

decrease post-war disablement of people greatly. Our experience in Chechnya points out that among the victims of war, the people who suffer most are those living in a war-ridden city. It's not possible for them to get transported to central clinics in case of a medical emergency, and the city hospital facilities don't meet the demands of a microsurgical unit. This is due to unavailability of equipment and personnel. Moreover, there is a constant necessity for the war-surgeons to work on a make-shift basis.

We have shown that microsurgery can be performed with a minimum of portable equipment. During our one month mission to Chechnya, we performed 17 microsurgical operations and 12 reconstructive procedures. All other procedures were successful. The post-op care of patients undergoing micro and reconstructive procedures on extremities is not as complex as those after surgery of internal organs of similar duration and extent. This justifies the performance of microsurgery in conditions of catastrophe.

Conclusions:

- 1) In today's catastrophe surgery practice, we should include a micro and reconstructive surgery team. This would help prevent post-catastrophe disablement;
- 2) Microsurgery can be performed effectively on a make-shift basis, even though the county hospital may lack the facilities; and
- 3) Modeling of a light-weight, portable, surgical microscope that could be used in the place of a stationary microscope, will be helpful for the catastrophe microsurgeon.

Key Words: children; microsurgery; wars

Session 7A: Miscellaneous

Chairpersons:

J. Jakubaszko (Poland)

E. Soneide (Norway)

The Tokyo Subway Sarin Attack from the Disaster Control Viewpoint

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St. Luke's International Hospital experienced the aftermath of the Tokyo Subway sarin attack. We investigated what prehospital care was provided and how St. Luke's Hospital dealt with this disaster from the viewpoint of disaster control. We divided problems into five categories: 1) Prehospital care; 2) Decontamination; 3) Accommodation; 4) Triage; and 5) Medical information transmission.

Because of legal restrictions in Japan, paramedics could not act effectively during the Tokyo Subway Sarin Attack. As a result, the immaturity of the Japanese prehospital care system was exposed. The law should be

improved. An emergency medical system suitable for ordinary times cannot be applied for disasters. Disaster management not only is a medical issue, but also a social issue involving government, regional communities, hospitals, and citizens. Disaster planning for hospitals and citizens that is more open must be established. Public organizations should have mobile facilities for mass casualty decontamination. This not only applies to disasters involving Chemical Warfare Agents, but also to chemical disasters and nuclear disasters. Gas masks also are necessary for prehospital treatment. One systematic stream from registration to treatment is the principle of disaster deployment at hospitals. Establishment of communications that are strong enough to endure disaster is necessary. Concentration of information at one place is dangerous and a weakness in a disaster.

Key Words: communications; decontamination; disaster control; emergency medical services (EMS); laws; Sarin

Information Disorder in Hospitals During the Tokyo Sarin Attack in 1995

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More than 5,000 people were affected by the terrorist attack with nerve gas on 20 March, 1995 in Tokyo. Since it was unprecedented and unexpected, there was a severe lack of relevant information during the initial several hours in the involved hospitals. We investigated 210 hospitals/clinics by employing a set of questionnaires about collecting/providing poison information at the event.

The terrorists attacked subway passengers at about 08:00 hours (h) and the name of poison, sarin, was announced officially on television at 11:00 h by the Chief of the Metropolitan Police. This television announcement was the first information of the poison name for 145 (73%) hospitals/clinics, although treatments for acute organophosphate poisoning already had been initiated in these facilities. Only 19 (9%) hospitals had available medical documents on sarin poisoning at the time of the event. In half of the hospitals to which more than 50 casualties were admitted, only a few cases of acute organophosphate poisoning had been experienced previously. A specific antidote, PAM was out of stock in 156 hospitals/clinics (74%).

A variety of organizations provided therapeutic information about sarin poisoning to 157 hospitals/clinics (75%), mainly by facsimile transmission. The most important provider was Japan Poison Information Center (JPIC), and the second was a number of medical colleges. 73 (35%) hospitals/clinics requested advice from JPIC on the day of the attack. However, its telephone lines were constantly busy for several hours after the event.

One of the painful lessons of this terrorist attack is that more specific and effective information systems for medical facilities are necessary in a chemical disaster,

possibly using broadcasting networks or the news media. However, with dissemination of information through the media, the problem of control becomes a major issue.

Key Words: chemical disaster; organophosphate poisoning; poison information; poisoning; sarin

Methamphetamine Abuse: Worldwide Potential for Violence

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Objectives: Methamphetamine abuse rapidly is becoming a worldwide problem. The substance is inexpensive, easily manufactured, and highly addictive. Toxic levels or chronic use of the drug often results in agitation, violent tendencies, and frank psychosis. In California, methamphetamine now is the most common drug of abuse presenting to emergency departments for acute toxicity. In this study, we describe 155 patients presenting to the emergency department (ED) for violent agitation who required chemical restraint.

Methods: A prospective study in which violent, agitated patients requiring chemical restraint who presented to a large, urban, university hospital ED serving northern and central California between January 1996 and January 1997 were enrolled. Epidemiologic characteristics such as age, gender, race, employment status, type of health insurance, and admission of drug use were recorded. Type and dose of chemical restraint used were recorded, as well as use of physical restraint. Toxicology screens were performed on all patients.

Results: The mean age was 33.8 ± 10.4 years with a range of 16 to 64 years. Fifty-six patients (36%) were female. There were 108 Caucasian (70%), 27 black (17%), and 20 Hispanic patients (13%). Only 51 patients (33%) were employed, and 98 (63%) had no medical insurance. Forty-three (28%) had government-assisted medical insurance (MediCal/MediCare), with the remaining 14 (9%) having private insurance. One-hundred fourteen patients (74%) had positive toxicology screens for methamphetamine, and 20 (13%) were positive for cocaine. Ninety patients (58%) had positive toxicology screens for ethanol. Seventy two patients (46%) received a benzodiazepine for sedation. The remaining 83 (54%) received a butyrophenone. Eighty-five patients (55%) also required the use of physical restraint.

Conclusion: Methamphetamine toxicity is a common finding in patients presenting to our ED with violent, agitated behavior. Methamphetamine abusers tend to be young, white males who are unemployed and have no medical insurance. Liberal chemical and physical restraint often is required to subdue these patients.

Key Words: abuse; agitation; methamphetamine; restraint; toxicology; violent behavior

Hazardous Material Accidents with Mass Casualties: Prevention Strategies by Hamburg Fire Brigade

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Hazardous materials (HazMat) incidents cause high uncertainty in Emergency Medical Services (EMS) personnel because of both a lack of experience and the endangerment to the providers health.

In 1984, the Hamburg Fire Brigade organized a special squad to handle HazMat accidents of all types that included the techniques and environment-protection station. According to the needs of the mission, equipment is stored ready for use in tool and gear carriers (tag). In case of alarm, they are delivered by truck to the scene.

In the case of an accidental HazMat release, a technical advisor counsels the local fire brigade officer. The technical adviser identifies the unknown HazMat and provides all of the information needed for the operation. For material identification, he has at his disposal, a mobile, mass spectrometry, and gas chromatography linked to an electronic database.

Because of the great number of institutions and authorities involved and the potential danger to large numbers of citizens in how the HazMat accident is handled, a far-sighted planning is essential. Hamburg authorities published a "guideline to defense menace from HazMat concentration in the atmosphere." It lays down the responsibilities of each institution in the case of a HazMat accident.

In case of a HazMat accident with mass casualties, the Hamburg Fire Brigade dispatches the following as part of the first alarm:

to handle the HazMat

- 2 fire appliance for special service
- 1 tag "respiratory protective devices"
- 1 tag "salvage devices"
- 1 tag "radiation protection instruments"
- 1 tag "water protection devices"

for medical treatment

- 1 chief emergency physician
- 1 + n medical intensive care units (MICU)
- 7 + n ambulances
- 1 ambulance bus (capacity: 12 lying, 18 sitting)
- 1 + n rescue sets for major accidents officer in charge

The rescue of human beings is the highest priority for all personnel. Victims are brought out of the hot zone for immediate medical treatment. After stabilization of the vital parameters, transport begins. For specific antidote treatment, three antidote-sets for treatment of 15 victim each are available. Prophylactic evacuation of a whole quarter is handled very restrictively as it exceeds the immediate evacuation capability. The inhabitants are advised to stay inside of the buildings and keep doors and windows closed. In such circumstances, training of all firefighters and paramedics in Hamburg has proved to be extremely valuable.

Key Words: chief emergency physician system;