

## Management of Earthquake Victims at Disaster Places

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### ABSTRACT

**Objective:** The government would start the functions of an agency in collaboration with medical societies, and make a plan to educate and prepare well trained nation to be able to manage disaster victims.

**Place and Duration of Study:** During management of earthquake victims at different disaster places of Azad Kashmir in October 2005 by the orthopaedic surgeons of Department Orthopaedic Surgery Civil Hospital Karachi.

**Study Design:** Prospective, quasi-experimental study.

**Subject and Methods:** Experience of orthopaedic surgeons during the management of earthquake victims at different disaster places of 7.9 magnitude earthquake in Kashmir Pakistan. First team worked at different disaster places of Shink Yari and later at Abbottabad. Second team managed earthquake victims and established a field base Camp Tent Hospital at Battgram. Third team had taken over from second disaster team to achieve the task.

**Results:** Managed more than 758 earthquake victims at different earthquake disaster places of Azad Kashmir Pakistan. Out of which 724 cases were managed by (95.50%) closed reduction and immobilization with plaster of paris (P.O.P) cast, while open reduction was done in 14 cases (1.89%). 8 cases (1.05%) referred to major centres after giving emergency management. 8 cases (1.05%) were of traumatic amputation managed by refashioning, 1 case (0.13%) of chronic Osteomyelitis and 1 case (0.13%) of open fracture were treated by debridement and rotational flap with external fixation respectively. Established field base camp tent hospital included orthopaedics operation theatre, O.P.D and postoperative indoor ward at Battgram.

**Conclusion:** The natural disaster place means all sources for life are destroyed. Orthopaedic surgeon and other team members must be oriented about hazards of disaster places and to take care of themselves during the management of earthquake victims at disaster places. Orthopaedic surgeons would justify at the time of planning for surgery at disaster places. It is ideal to manage conservatively or either refer to nearest hospitals because in orthopaedic surgery without post operative care and follow up it is impossible to achieve the goal.

**Category:** Orthopaedic surgery

**Keywords:** Earthquake disaster places, Earthquake victims, Disaster management.

### INTRODUCTION

Pakistan is highly prone to natural disasters. Floods, droughts, landslides and earthquakes, are a recurrent phenomenon. Recent studies indicate that the energy stored along the Himalayan arc suggests a high probability of several massive earthquakes of magnitude greater than 8.0 in future. Susceptibility to natural disasters is compounded by frequent occurrences of man-made disasters such as fires, epidemics, road and

rail collisions and industrial accidents and bomb blast.

The 8th October 2005 major earthquake disaster has very clearly illustrated that Pakistan needs to develop a multi-hazard preparedness, prevention, response and recovery plan for natural hazards so that the threat to human life and property is minimized.(1)

Disaster preparedness and management education is essential for allowing orthopaedic surgeons to play a valuable, constructive role in responding to disasters. An "all-hazards" approach to disasters, whether natural, man-made, intentional, or unintentional, is fundamental to disaster planning. To respond to any disaster, command and control must be established, and

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emergency management must be integrated with public health and medical care. Credentialing and coordination between designated organizations and the federal government are essential to allow civilian orthopaedic surgeons to access systems capable of disaster response.(2)

Baxter, M.D., an orthopaedic surgeon with Premier’s Harding Place and StoneCrest Care Centers, participated in a mission trip to Haiti in the aftermath of its recent earthquake disaster, providing urgently needed orthopaedic care for its victims. Performing 35 procedures and treating about 100 additional patients over a six-day period, his work included first aid, casting, inserting external fixators for tibia fractures, and performing three amputations – one saving the life of an 11-year old girl. Dr. Baxter was finally relieved after his six-day stay by three orthopaedic surgeons who continued the care he had initiated; his recent trip to Haiti saved lives.(3) We applied same methods to manage conservatively as may as possible in the management of earthquake victims at disaster places.

**Patients and Methodology:** Experience of orthopaedic surgeons during the management of earthquake victims at different disaster places of Azad Kashmir in October 2005.

**First Team** sent by medical superintendent Civil Hospital Karachi, a team of 7 members of different departments. This team worked at different disaster places at Shink Yari and later at

Abbottabad in a major hospital which was devoid of orthopaedics surgeons at that time.

**Second team** sent by Vice chancellor of Dow University of Health Sciences with other 34 persons of different departments. This team departed Karachi on 11<sup>th</sup> October 2005 with PIA to Islamabad and later then Mansehra to Battgram with a view to replace demolished District Hospital with Field Hospital in tents. This area had enormous enchantment of disaster victims. Higher Education Commission and Population Welfare Department helped us in transportation and all necessary assistance.

When we reached at Battgram, the camp was already established by different international organizations with the collaboration of non-medical local and national organizations without the security and supervision of respective army officials.

In the presence of expertise the task of our team was to manage orthopaedic trauma cases and to establish an orthopaedic department with operation theater, recovery room and O.P.D.

**Third team** was headed by head of the Orthopaedic department civil hospital Karachi. They had taken over from second disaster management team to continue till completion of task at the field base camp tent hospital Battagram.

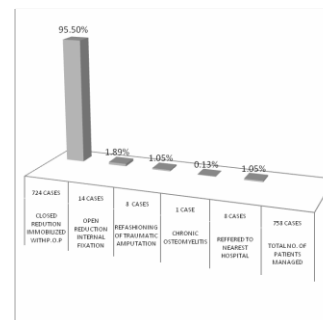
**RESULT**

**Table 1:** Management of Earthquake Victims at Disaster Places

Closed Reduction Immobilized With P.O.P	724 CASES	95.50%
Open Reduction Internal Fixation	14 CASES	1.89%
Refashioning Of Traumatic Amputation	8 CASES	1.05%
Chronic Osteomyelitis	1 CASE	0.13%
Referred To Nearest Hospital	8 CASES	1.05%
Total No. Of Patients Managed	758 CASES	

Managed more than 758 earthquake cases at different disaster places in Azad Kashmir, out of which 724 cases had closed reduction and externally immobilized with plaster of Paris P.O.P (95.50%), while open reduction done in 14 cases (1.89%), 8 cases (1.05%) referred to major centers after giving emergency management.

An establishment of field base camp tent hospital including Orthopaedics Operation theater, recovery room, O.P.D and prospective indoor ward Battagram.



**Graph No.1:** Management of Earthquake Victims at Disaster Places

## DISCUSSION

Asia is the World's largest and most populous continent. It covers 8.6% of the earth's total surface area (or 29.9% of its land area) and, with over 4 billion people, it contains more than 60% of the world's current human population.(4)

The 2008 Sichuan earthquake was a deadly earthquake that measured at 8.0 rns occurred on may 12, 2008 in Sichuan province of China and killed atleast 68,000 people.(5)

The occurrence of disaster appears to be on the rise, and despite advancement, they still cause major damages. In order to minimize these damages we must adopt disaster management plans, such as creating awareness and educating vulnerable communities in disaster management techniques.(6)

Nargiza Yusupova explained her experience of Uzbekistan earthquake, It was very helpful that my kids knew rules, such a kind of studying as surviving in critical situations is taught at all schools in our country. I hope no body suffered from this sudden earthquake.(7) The disaster management may be made as part of curriculum at varying levels of education of primary schooling to higher learning. The symposia, seminars, workshops, conference and talk-discussion maybe conducted. The practical sessions to have hands-on-experience may be organized to learn disaster management.(8) The earthquake, natural disaster can't be avoided, but with good preparation and well organized help after the fact, it is possible to survive and go back to normal life afterwards.(9) An effective response to disaster and mass casualty events should focus on an 'all hazards' approach, defined as the ability to adopt and apply fundamental disaster management principles universally to any mass casualty incident, whether caused by people or nature.(10)

Orthopaedic surgeons should be aware of the principles of management of catastrophic events. Documentation is essential both to manage victims and prevent further spread of toxic agents to first responders and medical personal. (11) Shirin Mirza and his colleagues treated 194 patients concluded that majority of spinal cord injuries at thoracic & lumber level lead to paraplegia. Those are bedridden for life, need proper rehabilitation programs to enable them to live an independent life.(12) Anesthesiologists are acute care physicians with special expertise in airway management, physiologic monitoring, patient

stabilization and life support; fluid resuscitation, and crisis management.(13)

Thirty two patients of tetanus were reported at three major public hospitals of Rawalpindi. None of the patients had received primary immunization against tetanus before the earthquake, while 68.8% patients were administered tetanus toxoid after the earthquake.(14)

Zahida Rani selected 210 amputees (159 males and 51 who females) who volunteered for the study which concluded that ulcers were the most common findings followed by allergic contact dermatitis another significant problem of pigmentation.(15) The doctor's job is not just signing or issuing order for a wheelchair or artificial limbs ". Disabled are not managed merely by making purchases of wheelchairs and issuing this to all. It is the posture management that requires professional skills.(16)

The most common associated injuries were fractures of tibia and fibula seen in a quasi experimental study at the department of orthopaedic and spinal surgery at CMH, Rawalpindi.(17)

Pakistan field hospital in remote island of Sumatra (Indonesia), team members treated 11,299 patients including 1164 Surgeries. The surgical patients mostly had wounds of extremities which were infected. Majority of the surgical procedures included debridement of the wounds, skin grafting and amputation of the extremities.(18) Sohail Hafeez and his team performed 811 major orthopaedic operations of earthquake victims, concluded proper triage, initial management of wounds plays a major role for better outcome in case of disaster casualties.(19)

Student volunteers in tele consultation clinic at the Shoal Najaf Field Hospital, Balakot, Pakistan reported experience of 28 patients. All these patients were provided with tele consultation majority of patients had multiple injuries.43% patients required orthopaedic tele consultations.(20)

Attaur Rehman analyzed the pattern of injuries in the Oct. 2005 earthquake. A total number of 1186 patients were seen and managed at different field hospital Open wounds with or without factures were the biggest problem.(21)

Orthopaedics surgeons should be aware of the principles of management of catastrophic events. It is important to assess the risk of potential threats, thereby allowing disaster planning and preparation

to be proportional and aligned with actual casualty event.(22)

AKU disaster management team managed 840 at the Kahuta research laboratory (KRL) hospital, Islamabad. They analyzed ninety five percent of the patients in the recent earthquake had orthopaedic injuries .The importance of organizing the orthopaedic community cannot be over emphasized.(23)

CPT Jessica D. Cross provides an unprecedented opportunity for comprehensive orthopaedic injury and treatment data collection that will benefit future orthopaedic surgeons responding to individual trauma patients and large natural disaster medical needs.(24)

## CONCLUSION

The place where we have to start to managing earthquake victims is a natural disaster place means all sources for life are destroyed. So management provider must be oriented about hazards of disaster places.

Orthopaedics surgeons would justify at the time of planning for surgery, to convert closed fracture into open fracture of disasters victim at earthquake disaster places. It is ideal to manage conservatively or refer to proper center of surgery after supportive emergency management.

For orthopaedic trauma cases orthopaedics surgeons concluded that conservative management for earthquake victim is better than surgery at disaster places.

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