

Keywords: ambulances; chemical warfare; civil-military; decontamination; drill; hospital; military; teams; transfer
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Management of Multiple Injuries in a Disaster

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I. Statistics of Disaster Medicine

A. Traffic Accidents: In recent years, worldwide, there have been 700,000 people killed and 1,500,000 injured annually. In the last five years in China, 1,253,768 persons suffered traffic accidents; of those, 264,933 died.

B. Other Disasters in China in Recent Years:

1. The economic loss caused by calamities is about \$18,800 per square meter of coastal area.
2. Earthquake: From 1950 to 1990, there were 22 earthquakes. In 1976, the shock of Tang Shan Earthquake was 7.8 magnitude, with 242,000 persons killed by the quake.
3. Flood: Rainstorms have caused serious floods in the low-lying areas. The China Reduced Disaster Newspaper showed that floods caused economic losses of about \$228 million annually.
4. Typhoon: In 1982-1990, 4,167 persons were killed, 2,550,189 houses were damaged, and 14,345 ships were overturned by typhoons.

II. Disasters in China have increased year by year. In Guangdong Province, the harvested fields were damaged: 181,424 hectares by floods and/or typhoons and/or dry spells in 1960s.

III. There are three main Groups for Deaths of the Multiple Wounded by Time Post-event.

1. 50% die in a few seconds or few minutes of the trauma. The cause of these deaths are injuries to the heart, aorta, major vessels, and/or lacerations of the brain, brainstem, and spinal cord, etc.
2. 30% of the wounded die within 2-3 hours, of subdural hematoma, hemothorax, hepatic and/or splenic rupture, open femoral fracture combined with multiple injuries, etc.
3. The 20% of patients with multiple injuries die within a few days or few weeks after the injuries; the main cause is infection.

IV. Management of Patients with Multiple Injuries in Disaster

1. Establishing the Unity Emergency Alarm Number
2. Establishing a modern communication system
3. Triage and first aid for the casualties in the calamitous area
4. Management of the mass multiple-wounded

Keywords: causes; characteristics; China; costs; deaths; disasters; drought; earthquakes; events; floods; injuries; management; rain storms; statistics; typhoons
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Treatment of Critical Multiple Traumatic Wounds Complicated with MOF, Septic OPSI

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Owing to improvement of prehospital first aid, 1,446 sorties of ambulances were made, and 110,889 persons requiring first aid were transported to the Shanghai First Aid Central Station (SFACS) during 1999. The number of persons wounded by traffic accidents and other events was 26,681 (24% of total). Within the past year, the intensive care unit (ICU) received 15 of the patients with multiple traumatic wounds; among these were 11 cases with wounds to three organs. Of the 15, 11 persons recovered and 4 died. The curative care of the wounded consisted of early careful physical examination and ICU monitoring.

1. Hemodynamic monitoring — can reflect the cardiac function, to distinguish the character of pulmonary edema and continuously display cardiac functions associated with septic shock. The monitor can connect with the ventilator to show the parameter of lung function.

2. Acute renal failure — continuous arterial-venous filtration that is effective in removing overhydration and medium small molecule substances from the blood.

3. Anticoagulant therapy — The multiple trauma and the MOF-wounded usually receive massive transfusions and suffer from disseminated intravascular coagulopathy (DIC) with the result of blood coagulation disturbance. Then it is necessary to examine the mechanisms of blood coagulation and DIC. If it is found to have delayed prothrombin time and trombin time, a prothrombin complex must be used; delayed KPTT, then cryoprecipitate and FEP must be used. If the diagnosis of DIC is proved, heparin and other antihemolytic substance can be used.

4. Overwhelming Post-Splenectomy Infection — The new problem about immunology. If it is possible, the wounded must be examined for some immunodeficiency and receive relative treatment.

5. Establish ICU — To manage the critical multiple injuries that not only decrease the mortality, but also can represent the level to traumatic treatment.

Keywords: anticoagulants; disseminated intravascular coagulopathy (DIC); immunology; infection; intensive care unit (ICU); mortality; multiple injuries; prehospital; trauma; treatment

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One Year Georgian Experience of Nitrous Oxide Usage in Prehospital Care and Analgesia during Transportation

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The mixture of oxygen and nitrous oxide was used in 29 patients transported by the Center of Disaster and Emergency Medicine during emergencies and disasters in 2001. In all 29 patients, the pain was controlled: 10 had cardiogenic shock, eight had intracranial injuries, seven suffered gunshot wounds, and 4 had burns of different degrees. The Center of Disaster and Emergency Medicine participated in the medical response to four disasters in

2001. We provided care for 77 casualties; among them, 22 required analgesia that was performed using the 50-to-50% mixture of oxygen and nitrous oxide.

Keywords: Center of Disaster and Emergency Medicine; disasters; emergencies; nitrous oxide; oxygen; pain; relief
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Disaster and Emergency Medicine at Nursing Facilities in Japan

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Introduction: Japan is rapidly becoming one of the most aged societies in the world. In preparation for such an aged society, a long-term-care insurance law has been established, and many nursing facilities are being built.

Methods: In order to investigate the situation of emergency medicine in nursing facilities for the elderly, a questionnaire survey was conducted. Because Japan has an environment prone to disaster, a questionnaire survey to nursing facilities in Kobe City was also conducted to investigate the effects of the Great Hanshin Earthquake in 1995.

Results: The percentage of residents transported to hospitals by ambulance at nursing facilities was approximately 1.8% per year. Among such patients who were transported to hospitals by ambulance, some seemed to have poor prognosis because of their declining physical functions due to senescence. However, there were some residents who had the possibility of a relatively good prognosis if appropriate treatment was applied, including those who had choked on food and suffered trauma. There were only a few nursing facilities that received severe damage from the earthquake, even in the highly stricken area.

Conclusion: This presentation outlines the present situation of emergency medicine and the damage from the earthquake disaster at nursing homes in Japan.

Keywords: aging; elderly; disaster; earthquakes; emergency medicine; nursing homes; prognosis
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Quality of Emergency Trauma Care in India: An Analysis Based on TRISS Methodology in Mumbai University Hospital

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Introduction: The level of care to trauma victims in the emergency setting cannot be compared easily among trauma centers around the world. In this prospective study, the trauma injury severity score (TRISS) methodology is used to compare the trauma care offered at a metropolitan university hospital of a developing country to the standardized Major Trauma Outcome Study (MTOS) in the United States.

Methods: Between 01 August 2001 and 31 May 2002, 1,074 severely injured patients admitted to the emergency ward were included in the study. Survival analysis was completed for 98.3% of the patients.

Results: The majority of the patients were men (84%) and the average age was 31 years. Of these patients, 90.4% suffered from blunt injuries, the most common resulting from road traffic accidents (39.2%). The predicted mortality rate was 10.9%, while the observed mortality rate was 21.3%. The mean revised trauma score was 6.6 ± 1.65 , and the mean Injury Severity Score (ISS) was 16.7 ± 10.67 . The average probability of survival (Ps) was 89.14. The M- and Z-statistics were 0.84 and -14.1593, respectively.

Conclusion: Those persons who were injured in India often were older. When compared with the MTOS, the injuries were more severe and resulted in poorer outcomes. Other factors that influenced outcomes were the lack of prehospital care and injury prevention strategies, availability of informal caregivers, premorbid nutritional status, and economic constraints of the healthcare system. In a developing country like India, economic and institution-bound factors, in addition to the specific limitations of the TRISS methodology, were responsible for the differences between predicted and observed mortality.

Keywords: comparison; India; injury severity score (ISS); Major Trauma Outcome Study (MTOS); mortality rate; road traffic accidents; severity scores; trauma; trauma injury severity score (TRISS)
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Transportation of Neonates with Congenital Heart Disease: Appropriate Respiratory Management

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Background: Attention should be paid in some cardiac conditions in which excessive oxygen dilates pulmonary vessels, leading to congestive heart failure (CHF) or constricts a patent ductus arteriosus (PDA), leading to cyanosis or insufficient systemic circulation.

Objective: To report neonatal cardiac disease requiring transport with respiratory management.

Method: Eighty neonates (0-28 days of age) transported between 2001 and 2002 to the tertiary hospitals in Brisbane for cardiac intensive care and/or emergency surgery were categorized into one of three groups, based on desirable respiratory management:

- A. Sufficient oxygen (e.g., persistent pulmonary hypertension);
- B. Minimal oxygen (e.g., transposition of great arteries, coarctation of aorta, total anomalous pulmonary venous drainage); or
- C. Minimal oxygen with controlled ventilation (e.g., hypoplastic left heart syndrome).

Inappropriate respiratory management was defined when neonates without desirable respiratory management on transport developed symptoms such as acidosis or CHF.

Results: Group A contributed 1.3% of total, B = 83.8%, and C = 15.0%. Inappropriate respiratory management was observed in some neonates in Groups B and C (C>B).

Conclusions: Most of the neonates with cardiac disease requiring transport should be given minimal oxygen. The group including hypoplastic left heart syndrome in which