

cardiogenic CPA patients from the total cases.

Results: Spontaneous circulation returned in 447/1151 patients (38.8%), 61 (5.3%) survived, and 17 (1.5%) recovered fully. Among all CPA cases, influential factors for survival included arrival status, etiology, age, and time interval. For those who had a good recovery, the significant factors were arrival status, bystander CPR, and etiology. EMS was not an influential factor in any case. However, among the cardiogenic oh-CPA cases, EMS was a prognostic factor, and ELGs positively influenced both the survival and good recovery.

Discussion: To improve the outcome of CPA patients, spontaneous circulation should be achieved in the prehospital setting, the frequency of bystander CPR should be increased, and the time interval from collapse to hospital arrival diminished. Permitting ELGs to intravenously administer epinephrine and to perform intubation using standard endotracheal tubes may improve the outcomes of oh-CPA further. It also is important to educate the ELGs continuously and to educate the general population regarding the bystander CPR technique.

Conclusion: Japanese ELGs improved the outcomes of cardiogenic oh-CPA cases. Continued ELG education and the amendment of the system are necessary steps to obtain further improvement.

Keywords: advanced airways; bystanders; cardiopulmonary arrest (CPA); cardiopulmonary resuscitation (CPR); emergency life guards (ELGs); emergency medical services (EMS); intubation; Japan; out-of-hospital; prehospital; outcome

General Session XVIII
Education and Training
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 Chair: *Richard Aghababian, Yoshiaki Okada*

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Education and Training of Physicians in Emergency Medicine in the Czech Republic

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Introduction: Emergency Medicine (EM) in the Czech Republic (late Czechoslovakia) started its development in the early 1970s originating from the disciplines of anaesthesiology and resuscitation, in parallel with organization of the Emergency Medical Service (EMS) system. Since 1992, all the state territory is covered by the EMS system comprising both surface and air rescue systems. The EMS system operates with physicians on-board of emergency vehicles and helicopters. Physicians are responsible for providing casualties with emergency medical care on-the-spot using the equipment on EMS vehicles/helicopters. Before 1998, these physicians have not been recognized as an appropriate, well-defined, medical specialty.

Education and Training: In 1992, the Minister of Health established in the Institute for Post Graduate Medical Education (IPME) the Department for Emergency and Disaster Medicine (EDM) with the intention

of giving physicians in first contact with patients with acute illness/injury — general practitioners and EMS physicians — education directed exactly to specific problems of prehospital emergency medical care. Until this time, anaesthesiologists proved to be the physicians best suited for providing the life saving interventions. In 1998, the Minister of Health established Emergency Medicine in the country as higher medical specialization.

The Department of EDM in the IPME offers physicians three levels of postgraduate education: 1) Basics of EM: courses and training in CPR and in medical emergencies for general practitioners and all physicians in first contact with acutely ill or injured patients; 2) Courses for EM residents: before examination by specialists; and 3) Continuing education in EM.

Disaster Medicine: Crucial topics such as planning, organization, and management of rescue interventions after events that cause a disaster (mass casualties) are included in the educational plan for Emergency Medicine.

Keywords: disaster medicine; education; emergency medicine; residents; training

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Ethical Considerations of Models for Teaching Emergency Medicine

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There are ethical issues associated with using models to teach medical procedures. Typical ethical questions trade-off the realism of the model against the rights of the model, taking into account the distribution of resources.

Plastic models: Plastic models such as Resusci-Anne®, consume resources, and lack realism. Plastic models have no rights. The ethical issues associated with plastic models are those of resource distribution and skills transfer.

Food Animals: The use of food animals for teaching procedures raises many of the same moral issues as does the use of animals for human consumption or clothing. Procedures commonly taught using parts of food animals include intraosseous needle placement in chicken legs and suturing of pig or turkey skin.

Non-Food Animals: The use of non-food animals raises issues not only of animal rights or suffering, but also didactic issues. Small animals are so different from humans that they almost are useless for teaching medical procedures. Larger animals may be companion animals. Some procedures, such as endotracheal intubation, do not result directly in the animal's death. Others, such as thoracotomy, may. An additional ethical issue is the effect of the use of these animals on the trainee.

Primates: Primates are most like humans in terms of anatomy and physiology, but also most like humans in terms of their understanding of life and death. Many are

endangered species. The value of certain research may offset the expense and ethical issues of using primates, but seldom is their use of sufficient value for teaching common procedures to justify the use of a primate for such purposes.

Deceased Human Models: Human cadavers are the most realistic. Humans, live or dead, must be treated with dignity and respect. They, or their kin, have the right to determine what can be done to them. Donated cadavers pose only financial and didactic issues. Cadavers are cold, may be preserved, do not bleed, and their tissues are stiff. The newly dead are more like a living patient, but may not have given consent prior to their death. Is it ethical to continue a futile "code" a little longer to practice "running a code"? Is there really no chance that the person might revive? Is it ethical to continue long enough to let one more person perform some procedure? Does the invasiveness of the procedure matter? Is there a difference between practicing CPR, intubation, venipuncture, pericardiocentesis, or open-chest cardiac massage? Alternatively, is it ethical not to practice at every opportunity so that when the skill is needed, it is ready?

Live Human Models: The use of live humans raises additional issues of consent and coercion. The less invasive the procedure, the less concern regarding the coerciveness of consent. Patients who are used for training purposes should be so informed. Many of the same principles should guide recruiting volunteer human models as guide the human research subject. The volunteer may altruistically wish to aid in medical education and perhaps wishes for some personal gain, but should not stand to gain anything of sufficient value so as to be an unfair or coercive inducement.

Keywords: animals; coercion; education models; emergency medicine; ethical issues; ethics; learning; models; skills; teaching models; volunteers

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Management of Mass Casualties from Traffic Accidents in the City

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China has only 2.2% of the total numbers of motor driven vehicles in the world, but the number of automobile accidents is 9.0% of the total automobile accidents in the world. Currently, the annual number of deaths from traffic accidents in China approximates 86,000 persons. Shanghai is one of the biggest cities in the world. It contains a population of 13,000,000. Statistics from the past five years indicate that the traffic accidents exceed the past records by 60,000 cases with an average of two persons killed daily. The Shanghai First Aid Central Station (SFACS) is composed of 173 ambulances and 517 specialists. Altogether, 110,889 persons requiring first-aid were transported by SFACS in 1998. The number of persons wounded by traffic accidents and disaster was

26,681 persons with 318 persons found dead before hospitalization.

All patients who have sustained severe injuries due to trauma should be transported to an identified hospital in Shanghai. Every central hospital in Shanghai is setting up a Resuscitation Department so as to receive massive numbers of critically wounded casualties in accordance with the condition of the disaster. The function of a Resuscitation Department is to sort out all the critically wounded from ordinary ones and provide resuscitation and render all supportive treatments concerned. Their function include:

- 1) Cardiopulmonary resuscitation;
- 2) Immediate treatment of life-threatening respiratory failure, organ injuries, and the loss of blood; and
- 3) Initial management of fractures and injuries from these disasters with transportation to the Orthopedic Department.

Keywords: cardiopulmonary resuscitation; emergency medical services; hospitals; injuries; mass casualties; resuscitation; resuscitation department; Shanghai; traffic accidents; trauma

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Evaluation of Emergency Medical Services Systems (EMSS) for Burn Patients in Osaka Prefecture

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Introduction: The population of Osaka Prefecture is 8,730,000, which is the second biggest in Japan. Based on the Emergency Medical Service System (EMSS), Osaka Prefecture is covered by 33 fire departments, and has 17 tertiary emergency medical care facilities that always are available for acute life-threatening diseases and injuries including burns. This study examined the efficacy of the EMSS in the care of burn victims.

Methods: The efficacy of EMSS for burn patients was studied in 1996, using a questionnaire sent to the 33 fire departments and 17 tertiary emergency hospitals.

Results: The replies from the fire departments indicate that 1,103 burn patients were transported to hospitals by ambulance in 1996: there were 71 patients with severe burn injury of more than 30% of their body surface. For every 1,000 population, 1.26 burn victims were transported by ambulance in a year, and 0.8 victims per 100,000 persons had severe burns in Osaka Prefecture.

Of the severely injured 71 patients, 48 (67.6%) were admitted to the tertiary emergency hospitals. And 91.4% of the patients whose burn area did not exceed 30% were carried to the primary or secondary hospitals. When an ambulance crew noticed that the patients might have an inhalation injury, they were transported mainly to the tertiary emergency hospitals, as were the severe cases.

According to the replies from the questionnaire sent to the 17 tertiary emergency hospitals, 35 patients with