

(71) Out-of-Hospital Surface Cooling With a Cooling-Blanket to Induce Mild Hypothermia in Humans after Cardiac Arrest: A Feasibility Trial

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Introduction: Animal studies suggest that early and fast induction of mild hypothermia is crucial for beneficial outcomes after cardiac arrest. The aim of the study was to evaluate the feasibility and safety of out-of-hospital surface cooling with a novel cooling-blanket (EMCOOLSpad[®], independent of any energy source during use) in patients successfully resuscitated from cardiac arrest.

Methods: This study included patients after out-of-hospital cardiac arrest with an esophageal temperature (T_{es}) >34°C. The EMCOOLSpad[®] consists of multiple cooling units, filled with a graphite/water mixture, stored at -3°C in a cooling box in the ambulance. The cooling-blanket was applied as soon as it was feasible by the ambulance crew, and removed at T_{es} = 34°C. The target-temperature, T_{es} = 33°C, was maintained for 24 hours. Data are presented as median and interquartile range (25–75%).

Results: From September 2006 to December 2006, 10 patients, with an average weight of 70 (64–93) kg, were included in the study. Cooling was initiated an average 14 (7–20) min after resuscitation. Use of the cooling-blanket decreased T_{es} from 36.5 (36.2–36.7)°C, at start of cooling, to 34.0°C within an average of 61 (47–93) min, and to target temperature, T_{es} 33°C, within 83 (61–119) min. The cooling rate was 2.6 (1.6–3.6) °C/h. Hospital admission was an average of 45 (40–53) min after Return of Spontaneous Circulation (ROSC), T_{es} 33°C, was achieved at an average of 78 (32–107) min after admission. No skin lesions from use of the cooling blanket were observed.

Conclusions: Non-invasive, out-of-hospital surface cooling with EMCOOLSpad[®], immediately after resuscitation from cardiac arrest, demonstrated that its use is feasible and safe. It must be determined if early cooling, as compared to delayed cooling in the hospital, will improve neurological outcome in a prospective randomized trial.

Keywords: cardiac arrest; cooling blanket; esophageal temperature; hypothermia; surface cooling

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(73) Prehospital Risk Factors for Iatrogenic Tracheal Stenosis

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Introduction: Three patients received surgical treatment in one hospital for iatrogenic stenosis of the trachea. All of them developed severe stridor after detubation while in the intensive care ward. These patients sustained major, traumatic injuries that required field intubation. They were admitted to the hospital by a Helicopter Medical Team

(HMT). The present study is a consequence of these case reports. The aim was to identify risk factors for iatrogenic tracheal stenosis during prehospital treatment.

Methods: This study examined all the patients who were intubated in the field by the HMT using a cuffed endotracheal tube within a period of six months in 2006. Patient data collected included: (1) prevalence of shock; (2) use of alpha-agonists; and (3) endotracheal cuff pressure (recommended upper limit 25 cm H₂O).

Endotracheal cuff pressure was measured only after the standard prehospital routine for intubation and insufflation of the cuff had been performed. Medical personnel charged with the insufflation were not informed regarding the purpose of the study.

Results: Ninety-three patients were included in the study; indications for prehospital intubation were brain injury, major trauma, and cardiac resuscitation. One or several causes of iatrogenic tracheal stenosis could be identified in 81 patients: 80 patients had a cuff pressure above the 25 cm H₂O limit, the mean cuff pressure of all patients was 57 ± 33 cm H₂O. Eleven patients were in hypovolemic shock, and 4 patients were administered with alpha-agonists.

Conclusions: Inappropriately high cuff pressures frequently are measured after prehospital intubation in the Netherlands. Training of all personnel involved in field intubation is urgently required.

Keywords: cuff pressure; field intubation; Helicopter Medical Team; hypovolemic shock; tracheal stenosis

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(74) Emergency Transport of Acute Drug Poisoning Cases in Athens, Greece

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Introduction: This study analyzed the drug poisoning-related calls received by the Dispatch Center of the Hellenic National Centre for Emergency Care (EKAB) in Athens, Greece.

Methods: Among the 317,388 calls received by the Athens Operations Centre of EKAB in 2005, all acute drug poisoning-related calls were analyzed. Statistical analysis was performed using STATA 8.0 statistical software.

Results: A total of 1,806 calls due to acute drug poisoning (0.6%) were recorded in 2005. The majority of cases pertained to female patients (68.2%). A total of 24% of the cases originated within the municipality of Athens. January was the month with the highest number of calls (12% of all calls), and 38% of calls were recorded during the 18:00–00:00 hour interval, and the within-day variability was statistically significant ($p < 0.001$). The within-week variability was not statistically significant.

The median time for arrival of the ambulance at the scene was 19 minutes; the median time at the scene was 12 minutes, and the median time for transport to the hospital was 26 minutes. The majority of cases were transported by BLS ambulances (82%), followed by mobile intensive care

units (18%). Specially equipped motorcycles or super-mini city cars provided initial care in 1% of the cases. The observed cancellation rate was 20%.

Conclusions: The center of Athens was particularly aggravated, probably due to the lower socioeconomic level of the inhabitants. Women are more vulnerable than men, probably due to the underlying intentional poisoning that in turn may reflect the social pressure imposed upon them. Shorter daylight duration during winter may account for the observed peak in January.

Keywords: Athens; dispatch center; drug poisoning; emergency transport

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(75) The Australian Emergency Prehospital Pandemic Influenza Project: A Methodology for Operational Evidence

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In early 2006, a collaborative, national and international team led by the Australian Centre for Pre-hospital Research and Monash University Centre for Ambulance and Paramedic Studies was funded by a National Health and Medical Research Council Urgent Research Grant to study risk perception.

The study examined the perception of risk of Australian paramedics and their families to working and living in pandemic conditions. The study also assessed the utility of ambulance call-taking and dispatch data in constructing population-based models of surveillance and triage. This project secured early support from the National Council of Ambulance Authorities and the eight individual Ambulance Service jurisdictions across the country. The consultative approach and methodology applied for this project have provided an important platform for the development of evidence-based approaches to issues of national significance for Ambulance Authorities in Australia. This paper will describe the methodology applied to this project and emphasize the opportunities the project presented to facilitate national engagement, as well as to develop a governance structure to ensure good practice in the transition of research into operational policy.

Keywords: ambulance; Australia; pandemic conditions; paramedic; risk perception

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(76) Air Ambulance Emergency Medical Services in the Greek Island Complex of Dodekanisos

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Introduction: The Emergency Medical Services (EMS) of an island complex may face many difficulties with emergency evacuations. The Dodekanisos island complex of

southern Greece solved these problems through the implementation of a well-organized system of physician and paramedic-staffed helicopters. The Rhodes helicopter EMS (HEMS) model is under the direct supervision of a nationwide air ambulance service based in Athens (EKAV—Department of Air Ambulance EMS).

Methods: The Rhodes HEMS model conducts air ambulance evacuations between smaller islands of the complex and Rhodes Hospital. Only few evacuations are directed to Crete or Athens. The statistical analysis results of Rhodes HEMS reports and EKAV air ambulance EMS reports were evaluated.

Results: A total of 1,071 cases were evacuated by air ambulance in Dodekanisos during 2003–2005. There were no significant differences in the rates of Rhodes EMS model evacuations through this period. In 2003, a total of 331 cases were evacuated. Rhodes HEMS model serviced 108 of these cases (32.6%). Respectively, in 2004, 151 of a total 390 (38.7%) cases were covered by the HEMS model and in 2005, 135 cases of a total 350 (38.6%). The rest of the evacuations were managed through aircrafts from the Athens Central Department of Air Ambulance EMS.

Conclusions: Air ambulance EMS systems are challenged all over the world. Rhodes HEMS model covers more than one-third of the evacuations yearly, representing an efficient local air ambulance model appropriate for an island complex.

Keywords: air ambulance; air evacuation; emergency medical services; Greece; island complex

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(77) Expanding the Scope of Paramedic Practice in Rural, Remote, and Isolated Communities

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The Queensland Ambulance Service (QAS) is the fourth largest Ambulance Service in the world. The QAS provides state-wide coverage to an area of 1.77 million km² from 282 service locations serviced by 2,800 clinically active staff. Due to the vast area of Queensland and the number of remote, rural, and isolated communities—including many island communities—Queensland is expanding the role of paramedics in these communities to increase their ability to support primary health care as part of a wider healthcare team including rural doctors and nurses.

Since 2004, QAS has worked with James Cook University, Mount Isa Centre for Rural and Remote Health, and Queensland Health to develop the Graduate Certificate in Rural and Remote Paramedic Practice. The Graduate Certificate in Rural and Remote Paramedic Practice aims to produce graduates who are able to provide expanded support services to medical, nursing, and allied health professionals. The certificate students will be prepared to integrate and acquire skills and knowledge relevant to the context of practice for their communities in the area of ambulance service operations, primary health care, and public health. The students will have an understanding of the context in which rural and remote health services are delivered. The program has a primary and public health focus that enhances skills in patient assessment, decision-