Original Article

 Pak Armed Forces Med J 2012; 62 (3): 369-72

VARIOUS MODES OF FATALITIES AND PATTERN OF FATAL INJURIES IN THE FIELD

Syed Raza Jaffar, Muhamamd Asif Nawaz, Najam us Saqib*, Muhammad Aleem**

Armed Forces institute of Pathology Rawalpindi, *Pak Naval Ship Shifa Karachi, **General Head Quarter Rawalpindi

ABSTRACT

Objective: To determine various modes of fatalities and pattern of fatal injuries in the field.

Study Design: Descriptive study

Place and Duration: The study was carried out at the Combined Military Hospital Bannu, the base hospital of Waziristan FATA from January 2005 to October 2009.

Patients and Methods: All the soldiers brought in dead from operational area to CMH Bannu were included in the study. After entry of their personal data in admission and discharge book the detailed examination was carried out. Only percentages are presented for confidentiality purpose. However details may be provided by the author on requests routed through the authorities concerned.

Results: Gunshot wounds (33.51%), bomb blast (30.16%), mine blast (18.99%) and rocket blast (7.82%) were the common modes of fatality. Multiple injuries (two or more than two) were found on 63%, head injuries on 18%, chest injuries on 13% and abdominal injuries on 6% of all the fatal cases. Maximum numbers of fatal cases were received in the year 2005 (37.65%).

Conclusion: Most common mode of fatal injuries was gunshot wound followed by bomb blast and mine blast. Multiple injuries were the most common fatal injuries followed by head and chest injuries. There is a need for preparedness at all levels to reduce the mortality.

Keywords: Fatalities, low intensity conflicts, trauma, injuries.

INTRODUCTION

History of warfare dates back to time immemorial. Humanity has witnessed and suffered the dreadful consequences of military warfare in World War I and II. We have also experienced the conventional wars in the past in Pakistan. However the conventional warfare has been replaced by Low Intensity Conflict (LIC)[1]. LIC is generally confined to a geographic area and is often characterized by constraints on the weaponry, tactics and level of violence[2,3]. There is a dearth of literature of reporting injury patterns in troops involved in such situations. However the data for civilian population is available. Trauma in LIC involving civil population could bring injuries not usually seen in civil setup[4]. Our troops had been engaged for more than one decade to counter terrorism and thereby involved in combat activities of unconventional warfare in Waziristan, FATA.

Correspondence: Col Syed Raza Jaffar, ClassifiedPathologist, AFIP Rawalpindi
Email: raza_jaffer61@hotmail.com
Received: 17 Oct 2011; Accepted: 24 Feb 2012

Combined Military hospital (CMH) Bannu has been functioning as a base hospital of Waziristan (FATA) providing medical and surgical cover to the troops deployed in the operational areas. The aim of the study was to find out and highlight different modes of fatalities and pattern of fatal injuries in LIC amongst soldiers. This analysis may help reviewing the current medical and protective strategies in use in these unconventional war conditions.

PATIENTS AND METHODS

The descriptive study was carried out in CMH Bannu from Jan 2005 to Oct 2009. All the soldiers brought in dead from the operational area were included in this study. As per routine, after entry of personal data in admission and discharge book (A & D book) kept at the Medical Reception Centre (MRC), the bodies were shifted to mortuary for detailed examination. Clinical notes by Medical officers (MOs) in the operational area were also reviewed. Only percentages were determined for presentation of the data which was analyzed using Microsoft excel. Actual number (n) of fatal cases is not presented but the related

percentages are mentioned. However the details may be provided if the request is routed and approved by the concerned authorities.

RESULTS

Different modes of fatal injuries are shown in Table. Gunshot (33.51%) was the commonest mode of fatal injury followed by bomb blast (30.16%), mine blast (18.99%) and rocket blast (7.82%), MT accidents (2.79%) and other modes (6.70%).

The distribution of fatal injury sites in the gunshot fatal cases is shown in figure 1. Head injuries were found in 40% followed by 32% in the chest area, 18% on multiple sites (2 or more than 2 sites) and 10% on abdomen. Pattern of fatal injuries in all the fatal cases in figure 2 shows 63% multiple injuries (2 or more than 2 injuries) followed by head injuries 18%, chest injuries 13% and abdominal injuries 6%. In the multiple injuries categories, 85% were multiple splinter injuries due to bombs, mine and rocket blasts and 15% due to gunshots and MT accidents.

Out of total fatal cases 37.65% were received from operation area in the year 2005, 13.81% in year 2006, 27.62% in year 2007, 12.55% in 2008 and 8.37% in 2009 (till October) as shown in figure 3.

Table: Different modes of fatal injuries in field (%) - CMH Bannu Jan 2005 to October 2009.

Modes	%
Gunshot	**33.51**
Bomb blast	**30.16**
Mine blast	**18.99**
Rocket blast	**7.82**
MT (Mechanical transport) Accident	**2.79**
Others	**6.70**
Accidental gunshot	**3.90**
Heli crash	**2.24**
Electrocution by lightning	**0.56**

*multiple modes of injury were observed in a patient.

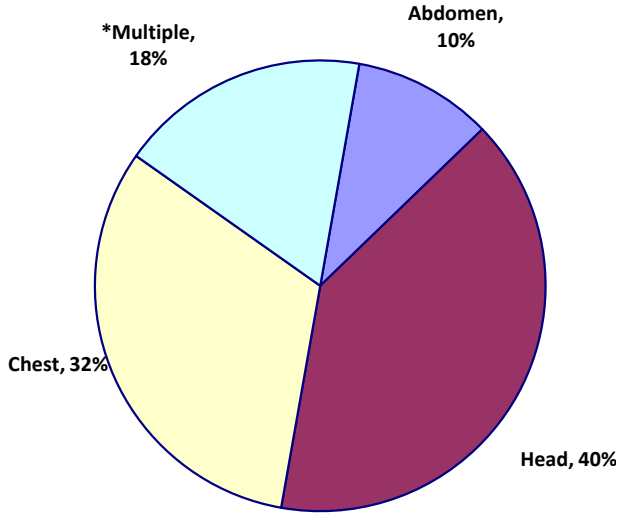

Fig 1: Distribution of fatal injury sites in the body – gunshot wounds (*two or more than two sites).

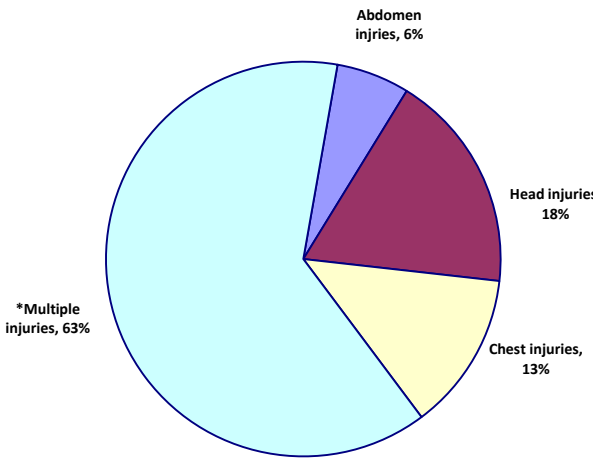

Fig 2: Pattern of fatal injuries in all the fatal cases – Jan 2005 to Oct 2009 CMH Bannu (* two or more than 2 sites)

DISCUSSION

There is a paucity of literature over the subject and a need exists to share this information with the colleagues for appraisal and preparedness, since outcome of such warfare is quiet different from conventional warfare. Hassan et al reported 51% of the soldiers received multiple fatal injuries, while head (46%) and chest (44%) were the commonest sites of fatal injuries in troops fighting in the western front[5]. This study supports our results in which 63% of troops received multiple fatal injuries and head (40%), chest (32%) were the commonest sites for fatal gunshot wounds.

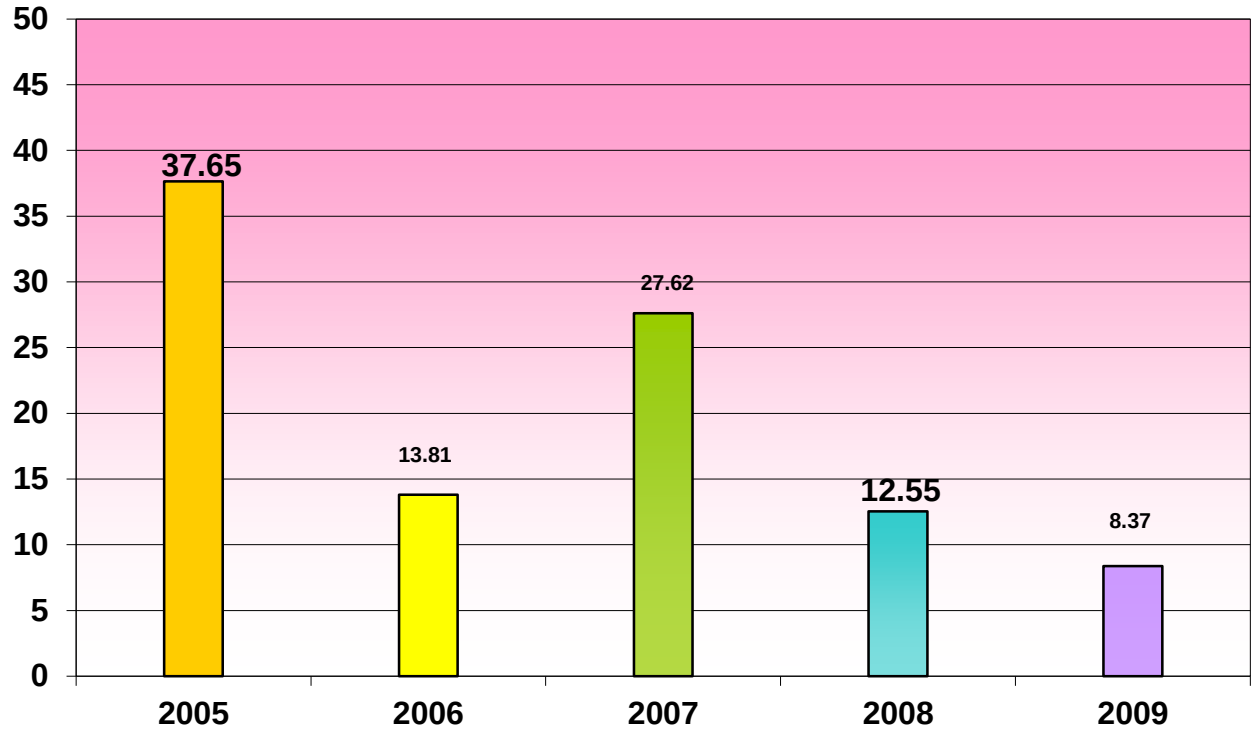

Fig 3: Year wise distribution of fatalities – Jan 2005 to Oct 2009 in CMH Bannu.

Head (40%) and chest (32%) injuries are among the commonest sites involved in a single fatal gunshot sniper fire. It is common in this kind of warfare and point towards lack of adequate protection of head and chest by the soldiers. There is a need to emphasize the importance of wearing protective headgear and bullet proof jackets.

Pattern of fatal injuries in all the fatal cases showed 63% multiple injuries (2 or more than 2 injuries) as the most common injury. Majority (85%) sustained splinter injuries due to bomb, mine and rocket blasts while gunshot wounds and mechanical transport (MT) accident accounting for 15% of multiple injuries. Saraswat established majority of deaths from head and neck injuries (62.5%) followed by the thoracic injuries (18.8%) and multiple injuries with head injury (13%)[6]. Our study established 63% fatality from multiple injuries followed by 18% from head injuries and 13% by chest injuries. Peleg reported 95% injuries from small arms and explosive devices[7]. Zouris has reported 75% injuries from small arms and explosives in US marines in Iraqi war[8]. Our findings are consistent with theses two studies. Body armor protects troops from most ballistic projectiles to the torso but it does not protect against the baro traumas of primary blast injury[9]. Preparedness has been proved to reduce morbidity, mortality, and may improve response and outcomes[10].

Maximum number of fatal cases, 37.65% were received in year 2005, followed by 27.62% in year 2007. Hassan et al[5] reported highest number of fatal injuries in 2008 (40%) while lethality index (LI) was highest in 2005 (25%).

CONCLUSION

Most common mode of fatal injury was gunshot wound followed by bomb blast and mine blast. Multiple injuries were the most common fatal injuries followed by head and chest injuries. There is a requirement of high degree of awareness among the troops, availability of good transportation facilities, quick reaction on occurrence of an incident and preparedness at all levels to reduce the morbidity and mortality considerably.

REFERENCES

1. Leppaniemi AK. Medical challenges of internal conflicts. World J Surgery 1998;22(12): 1197-201.
2. Nutting, Wallace. Organizing for low-intensity warfare. Global affairs 1987;92-105.
3. Tinder AJ. Air war college research report, Low intensity conflict. 1990;25-35.

4. Aharson-Daniel L, Klein Y, Peleg K. Suicidal bombers form a new injury profile. Original Articles Annals of Surgery 2006; 244: 1018-23.

5. Hassan MU, Ijaz A, Shahbaz N, Khan IM, Tarrar NA, Bashir RA et al. Pattern of injuries inflicted on troops fighting on the western front. Pak Armed Forces Med J 2010; 60(2): 304-8.

6. Saraswat V. Injury patterns in low intensity conflict. Indian journal of Anesthesia 2009;53 (6): 672-7.

7. Peleg K. Pattern of injuries in hospitalized terrorist victims. Am J Emergency Med 2003;21:258-62

8. Zouris JM. Wounding patterns for US marines and sailors during operation Iraqi freedom, major combat phase. Mil Med 2006;171:246-52

9. Mellor SG, Cooper GJ. Analysis of 828 servicemen killed or injured by explosion in Northern Ireland 1970-84: The Hostile Action Casualty System. Br J Surg 1989;76:1006-10

10. Hammond J. Mass casualty incidents: planning implications for trauma care. Scandinavian J Surg 2005; 94: 267-71.