Objective: The aim of this study was to evaluate the effectiveness of the Japanese emergency system for out-of-hospital cardiopulmonary arrest (oh-CPA).
Background: Sudden CPA patients in Tokorozawa City and the surrounding cities (population of approximately one million) are transported to the hospital by the Japanese Emergency Medical Service (EMS). In the past, Japanese EMS personnel were permitted to perform only bag-valve-mask ventilation and external cardiac compressions for CPA patients. However, since 1991, specially trained emergency medical technicians (EMT) have used defibrillators and intubation devices (except for endotracheal tubes).
Patients and Methods: 1,039 CPA cases were studied. Prognostic factors influencing outcomes from CPA were evaluated using multivariate analysis (quantification theory type); these variables included etiology, age, gender, witnessed arrest, bystander CPR, crew of EMS (EMT or not), time interval from collapse to arrival, and arrival status (CPA or not).
Results: Spontaneous circulation returned in 393/1039 patients (37.8%), and 263 (25.3%) were admitted to the hospital wards. Forty-eight (4.6%) survived, and 13 (1.3%) recovered fully. Five full recovery cases were resuscitated by an EMT, and four of them returned to spontaneous circulation following defibrillation during ambulance transport. Influential factors for survival were arrival status, time, and etiology.
Conclusion: Further improvement of the Japanese EMS system is needed. Continued EMT education will be necessary to accomplish the goal.

Key words: airway management; cardiopulmonary arrest; defibrillation; emergency medical technicians (EMTs); intubation; outcome; prehospital; resuscitation; survival

ABSTRACTS OF INVITED AND SCIENTIFIC PAPERS

FREE Papers
Poster Presentations

Organophosphate Insecticides Poisoning—Causes of Death

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Introduction: Remarkable improvement in the results of the management of acute peroral poisonings with organophosphate insecticides (OPI) have been attained. Despite these gains, the problem has not resolved completely. A mortality rate of 25–30% still exists.
Subjects: The causes of death in the group of patients admitted with acute peroral poisoning of OPI were studied. The data were abstracted from clinical observations and results of medical forensic examinations.
Results: The causes of death in the group of 87 patients who died of acute OPI poisoning were investigated. Of the total number of deaths, 39.1% occurred during the toxicogenic phase and 60.9%. during the somatogenic phase.

It should be emphasized that within the first 12 h, the main causes of death were due to coma with brain oedema and respiratory center paralysis and exotoxic shock (90% of all deaths). In the late toxicogenic phase (12–48 h), the main cause of death was exotoxic shock (65%). In the early somatogenic phase (3–6 days) the main cause of death was related to complications due to infection, mostly pulmonary (48.8%), and hemodynamic failure. The forms of hemodynamic failure were acute left ventricular failure, secondary somatogenic collapse, and dysrythmias despite treatment with potassium. There were no significant differences between the clinician's and pathologist's decisions regarding the cause of death.

Conclusion: These data provide directions to improve the methods of intensive care for acute OPI poisoning.

Key words: dysrhythmias; hemodynamic failure; intensive care; left ventricular failure; organophosphate poisoning; phases of care; secondary infection; shock

Do Medical Curricula Produce Emergency Preparedness?

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Introduction: Every qualified medical doctor is expected to act effectively and logically in a sudden emergency situation. Ideally, this preparedness should be reached gradually during the medical curriculum in the university before qualification. According to anecdotal information, many young medical doctors have uncertain feelings about their abilities when they start their work as general practitioner or have their first night duty in a minor hospital. Because there are no documented data of preparedness or skills achieved with guided training, we studied the medical students in Finland immediately before they completed their studies.
Methods: We personally submitted a standard questionairre to all medical students of the five medical faculties and asked questions concerning their theoretical knowledge, expertise, and readiness to deal with the most usual emergencies.
Results: The answers indicate that the theoretical knowledge included in lectures is estimated to be sufficient, but that the practical training of emergency procedures is limited to only a few if any, occasions. Their estimation of

their preparedness was surprising. Despite the observation that the answering person had not even seen most of the listed emergency procedures, s/he believed s/he was (or excellent) prepared to perform the necessary skills. The possibility to freely express their personal opinions and views was used mostly for negative expressions of the quality of teaching and inadequacy of training.

The relatively low percentage of returned questionaires is a sign of low interest for emergency medicine among medical students. The feelings of preparedness despite the knowledge that the person had not seen or performed some of the therapeutic procedure shows that students' practical skills are not tested or evaluated by teachers.

Conclusion: There is an urgent need to increase the partition of emergency medicine in medical curriculum. The use of simulators could be a solution to those deficit in training, because there are not enough patients whose treatment should provide sufficient opportunities for practical and guided training. Simulation programs also could offer possibilities for testing the real preparedness in emergency care.

Key words: emergency medicine; medical curriculum; perceived abilities; self assessment; simulations; training

Transdermal Application of Ketamine: A Pilot Study

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We performed our first experiments to investigate the local anesthetic effects of ketamine applied to denuded suction blister bases in 1995.[1,2,3] The pin prick test was used to demonstrate the effectiveness the local anesthesia. In a later experiment, a topically applied mixture of ketamine (Ketalar, Parke-Davis) and the ointment base (Aqualan7, Orion Pharmaceuticals) under occlusion was tested, and it also was found to have a local anesthetic effect, thus making minor laser surgery possible.

In all of our previous experiments, the one common observation has been extrapyramidal side-effects of short duration. This systemic effect was present even after the administration of minimal doses. This prompted us to attempt transdermal application of ketamine through intact skin to produce analgesia.

In in-field and disaster medicine, the relief of pain in the wounded or in traumatized patients is an integral part of emergency treatment. In this respect, ketamine is accepted widely as the first-choice analgesic. Parenteral administration of an analgesic requires training and experience, whereas transdermal application of an efficient analgesic, such as ketamine, can be performed even without previous experience or even can be self-administered by a conscious patient.

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Key words: amnesic effects; analgesia; anticovulsant therapy; bronchodilator; disaster; disaster medicine field anesthesia; local anesthetics agents; ketamine; pain; sedative; training

Drying of Foot and Hand-Wear: Preliminary Results with a New Drying Device

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In all circumstances, moisture accumulation into and wetness of foot-wear causes discomfort, increases the risk of bacterial and fungal infections, predisposes the skin of the feet to march blisters, and last but not least, destroys and shortens the life of foot-wear.[1] In warm weather, moisture causes objective changes in the skin of the foot that are compatible with the warm-water immersion foot syndrome.[2] Its symptoms include soreness of the feet, erythema, and pain. Especially during the cold season, moist foot-wear accelerates cooling of the organism, e.g., during halts and rests. The risk for frostbite becomes a reality when the skin temperature falls to about 10°C. Also, moist and wet gloves and mittens cause discomfort and during the cold season increase the risk of frostbite. Furthermore, cold-induces significant decreases in the function and dexterity of the hand.[3] Only adequate and dry foot- and hand-wear provide optimal protection. This is important especially in field conditions.

We have performed preliminary testing of a new drying device, APuhuri®, intended for simultaneous drying of 18 pairs of foot- and/or hand-wear in an ambient temperature of 0° to 45°C. The test results are promising and will be presented.

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