REFERENCE

1. Finnish Official Statistics – Suomen virallinen tilasto (SVT): Väestörakenne [verkkojulkaisu]. ISSN=1797-5379. Helsinki: Tilastokeskus [Internet]. [cited 2017 Jan 15]. Available from: <http://www.stat.fi/til/vaerak/tau.html>

Conflict of interest None declared.

Funding Helsinki University Central Hospital, The Finnish Society of Anaesthesiologists

37 EMERGENCY MEDICAL DISPATCHERS' PERCEPTION OF BARRIERS IN HANDLING EMERGENCY CALLS. A QUALITATIVE STUDY

¹TP Møller*, ¹H Gamst Jensen, ¹S Viereck, ¹FK Lippert, ²D Østergaard. ¹Emergency Medical Services Copenhagen, University of Copenhagen, Denmark; ²Copenhagen Academy for Medical Education and Simulation, University of Copenhagen, Denmark

10.1136/bmjopen-2017-EMSAbstracts.37

Aim Medical dispatching is a highly complex procedure and has an impact upon patient outcome. It includes handling emergency calls, prioritisation of resources and the provision of guidance and instructions to callers. Whilst emergency medical dispatchers play a key role in the process, their perception of the process is rarely reported. We explored emergency medical dispatchers' perception of their role in emergency call handling and their perception of barriers.

Methods An explorative qualitative interview study was designed. Modified grounded theory was used for the data analysis.

Results A total of 5 paramedics and 6 registered nurses were interviewed. A model of the emergency call handling process was drawn based on the data. The analysis of barriers resulted in themes relating to the callers and the medical dispatchers, from whom four and three respective themes were identified. For callers, the motive for calling, the situation, the perception and presentation of the problem was influencing factors. For the dispatchers the expertise, teamwork and organisation influenced the process.

Conclusion The results indicate factors influencing the medical dispatch process, as perceived by medical dispatchers. Callers lack knowledge about best utilisation of the emergency number and the medical dispatching process, which can be improved by public awareness campaigns and incorporation of knowledge in first aid courses. For medical dispatchers the most potent modifiable factors were based upon the continuous professional development of the medical dispatchers and the system that supports them.

Conflict of interest None declared.

Funding EMS, Copenhagen receives centre support from the Laerdal Foundation for Acute Medicine.

38 A 5 YEAR COMPARISON OF PUBLIC RECOGNITION AND WILLINGNESS TO PERFORM BYSTANDER CPR IN A METROPOLITAN CITY

¹S Moon*, ¹HW Ryoo, ¹DE Lee, ²JH Kim, ¹HW Ryu. ¹Kyungpook National University Hospital, South Korea; ²Yeungnam University Medical Center, South Korea

10.1136/bmjopen-2017-EMSAbstracts.38

Aim Bystander cardiopulmonary resuscitation (CPR) plays an important role in improving survival rate of sudden cardiac arrest patients. Various measures can be implemented to

achieve better outcome in bystander CPR. We aimed to compare CPR willingness, public CPR recognition, and CPR education between a 5 year interval. Nationwide and regional public interventions involving public education, research, and automated defibrillator (AED) installation were made during the period.

Methods Two surveys separated with a 5 year gap were done using structured questionnaires, targeting a total of 2141 citizens in a single metropolitan city. Respondents' general demographic characteristics, CPR knowledge and willingness, and status of CPR education were questioned.

Results After the interventions, the rate of respondents willing to perform CPR (73.8 vs 76.0%, $p=0.269$) and recognising CPR (89.6% vs 90.8%, $p=0.343$) were increased, but not with statistical significance. More respondents were aware of AEDs (26.1% vs 84.4%, $p<0.001$) and specific knowledge in performing CPR (1.6% vs 11.8%, $p<0.001$), possibly leading to more confidence in performing CPR (33.9% vs 45.4%, $p<0.001$). Regarding CPR education, the portion of respondents with education experience (36.5% vs 56.6%, $p<0.001$) and willing to seek future CPR education (75.8% vs 86.6%, $p<0.001$) were higher.

Conclusion Various interventions to promote bystander CPR were associated with confidence in performing bystander CPR, AED recognition and CPR education. However, bystander CPR willingness and public CPR recognition were not significantly altered.

Conflict of interest None declared.

Funding None declared.

39 HELIPORT PROXIMITY IS CRUCIAL IN REDUCING TREATMENT DELAY IN PATIENTS WITH ST-ELEVATION MYOCARDIAL INFARCTION TRANSPORTED BY HELICOPTER – HELIPROXY STUDY

^{1,2}PM Hansen*, ³CJ Terkelsen, ²IS Riddervold, ^{1,4}L Knudsen. ¹HEMS Denmark, Region of Central Denmark, Aarhus, Denmark; ²Prehospital Emergency Medical Services, Central Denmark Region, Aarhus, Denmark; ³Department of Cardiology, Aarhus University Hospital, Aarhus, Denmark; ⁴Aarhus University Hospital, Aarhus, Denmark

10.1136/bmjopen-2017-EMSAbstracts.39

Aim Since 2014, HEMS (Helicopter Emergency Medical System) has been an integrated part of the emergency medical system, providing fast and high-competence helicopter transport of patients to highly specialised care. Different heliport solutions at the receiving hospitals may have an impact on the time delay from landing to treatment (LTT). In this study, we compared the time delay from landing to arrival at the catheterization laboratory in patients with ST Elevation Myocardial Infarction (STEMI) accepted for primary Percutaneous Coronary Intervention (pPCI) at one of the four centres in Denmark. We hypothesised that heliport proximity strongly influence the LTT.

Methods We prospectively recorded the time from the landing at the heliport to arrival at the catheterization laboratory from October 1st 2014 to December 31st 2016 in all STEMI patients transported by HEMS Denmark. LTT was compared between two centres with heliports at the hospital, and two centres with heliport located outside the hospital, necessitating ground transportation in ambulance.

Results 1163 patients were included in the study. 310 were excluded due to missing data. The two hospitals with hospital based heliports showed shorter LTT compared to the two

hospitals with heliport outside the hospital (5 ± 2.18 and 6 ± 2.94 vs. 9 ± 3.94 and 12 ± 3.49 , $p < 0.001$).

Conclusion Hospital based heliports ensure shorter time delay from landing to pPCI in patients with STEMI. We strongly recommend that heliports are located close to the treating facility. Transfer from landing site to hospital by ground ambulance seems unfeasible in time critical patients.

Conflict of interest None declared.

Funding None declared.

40 COMPREHENSIVE EFFICACY AND INTEGRATED SAFETY RESULTS FROM THE LATE-PHASE CLINICAL PROGRAM OF THE SUFENTANIL SUBLINGUAL TABLET 30 MCG

¹R Leto*, ²J Miner, ³Z Rafique, ⁴M Tyler. ¹University Hospitals of Leuven, Leuven, Belgium; ²Hennepin County Medical Centre; ³Baylor College of Medicine; ⁴Macksville Hospital, New South Wales, Australia

10.1136/bmjopen-2017-EMSAbstracts.40

Aim The sufentanil sublingual tablet system (Zalviso) is a non-invasive, patient-controlled analgesia product recently approved in Europe for treatment of acute post-operative pain. A second sufentanil product, a 30 mcg tablet (SST 30 mcg) dispensed sublingually by a healthcare professional, recently completed Phase 3 development for treatment of pain in settings such as the emergency department and EMS. The primary objective of this presentation will be to review key efficacy and safety data from all four late-phase trials.

Methods The late-phase program consisted of two randomised, placebo-controlled studies and two, open-label studies, including one of patients presenting to the emergency department with trauma or injury pain. In all studies there was a minimum re-dosing interval of 60 min and efficacy was assessed using an 11-pt (0–10) NRS. The primary variable was the summed pain intensity difference to baseline (SPID) and safety was evaluated via adverse events (AEs), vital signs and concomitant medications.

Results A total of 479 patients were enrolled; 363 received treatment with SST 30 mcg. In each of the placebo-controlled studies, SST 30 mcg was superior to placebo for the primary efficacy endpoint of SPID12 ($p = 0.005$ and $p < 0.001$, respectively) while the open-label studies demonstrated clinically significant reductions in pain intensity as early as 15 min after dosing. The most commonly reported AEs across all studies were nausea (29%), headache (8%) and vomiting (6%).

Conclusion The sufentanil sublingual tablet 30 mcg, while still under FDA review, has shown potential benefit as a non-invasive analgesic modality in medically supervised settings requiring short-term treatment of acute moderate-to-severe pain.

Conflict of interest Drs. J. Miner and Z. Rafique were principal investigators in the phase 3 clinical trial. Dr. R. Leto and M. Tyler have served as consultants to AcclRx Pharmaceuticals

Funding Development of the Sufentanil Sublingual Tablet 30 mcg is funded in part by the Clinical and Rehabilitative Medicine Research Program (CRM RP) of the U.S. Army Medical Research and Materiel Command (USAMRMC) under contract No. W81XWH-15-C-0046. The CRM RP was established in 2008 to foster research and technology advances for regeneration, restoration, and rehabilitation of traumatic injuries.

41 NEW METHODS FOR DIAGNOSIS OF THORACIC TRAUMA IN PREHOSPITAL CARE

^{1,2,3}S Candefjord*, ^{1,2,3}R Buendia, ^{4,5}EC Caragounis, ^{6,7}NP Oveland, ^{1,2,3}BA Sjöqvist, ⁸M Oropeza-Moe, ^{2,9}M Elam, ^{1,2}M Persson, ^{1,2}A Fhager. ¹Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden; ²MedTech West, Sahlgrenska University Hospital, Gothenburg, Sweden; ³SAFER Vehicle and Traffic Safety Centre at Chalmers, Gothenburg, Sweden; ⁴Trauma Unit, Department of Surgery, Sahlgrenska University Hospital, Gothenburg, Sweden; ⁵Department of Surgery, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; ⁶Department of Health Studies, Network for Medical Sciences, University of Stavanger, Stavanger, Norway; ⁷Department of Anesthesiology and Intensive Care, Stavanger University Hospital, Norway; ⁸Department of Production Animal Clinical Sciences, Faculty of Vetbio, Norwegian University of Life Sciences, Sandnes, Norway; ⁹Clinical Neurophysiology, Sahlgrenska University Hospital, Gothenburg, Sweden

10.1136/bmjopen-2017-EMSAbstracts.41

Aim Trauma to the thorax is common and can be life-threatening. Prehospital diagnosis of thoracic injuries is challenging. Ultrasound is a promising technology; however, its accuracy is operator dependent. Methods not requiring operator image interpretation would be beneficial. The aim of this study is to evaluate electrical bioimpedance (EBI) and microwave technology (MWT). Both technologies are non-operator dependent, non-invasive, harmless, cost efficient, rapid and portable.

Methods Two complementary lines of research are pursued. A clinical study aiming to differentiate EBI measurements of thoracic trauma patients ($n = 20$) and healthy controls ($n = 20$), using diagnostic mathematical algorithms, has been completed. Clinical trials are complemented by experiments on realistic porcine models of pneumothorax (PTX) and hemothorax (HTX).^{1–2} These experiments enable analysis of EBI and MWT with well-defined injuries. A pilot study on two pigs with unilateral PTX from small (50 mL) to large (2000 mL) sizes, and large HTX, was performed. Diagnostic performance is evaluated using cross-validation to derive the area under the ROC curve (AUC), and confusion matrices.

Results The clinical study achieved $AUC = 0.87$. The pilot porcine study showed that EBI parameters evolved as expected with increasing PTX/HTX; EBI theory predicts presence of air should increase resistivity and fluid decrease it. The MWT classification accuracy for predicting size of PTX was 100% and 98% for each pig, respectively.

Conclusion EBI and MW are promising technologies for pre-hospital diagnosis of thoracic injuries.

REFERENCES

1. Buendia, *et al.* Electrical bioimpedance for diagnosing thoracic injuries: Test on a porcine pneumothorax and hemothorax model. (2016) Short Communications From AAAM's 60th Annual Scientific Conference, *Traffic Injury Prevention*, 17: supp 1, 175–218.
2. Oveland, *et al.*: A wearable microwave detector for diagnosing thoracic injuries-test on a porcine pneumothorax model. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2015;23(Suppl 2):A20.

Conflict of interest None declared.

Funding The authors acknowledge funding received from the Swedish research centre MedTech West and Folksam insurance company.