and their additional protocols. <http://www.un-documents.net/ge-p2.htm>. Published 29-10-2010. Accessed April 22, 2015 | [22]Turgut M, Ozcan OE, Güçay and Salam S. Civilian penetrating spinal firearm injuries of the spine. Results of surgical treatment with special attention to factors determining prognosis. *Arch Orthop Trauma Surg* 1994; 113: 290-293 | [23]Volgas DA, Stannard JP, Alonso JE. Current orthopaedic treatment of ballistic injuries. *Injury* 2005; 36: 380-386 | [24]Zwi A, Garfield R, Loretta A. Collective violence. In: Krug E, Dahlberg L, Mercy J eds. *World report on violence and health*. Geneva: World Health Organization, 2002; 213-239