

FIELD MEDICINE - RESEARCH ARTICLE**COMBAT TRAUMA EXPERIENCE AT FORWARD TREATMENT CENTRE DURING SWAT OPERATION****Afzal Saeed Awan, Muhammad Aamer Ejaz, Mazhar Mehtab Alam, Muhammad Amran Hafeez**

77 Medical Battalion

ABSTRACT

Objective: To have an overview of combat trauma experience at Forward Treatment Centre during Swat Operation

Study Design: Descriptive study

Place and Duration of study: Forward Treatment Centre of a medical battalion in Swat from Jan 2009 to August 2009.

Patients and Methods: All battle casualties of different age groups operated under general anaesthesia were included in the study. Surgeries performed under local anaesthesia were excluded. Relevant information was recorded in specially prepared proforma.

Results: Two hundred and sixty eight surgeries were performed under general anaesthesia over the course of eight months. Twenty two (8.2%) were officers, 12 (4.5%) JCOs and 234 (87.3%) were soldiers. Majority of the casualties were between 20 -30 years of age (86%). 73.9% of the casualties reached Forward Treatment Centre within 4 hours while 3.3% reached after 24 hrs. Most of the patients sustained injuries due to bullets (50.7%) and splinters (39.9%). Most of the patients were putting on bullet proof jackets at the time of injury and sustained injuries to the limbs (237/268, 88.4%). Blood transfusion was carried out in 32 (11.9%) cases. Fifteen (5.6%) cases required less than two and 17 (6.3%) cases required more than two units of blood transfusion.

Conclusion: Most of the casualties were sustained by younger age group and were caused by bullets and splinters. Majority of the injuries were sustained on the limbs and less on the chest and abdomen. Blood transfusion and timely evacuation to a Forward Treatment Centre providing effective trauma surgical care to combat casualties saved a number of lives.

Keywords: Combat trauma, Forward treatment centre, trauma surgery.

INTRODUCTION

Pakistan Army has been involved in a number of counter-insurgency operations and conventional wars since 1947. Swat operation was different from previous operations in that for the first time the army has to deal with a ruthless guerilla force in a terrain which includes forests, mountains, deep valleys and extensive built up areas. The enemy was well conversant with local terrain and guerrilla warfare techniques. The resultant battle had got features of low intensity warfare as well as conventional warfare. Forward based surgical teams are pivotal in providing surgical intervention to save life and limb¹.

The present study will help to evaluate the pattern of injuries sustained by soldiers and to plan effective treatment and evacuation

procedures.

PATIENTS AND METHODS

A single centre prospective study was carried out at Forward Treatment Centre (FTC) of a medical battalion during Swat Operation from January 2009 to August 2009. All the battle casualties evacuated to FTC either by air or road and requiring surgery under general anaesthesia were included. Relevant information was recorded in specially prepared proforma.

Minor injuries treated under local anaesthesia were excluded.

RESULTS

A total 268 casualties required operative treatment under general anaesthesia during the study period. Among the casualties 87.3% were soldiers, 4.5% JCOs and 8.2% officers (Table 1). Eighty six percent of the cases were of 20-30 years age and 4.5% were older than 40 years of age (Table 2). Majority of the cases (73.9%) were

Correspondence: Afzal Saeed Awan, Classified Surgical Specialist, CMJ Gujranwala

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evacuated to Forward Treatment Centre in less than 4 hours. However, 3.3% cases took more than 24 hours for evacuation due to multiple reasons (Table 3).

The major causes of injuries included bullets (50.7%) and splinters (39.9%), (Figure 1). Most of the injuries were sustained on limbs (88.4%), followed by head and neck (8.2%), chest (1.9%) and abdomen (1.5%), (Figure 2). Blood transfusion was required in 11.9% of the cases. (Table 4)

DISCUSSION

Swat operation was undertaken in an area which involved fighting in all types of terrain such as jungles, deep valleys and extensively built up area. Forward Treatment Centres provided life and limb saving surgeries and in certain cases damage control surgery was also performed². Most of the casualties were of soldiers between 20 and 30 years of age. This showed that Pakistan army frontline troops are comparatively young as compared to armies of the western nations which have got a lot of mature NCOs in their frontline troops as was shown in a study by Beekly and Watts.³ Another aspect of this conflict was that the casualties among the officers were high as compared to the accepted norms. In our study the officer to soldier casualty ratio was 1:12 while the internationally accepted ratio is much lower than this.

Most of the casualties reached Forward Treatment Centre within four hours of injury. Some of the injured had to be kept in advance dressing stations (ADSs) and Regimental aid posts (RAPs) for extended period of time because of road closures and unavailability of air evacuation due to enemy interference. The time from injury to operative treatment was less in an American study which showed their better evacuation facilities⁴.

In our study it was noted that a large percentage of injuries were due to bullets. This was comparatively higher than the study conducted by Place et al because in Afghanistan American forces do not get involved with insurgents in small arms fight and most of their

Table 1: Rank Distribution of Cases (n=268)

Rank	No. of Cases	Percentage (%)
Officers	22	8.2
JCOs	12	4.5
Soldiers	234	87.3

Table 2: Age Distribution of Cases (n= 268)

Age (Yrs)	No. of Cases	Percentage (%)
20-30	232	86.6
31-40	25	9.3
Above 40	11	4.1

Table 3: Time lapse Between Injury and Evacuation to Forward Treatment Centre (n= 268)

Time Elapsed	No. of Cases	(%)
Less than 4 Hrs	198	73.9
4-12 Hrs	41	15.3
12-24 Hrs	20	7.5
More than 24 Hrs	9	3.3

Table 4: Blood Transfusions (n= 268)

No. of units transfused	No. of Cases	(%)
Less than 2 units	15	5.6
More than 2 units	17	6.3
No transfusion	236	88

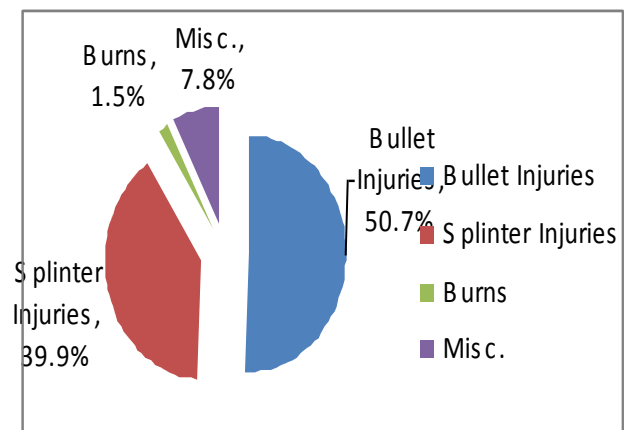


Figure 1: Aetiology of Casualties (n= 268)

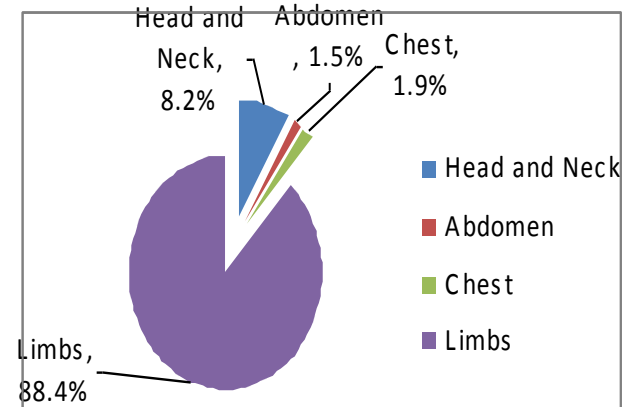


Figure 2: Region wise Distribution of Injuries

injuries are due to splinters from Improvised explosive devices (IEDs)⁴⁻⁷.

More than 88% injuries were sustained on the limbs. This percentage is almost equal to studies carried out in Afghanistan and Iraq but much higher than experience in Bosnian War⁵⁻⁸.

In operational casualties the most common type of shock was hypovolemic shock due to penetrating trauma⁹. Approximately 12% of the patients required blood transfusions which was comparatively lower than studies carried out in other war theatres¹⁰⁻¹².

CONCLUSION

High percentage of gunshot wounds reveal the fact that mainly close quarter battles were fought during this operation. The introduction of bulletproof jackets in the army has led to further reduction of injuries sustained to the chest and abdomen. Blood transfusion saved a number of lives highlighting the importance of a functional blood bank in every Forward Treatment Centre. Forward Treatment Centres are capable of providing effective trauma surgical care to combat casualties. Further studies are needed to help develop better early forward based surgical intervention with improved management and evacuation facilities.

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