

(138) Serial Ultrasonography for Trauma—Its Potential during Mass-Casualty Incidents

M. Leong

Singapore General Hospital, Singapore

Background: Focused Abdominal Sonography for Trauma (FAST) is an established modality of investigation to detect hemo-peritoneum in hemodynamically unstable patients. In Singapore, FAST largely has replaced diagnostic peritoneal lavage as the modality of choice in such patients. Patients who have blunt abdominal injury and are haemodynamically stable are subjected to computerized tomography (CT) of the abdomen and pelvis to rule out significant injuries. However, this is time consuming, expensive, invasive, and has limited application during mass-casualty incidents.

Objective: To establish the potential role of emergent ultrasonography (US) in haemodynamically stable patients with blunt abdominal injury presenting to the emergency department.

Methods: Two case reports demonstrating the usefulness of serial emergent ultrasonography on patients with blunt abdominal injuries are presented. One report was a multi-casualty incident with three critically injured patients. One required emergent laparotomy following demonstration of increasing hemoperitoneum on serial US examination.

Results: Both case reports demonstrate patients with initial negative studies, followed by serial ultrasonographic and CT documentation of increased bleeding into the peritoneum, requiring laparotomy. The second case report showed that use of serial US on all three patients during a mass-casualty incident can help clinicians assess the need for laparotomy without the need for using CT. Serial US pictures will be used to illustrate all the cases.

Conclusion: This report highlights the potential use of serial US in identifying haemodynamically stable patients who may require emergent laparotomy later and its application during mass-casualty incidents.

Keywords: abdominal trauma; computerized tomography; Focused Abdominal Sonography for Trauma (FAST); mass-casualty incident; serial ultrasonography

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Oral Presentations—Theme 9: Miscellaneous

Chair: Shinichi Nayayama

Session 1

Chairs: TBA

From Disaster to Journal Publication: Where is Disaster Literature being Published, and What is the Time Lag?

E. C. Smith;¹ A. Sen;² F. L. Archer;¹ F. Burkle Jr.³

1. Monash University, Melbourne, Australia
2. UK
3. Hawaii, USA

As recorded early in history, disasters originally were attributed to the wrath of God and focused predominantly on

hazard rather than outcome. Recently, there has been a shift in focus from hazard to outcome, and a recognition of the importance of preparedness, and response. In addition, the range of disasters is growing, and now includes terrorism, bioterrorism, and the threat of emerging new infectious diseases. As disasters continue to increase in frequency, affecting billions of people worldwide, the demand for an evidence-based approach to disaster preparedness and response has never been greater. A prerequisite to adopting any evidence-based approach in healthcare is the need to assemble a body of evidence derived from the results of relevant studies. This study was designed to identify the current evidence-base for disaster medicine. What has been found? Where has it been published? What was the time-lag between the disaster and publication of related information? Searching the electronically indexed databases MEDLINE and CINAHL, the authors searched for peer-reviewed publications following seven “disasters”: (1) Chernobyl; (2) the 1993 World Trade Center bombing; (3) the 2001 World Trade Center bombing; (4) the 2002 Bali Bombings; (5) the SARS outbreak of 2003; (6) the 2004 Tsunami; and (7) the 2005 London Bombings. This paper will report on the findings of this literature search, including the number of peer-reviewed publications following each of these disasters, the journals of publication, and the time-lag between the disaster and publication of related information. This information will be important for identifying the current evidence-base for disaster medicine, specifically, what is being learned from each new disaster?

Keywords: disaster; literature; peer review; publication

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The Leaping Tag: Smooth and Safe Collection with Automated Classification of Triage Results During a Major Disaster

H. Y. Haraguchi;¹ Y. Tomoyasu;² H. Suzuki;² K. Ono;² H. Nishi²

1. National Hospital Organization Tokyo, Tokyo, Japan
2. Japanese Disaster Medicine Compendium, Tokyo, Japan

In a major disaster, it may become necessary to establish many triage points. Therefore, it is important that patient medical records and triage data be arranged in a manner that allow them to be easily integrated from multiple points. The development of a triage system with the use of information tags and tags is presented below.

The patient's medical data, written on the tag, are transmitted simultaneously by radio (using Bluetooth, mobile phones, and/or e-mail) to the main computer system at the emergency headquarters. All the described and transmitted data are automatically classified. This system is called “leaping/flying triage tag”.

After repeated testing under mock disaster conditions for one year, this system was put to actual use after the flood and landslide disaster in Okaya, Japan in July 2006. Merits of the system include the immediate and accurate collection/management of essential patient data regardless of the number of patients, or the diversity and severity of the conditions. In addition, in the event of contamination during a nuclear, biological, and chemical hazard (NBC),

contamination to the medical/rescue staff is minimized without spreading the dangerous materials.

In conclusion, this system is still in the field trial stage. Although there are some minor problems, as was revealed after the Hanshin-Awaji earthquake and Tokyo subway sarin incident, these will be able to be resolved with minimal changes.

Keywords: evacuation; leaping tags; rescue; triage; triage tags

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Help the Helpers during Disasters: Keeping Team Resilience

O.B.J. Benin Goren

Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

Tel Aviv Sourasky Medical Center (TASMC) is a Level-One Trauma Center located in the center of Tel Aviv. During the last six years, the Medical Center has experienced >23 mass-casualty incidents (MCI) caused by terrorist attacks and has treated about 1,300 injured persons.

Following the exposure to terrorist attacks and treatment of victims of terrorism, health providers are considered the “secondary circle of trauma”. Health providers are normal people facing abnormal situations. They have not been prepared to see and treat shattered bodies, especially for the sight of mutilated bodies of infants and children. How can health providers deal with their feelings and fears? How can a medical center preserve team resilience while coping with MCIs over and over again?

The accumulated experience in supporting system uses at TASMC will be presented. It will focus on the emotional functioning of team members who took care of MCI casualties. Also the use of emergency leadership workshops in order to establish personnel who are leaders in the field of disaster management will be discussed.

Recommendation of “Return to Routine” in a way that can “Help the Helpers” to continue their work while they are functioning well and are able to preserve their resilience also will be presented.

Keywords: health providers; Israel; mass-casualty incidents; team resilience; terrorist attacks

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Impact of Lightning Strikes on Hospital Function

L.J.M. Mortelmans,¹ G. Van Springel,² S. Van Boxtael,¹

J. Herrijgers,¹ S. Hoflack²

1. AZ Klina, Brasschaat, Belgium

2. AZ St. Jozef, Malle, Belgium

Two regional hospitals were struck by lightning within a period of one month. The first hospital, with a capacity of 236 beds, experienced a direct strike to the building. This resulted in a spread of the power peak with temporary failure of the standard power supply. The principle problems that occurred after the standard power supply was restored were with the fire alarm system and the peripheral network connections in the digital radiology systems. No direct impact on the hardware was found. Restarting the servers

resolved all of the problems. The second hospital (436 bed capacity) was struck on the premises with the main problem of induction. All the affected installations had a cable connection from outside. The power supplies never were endangered. The primary problem that resulted was a failure of different communication systems (telephone, radio, intercom, fire alarm system). Also, the electronic entrance control was not functioning. During the following days, multiple software problems became apparent, as well as a failure of the network connections controlling the technical support systems. There almost are no means to prepare for induction problems; however, the use of fiber-optic networks could limit further damage.

Keywords: function; hospitals; lightning; power supply; preparedness

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Potential Use of an Award Scheme for Rescuing Drowning Victims to Study Prevention, Rescue, and Resuscitation

A.M. Venema,¹ J.W. Groothoff,² J.J.L.M. Bierens¹

1. Ten Boer, The Netherlands

2. University Medical Centre Groningen, Groningen, The Netherlands

Introduction: Since 1767, the Maatschappij tot Redding van Drenkelingen (MRD) rewards bystanders who save a person from drowning. These awards are based on data from different sources. This study investigates if the award scheme can be a potential source for research on prevention, bystander rescue, and resuscitation in non-fatal drowning. **Methods:** A total of 289 reports in the period 1999–2004 were studied. A total of 133 relevant variables were used. Variables only were included in the analysis whether data were available in at least 60% of the reports. This set of data was compared with the recommended Utstein criteria for drowning registration.

Results: A total of 26 (20%) of 133 parameters are available in >60% of cases. The data are consistent with existing international and national data. New data about drowning victims, causes of drowning, and bystander rescue and resuscitation also were discovered. A total of 12 of the variables are included in the Utstein registration for drowning studies.

Discussion: These data correspond well with previous reports. This suggests that the database on awarding rescues is robust and potentially is suitable for analysis. If the quality of the information in the data sources is improved, unique information about drownings can be collected and analyzed, specifically regarding on the role of bystanders in the rescue and resuscitation of drowning victims.

Conclusions: The current MRD reports to reward bystanders are of limited use for analysis. If the data-set is re-defined and the registration becomes more uniform and goal-oriented, structured data collection and analysis seems possible.

Keywords: award; structured data collection; drowning; Netherlands; rescue; Utstein

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