

closest reasonable medical facility or to the patient's home country.

**Problems related to long-distance air-medical transport include:** 1) The pilot's duty-time restrictions combined with the demand for the quickest possible transfer of the patient to a receiving hospital; and 2) Long-range, wide-body aircraft are too expensive to use for air-medical transport.

**Solution:** A functional world-wide service network created by service providers in different geographical areas should be established by which a coordinated, unbroken logistic chain of air-medical transport service providers would use several air-ambulance aircraft in combination with commercial intercontinental airline services.

**Benefits:** Expanded world-wide service program would be available for patients wherever the need arises. This would provide cost-effective, reliable, and coordinated repatriation of the patients under supervision of air-medical professionals.

**Key words:** air-medical transport; network; cost-effective transportation; transportation

### Prehospital Thrombolysis: The Medi-Heli Approach

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#### I. Background

- I.1. The EMA Group Ltd (Emergency Medical Assistance) has performed 24-hour emergency medical evaluations, assistance, and evacuation/repatriation services since 1989.
- I.2. EMA evaluates/assists 1,000 cases and arranges 300 medical evacuations/patient transfers annually.
- I.3. Since 1992, EMA has provided the physician for Medi-Heli, the Southern Finland Helicopter Emergency Medical Service (HEMS)

#### II. Outline

- II.1. Medi-Heli performs 1,700 scene-response missions annually.
- II.2. The Unit sees and treats 90–100 patients with acute myocardial infarction (AMI) every year.
- II.3. Of these patients, 30–35 receive prehospital thrombolysis within 90 minutes from onset of first chest pain symptoms.
- II.4. Normally, the patient is transported by ground ambulance after the HEMS crew intervention.

#### III. Objectives and Conclusions

- III.1. The importance of thrombolysis as soon as possible after onset of the first symptoms is emphasized.
- III.2. The HEMS crew can perform diagnosis of AMI on scene.
- III.3. The HEMS crew, in addition to other treatment, can start and perform prehospital thrombolysis.
- III.4. The HEMS crew can both treat and stabilize the

AMI patient on scene prior to the transportation by ground ambulance.

**Key words:** air medical; ambulance; chest pain; emergency medical care; emergency medical evaluations; helicopter; myocardial infarction; prehospital; thrombolysis; transportation

### Brain Injury in Persons Exposed to Chronic Intoxication by Neurotropic Poisons

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The consequences of chronic intoxication with neurotropic poisons on brain was studied in 138 patients. All of them were poisoned with ethanol or its surrogates. Mainly (87%), these were men at an age from 46 to 78 years. The age of the women ranged from 38 to 69 years.

All of the patients examined had suffered a severe brain injury which demonstrated some peculiarities connected with brain morpho-functional changes caused by chronic ethanol poisoning. These changes were manifested as: 1) chronic poisoning with ethanol brought about the development of brain atrophy in 43% of the cases (59 patients). As a result, the ventricular spaces had become enlarged and chronic subdural hematomas had formed. Furthermore, sharp and subsharp subdural hematomas run with 3–5 days gaps in 20% cases (28 patients); 2) Internal hydrocephaly ex vacuo was identified with magnetic resonance computed tomography in major cases studied. Atrophy of visceral brain structures was revealed clinically as the following psychoorganic syndromes: Korsakov's dementia, 32%; a syndrome with amnesia and abulia, 28%; epileptic fits, 22%; 3) Brain blood flow disorders registered by transcranial doppler monitoring as a total vasospasm were observed in 78% of the cases.

Nimodipine administration for 7–10 days reduced these phenomena. Thereby, chronic intoxication by neurotropic poisons such as an ethanol, changes in brain pathomorphology and clinical pictures must be considered when rendering a care to this category of damaged beings during evacuation stages.

**Key words:** brain atrophy; brain injury; cerebral blood flow; chronic intoxication; clinical findings; neurotropic poisons; nimodipine; pathomorphology; subdural hematoma

### Evaluation of Japanese Emergency Systems for Out-of-Hospital Cardiopulmonary Arrest

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