

Problems Associated With Large-Scale, Mass-Gathering Events in Hokkaido Island, Japan

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Introduction: Japan consists of four main islands. Hokkaido Island is located at 45°N latitude and makes up 20% of the area of Japan. Hokkaido hosted two large-scale, mass-gathering events in the past. One was the Sapporo Winter Olympic Games in 1972, which was the first Winter Olympic Games in Asia, and the other was the 2002 FIFA World Cup in Korea/Japan. Recently, training and preparedness for casualties during mass gatherings have become main topics in the disaster medical field. This paper considered the problems associated with mass gatherings in Hokkaido.

Recent mass-gathering events in Hokkaido included: (1) the Sapporo Snow Festival, which is held in Sapporo every February and attracts 1.8 million spectators from around the world; (2) the Yosako-Soran Festival, which is held in Sapporo every June and has become a larger event than the Sapporo Snow Festival, attracting more than 40,000 participants and two million spectators to the festival each year; (3) the 2002 FIFA World Cup Korea/Japan: the soccer games between Germany and Saudi-Arabia and England and Argentina took place at Sapporo Dome Stadium; (4) the World Rally Championship (WRC) was held in Obihiro city in 2004 (the first WRC ever held in Japan), attracting approximately 210,000 spectators at this event; and (5) the professional baseball team, Nippon Ham Fighters, has played its home games at Sapporo Dome Stadium since 2003, and about 30,000 spectators attend each game.

Results: Penetrating cardiac injury resulted from a terrorism-related, nail bomb explosion, which occurred during the Yosako-Soran Festival in 2000. As a result, an emergency plan and disaster core hospital network was constructed during the 2002 FIFA World Cup Korea/Japan. These mass gatherings illustrate the importance of helicopter transportation in addition to collaboration and training among the fire department, police station, and self-defense force.

Conclusion: The following are necessary preparations for a large-scale, mass gathering: (1) guidelines and a manual for mass gathering must be developed; (2) a nationwide disaster and emergency medical network with an Internet mailing list must be established; and, in order to develop mass-gathering medical care plans in accordance with the types and size of mass gatherings; and (3) data must be collected and risk factors for patient presentations must be examined for a variety of events.

Keywords: events; Japan; large-scale; mass gathering; problems; response; World Cup

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Theme 11: Terrorism

Chair: Jeffrey Arnold

Epidemiology of Terrorism-Related (TR) Injuries

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Introduction: Israeli civilians have experienced an escalation of terrorist attacks in recent years.

Methods: An analysis of national trauma registry data from October 2000–December 2003 was performed.

Results: From 01 October 2000–31 December 2003, 1,789 patients were recorded in the Israeli national trauma registry with terrorism-related (TR) injuries, and 69,877 were entered due to other trauma. Terrorism-related victims were young, with 55% between the ages of 15 and 29 years, compared to 22% in this age group among the population injured by other (non-terror) forms of traumatic events. The proportion of severe and critical injuries in the population was significantly higher, 26% vs. 10% in non-terrorism-related (NTR) trauma. Twenty-five percent of the TR population, compared to 7% of NTR patients were admitted to the Intensive Care Unit. 19% of TR patients vs. 8% of NTR patients were hospitalized for more than two weeks. Inpatient mortality of the TR patients was 6%, three times higher than for the other trauma patients (2%).

Multiple injuries were more common in TR victims (54%), compared with 23% of NTR victims. Terrorism-related victims suffered eight times more injuries to blood vessels, and four times more injuries to nerves than NTR, and required more specialized care.

Conclusion: The epidemiology of TR injuries is different from that of NTR. Terrorism-related injuries are more severe and increase the utilization of hospital resources. The TR victims are young, implying a great loss of potential healthy life years and potentially long, disabled lives. Although the proportion of these patients in the overall population is small, the accumulated workload they create is extensive, and the needs they present are unique.

Keywords: demography; impact; resources; terrorism-related injuries
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The Role of Emergency Medical Services (EMS) in the Planning of the Medical Response to Mega-Attacks by Terrorists

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From October 2000 to October 2004, Israel was constantly exposed to terrorist activities. More than 1,500 terrorist events occurred during this time—63 were defined as multi-casualty incidents (MCIs)—with 25 to 136 persons injured per event.

Magen David Adom (MDA), the Israeli national emergency medical services (EMS) system, treated and transported 3,483 injured (average of 55 injured per incident) to the hospitals. There were 731 (21%) urgent injuries and 453 (13%) urgent, unstable injuries, of which 110 required

life-saving procedures. The average values of the timetables were: (1) first ambulance: 4.6 minutes; (2) first injured evacuated: 11.5 minutes; and (3) last urgent injured evacuated: 28.3 minutes. In Israel, MDA plays a major role in the medical response to MCIs. The next step is to plan the medical response to mega-attacks by terrorists. To do so, a model terror event was estimated with 1,000 victims: 10% (100) killed, 25% (250) urgent injuries, and the rest (650) not urgent. The main issues dealt with were: (1) the role of EMS in the medical response to mega-attacks by terrorists; and (2) the mode of action of the EMS system.

To recruit national and military medical response to the site of a mega-terror event will take an hour or longer; meanwhile, the EMS personnel will be the only organized responders to this event. If the mega-terror event occurs in a central, urban part of Israel, MDA will be on-scene within one hour with 100 ambulances (15%—advanced life support (ALS)), and more than 200 emergency medical technicians (EMTs) (20%—ALS), and 180–200 urgent-injured will be evacuated from the scene. Major changes in the mode of action of the EMS system responding to such a mega-terror event will be needed, including: (1) On-scene triage and urgent medical procedures will be performed on the ALS level only (mass-casualty incident (MCI)—61% ALS) (ALS level providers will stay on-scene), and ambulance transportation of injured to a hospital will be performed on BLS level (MCI-40% ALS); (2) all the injured triaged as non-urgent (green tag) will not be treated or evacuated by ambulances; instead they will be transported by buses to general hospitals out of the region; (3) treatment will be delayed for those triaged as non-salvageable (expectants); and (4) the distribution of injured to the hospitals will be numerical. No triage to hospitals according to the type of injuries will be performed.

The MDA is now in the process of planning, writing the guidelines, and training the personnel for the medical response to mega-attacks by terrorists.

Keywords: emergency medical services (EMS); events; Israel; Magen David Adom (MDA); response; triage

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Dealing with a Terrorist Attack in Pakistan—A University Hospital Perspective

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Introduction: Terrorist attacks must be handled as a global epidemic, as they usually cause multiple injured patients. Pakistan is a target of such attacks. For example, an explosives-packed car blew up near a bus that was taking Chinese engineers going to work at Gawadar seaport. Aga Khan University Hospital (AKUH) has a disaster plan that is activated when multiple patients are received in the emergency department.

Objectives: To present an epidemiological description of the physical injuries of patients who survived the terrorist attack when limited medical resources were brought to the emergency department of a hospital.

Methods: Management of individual patients was reviewed from a pre-printed trauma form. Information on the nature of injuries, operative management, and hospital course was recorded and the data was analyzed using the Trauma registry.

Results: Six hours after the incident, 11 survivors were brought to the AKUH. Trauma teams arrived on time and support services performed well. All patients were male, and the median value of their ages was 35 years. Two patients were unstable and were rushed to the operating room after initial resuscitation. Nine had other injuries (lacerations and fractures). The mean length of stay in the emergency department was 135 minutes. All 11 patients were stabilized and discharged from the hospital after treatment.

Conclusions: All 11 patients transferred to the AKUH survived. The hospital's disaster plan was tested in real-time and worked well on a holiday during rush hours. The disaster plan needs to be tested to cope with bigger disasters.

Keywords: disaster plan; emergency department; hospital; Pakistan; terrorist attack

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National Medical Response to Mega-Attacks by Terrorists

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Introduction: During the last four years, Israel has suffered from hundreds of terrorist attacks—63 of which were defined as multi-casualty incidents (MCIs), with the numbers of casualties ranging from 25 to 136 injured per event. The Israeli National Emergency Medical Services is well-trained for the rapid transport of casualties to near-by using a “save and run” method. Unlike MCIs, a mega-attack by terrorists could produce hundreds of casualties and easily could overwhelm even an experienced medical system, both at the Emergency Medical Services (field) level and in the receiving hospitals.

Objective: To describe a method for analysis of the national preparedness to mega-attacks perpetrated by terrorists, the expected number and distribution of injuries were matched to the national healthcare capabilities in order to pinpoint the gaps and specify correct solutions.

Methods: A model of 500 casualties from a terrorist, closed-space attack was defined. The numbers of casualties from past MCIs were combined with the number of casualties expected from a closed-space attack. According to the proportions of the types of injuries sustained from past attacks in Israel, the injured people will be assigned as 425 live casualties and 75 dead (500 total). Thirty percent are expected to suffer moderate to severe injuries, and 70% will suffer mild injuries and stress reactions. Of the 425 casualties, 47% will be admitted into hospital wards, 32% into general medical care wards, and 15% will require beds in an intensive care unit (ICU). A total of 10% of the casualties