

than 6,000 deaths. It was an unexpected, urban-type, earthquake disaster which terrified many persons across the whole world as well as in Japan. We have learned a lot from this great earthquake.

On 08 May, 1996, we began "Sai-no-Kuni Rescue Teams"—teams with emergency medical technicians and doctors to save and protect the citizens' life and property in case of large-scale disasters such as earthquakes, natural disasters, accidents, etc., within this prefecture. Their emergency rescue and EMT activities should begin immediately after the outbreak of a disaster. Though there are similar organizations, such as Emergency Fire Rescue Teams organized by Fire Department of the Ministry of Home Affairs or Fire Rescue Mobile Task Force started by Tokyo Fire Department, Sai-no-Kuni Rescue Teams are the first in Japan organized with a medical task force from the beginning of the plan. First, the whole prefecture is divided into four blocks, each has Rescue Teams, Ambulance Teams, and Fire-Fighting Teams. Besides, the prefecture has Helicopter Teams and Medical Teams. Rescue Teams, Ambulance Teams, and Fire Fighting Teams are organized by the fire service headquarters of each block registered to the prefecture (total = 182 members). Helicopter Teams are organized by Saitama Anti-Disaster Aviation Corps (total = 18 members with 2 helicopters), and Medical Teams by a corporate juridical person, Saitama Medical Association (total = 15 members or doctors and nurses, etc.).

This is Japan's first comprehensive disaster service organization as fire service and medical organization will assemble at the outbreak of large scale disasters for rescue, ambulance, and medical activities combined together in the air and on the ground.

Key Words: disaster; helicopters; medical doctor; rescue

Session 2A: Trauma

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Ultrasonography in the Evaluation of Hemoperitoneum in War Casualties

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Objective: The aim of the study was to evaluate sensitivity, specificity, and accuracy of emergent ultrasound examination in the detection of hemoperitoneum among war casualties, and to compare the results of the method in specific war situations versus civil conditions.

Methods: Ninety-four (94) wounded persons with suspected blunt or penetrating abdominal trauma were treated at the level I war-hospital (Group W), and 242 poly-traumatized civilians (Group C) with suspected blunt abdominal trauma were admitted at the Emergency Center of the University Hospital. All examinations were performed by highly competent specialists

(>3 years of experience and >1,000 examinations) each with portable ultrasonographic scanner (Esaote-Biomedica C7000, 3.5 MHz—Group C; Hitachi EUB 405, 3.5 MHz—Group W). Typical points were scanned (Morison's, Douglas, and perisplenic spaces, and paracolic gutter) and all examinations were done in <5 minutes.

Results: In Group W, hemoperitoneum was identified correctly in 19 patients, with 3 false negatives, and without any false positive findings. Group C presented 98 positive results, 13 false negative and again no false positive results. We observed that ultrasonography in specific war conditions showed sensitivity of 86%, specificity of 100%, and accuracy as high as 97%, while in civil conditions it read 88%, 100% and 95%, respectively.

Conclusion: The sensitivity, specificity, and accuracy of emergent ultrasound examination in the diagnoses of hemoperitoneum are approximately equal in war and in civil conditions.

Key Words: hemoperitoneum; war casualties; ultrasonography

The Comparative Analysis of Emergent Ultrasound Detection Hemoperitoneum Performed by Physicians of Different Specialties

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Objective: The objective of this study was to determine the sensitivity and specificity of emergent ultrasound examination in detecting hemoperitoneum, comparing the results that were obtained by three different specialists (radiology, surgery, anesthesiology) with presumably the same ultrasonography experience.

Methods: A total of 242 poly-traumatized adult patients suspected of blunt abdominal trauma were examined by ultrasonography at an emergency center. All examinations were performed by three equally experienced examiners (>3 years of experience and >1,000 examinations) of different specialization using the same portable ultrasonic scanner (EsaoteBiomedica, C7000; 3.5 MHz). Examination time was limited to 5 minutes with scanning of typical places (Morison's, Douglas, and perisplenic spaces, and paracolic gutter).

Results: The findings were defined as positive if free fluid was visualized intra-peritoneally. Depending on the examiner's specialization, the patients were placed into one of three groups; 1) Group R was examined by the radiologist (101 points); 2) Group S by the surgeon (68 points); and 3) Group EM (73 points) by the anesthesiologist from the emergency department. Free peritoneal fluid was found in 98 cases (40.5%), true negative result in 131 (54.1%), false negative result in 13 cases (5.4%), and no false positive results were reported. In the Group R, true-positive was in 39 (38.9%) cases with 6 (5.9%) false negative findings. Group S identified true positives in 24 patients (35.3%) and 3 (4.4%) with false negative findings. Finally, in the group EM, free fluid

was detected in 35 (47.9%) patients with 4 (5.5%) having false-negative results. Overall, the sensitivity of ultrasonography in the detection of hemoperitoneum was 88%; in group R, 87%; group S, 89%; and in group EM, 90%. Specificity was in all cases 100%.

Conclusions: Emergent ultrasound examination in detection of hemoperitoneum is equally valid in the hands of various specialists if they are appropriately trained and have the same level of experience.

Key Words: hemoperitoneum; ultrasonography

Burn Injuries in Traffic Accidents: Are They Avoidable?

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According to Austria's Central Office for Statistics, from 1989 to 1995, approximately 60 fatal accidents occurred each year due to fire. It is estimated that up to 50% of these deaths were due to traffic accidents. In 1993, the Institute for Safety in Vienna registered 25 burn victims (411 treatment days) from traffic accidents compared with 19 patients (523 treatment days) in 1994. Treatment of a patient with a burn index of 80, costs approximately DM 8,700 per day (ATS 62,000). The lasting visible damage from disfigurement following burns, which are not life-threatening, is demonstrated by a prominent former Austrian racing pilot and present-day airline owner.

Very few burns in traffic accidents occur as a result of the primary explosion: most are suffered through cable fires following automobile body damage which then ignite flammable gases and liquids. A simple, automatically controlled foam extinguishing system could primarily extinguish the source of the fire and thus, help prevent deaths. Saving human lives, and secondarily, the economic benefits are convincing arguments in favor of implementing the foam system.

Key Words: burns; costs; deaths; explosion; fire

Re-operation following Abdominal Trauma

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Objectives: Review of medical charts from patients who underwent abdominal re-intervention in the emergency surgery department to identify underlying mechanism of trauma, initial treatment, complications, clinical and imaging data, morbidity, and normality.

Patients and Methods: From November 1991 through November 1996, 1,246 abdominal surgical procedures were performed at the emergency surgery department in the Miguel Couto County Hospital, Rio de Janeiro, Brazil. Thirty charts representing patients who required 77 abdominal operations were selected for review.

Results: We divided abdominal re-operations into planned and unplanned interventions. Seven patients had their operations planned for definitive treatment

and removal of hemostatic liver packing. Seven patients had developed intra-abdominal abscesses. Five patients suffered evisceration, and four had five intra-abdominal injuries missed at initial exploration, seven patients had an anastomotic failure. One patient had a negative exploration hospitalization period with a high median stay of 36 days and low mortality rate.

Conclusion: Frequent clinical examination was decisive in 60% of the patients to indicate surgical intervention for abdominal distention and Multiple Organ Failure were the most often used determinants. Those patients operated early had a better outcome, although sometimes it was difficult to determine the best timing.

Key Words: abdominal re-operation; trauma

Thoraco-Abdominal Trauma

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Objectives: Review of medical charts in order to analyze the results of treatment dispensed to patients with thoraco-abdominal trauma, with emphasis on the occurrence of diaphragmatic hernias.

Patients and Methods: 103 medical charts of patients who sustained thoraco-abdominal trauma from August 1991 until August 1995, including 14 diaphragmatic hernias were reviewed. Age, gender, mechanism of injury, associated injuries, organs injured, treatment, complications, and mortality were analyzed.

Results: Penetrating injuries comprised 61.3% of the series with gunshot wounds constituting the main injuring agent. One patient was hit by an arrow (uncommon)! The lung was the organ most commonly injured (43.7%). Diaphragmatic herniation occurred in 13.6%: 10 were diagnosed in acute period, three in the chronic period, and one during treatment for a complication. One patient in this group was treated through videolaparoscopy. The mortality rate in this sample was 6.8%.

Conclusions: Thoraco-abdominal trauma offers favorable outcome when diagnosed early, even though very often present as serious injuries. Diaphragmatic wounds must be carefully sought, and the correct treatment instituted during the initial exploration.

Key Words: diaphragmatic hernia; thoraco-abdominal trauma

Injuries to the Neck

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Objective: To analyze the results of treatment of 76 trauma patients with injuries to the neck who were operated in the Miguel Couto County hospital to compare two different approaches: mandatory and selective exploration.

Patients and Methods: Medical charts of 76 patients with neck injuries who presented at emergency room of Miguel Couto County hospital from July 1990 to July 1995 were reviewed. Age group, gender, mechanism of injury level of injury, diagnostic procedures complications, and mortality were analyzed.