A WORLD RECORD FOR LIFE – A NATIONWIDE CPR INITIATIVE

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Aim Bystander cardiopulmonary resuscitation (CPR) is a cornerstone of improving survival in out-of-hospital cardiac arrests (OHCA).1 TrygFonden’s World Record for Life aimed to show the public how easy it is to perform CPR by setting a world record in the number of people nationwide performing quality chest compression during 12 hours.

Method The record was set for 12 locations in Denmark over a 12 hour period on 22nd of May 2017. Each contribution was defined as 30 s of compression-only CPR on a Laerdal Q-CPR manikin with a Laerdal compression score greater than or equal to 65%.2 Compression score was based on compression depth, rate, conflict of interest, hands-off time, and placement of hands. Data was stratified by citizens or by attendees at the Emergency Medical Services Congress 2017 (EMS2017) in Copenhagen, and analysed using Wilcoxon rank test.

Results Out of 6094 participants, 5707 (94%) reached a compression score 65% or more. Participants with a score of under 65% struggled with all components except compression rate compared to participants that reached 65%. Comparing laypersons and EMS2017-attendees, both groups performed under 65% for compression score 65% or more. Participants with a score of 65% and above demonstrated significantly better (71.4 vs 43.6%, OR: 3.2 [95% CI: 1.4 to 7.6]) for sustained ROSC; 57.1 vs 25.9%, OR: 3.8 [95% CI: 1.7 to 8.5] for survival of discharge; 57.1 vs 16.9%, OR: 6.6 [95% CI: 2.9 to 14.9] for good CPC; and 100 vs 65.1% for good CPC among survival–to-discharge) compared with those 243 patients by DATCPR rescue. In 28 patients by bystander defibrillation rescue only one man without prehospital ROSC still achieved survival–to-discharge and good CPC.

Conclusion For OHCA patients at public locations, we found that a community-wide bystander defibrillation program were associated with excellent neurological outcome of CPC 1 and survival to hospital discharge that were significantly higher than those associated with DATCPR program.

Conflict of interest None

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REFERENCES

THE PRE-HOSPITAL MANAGEMENT OF ACUTE HEART FAILURE: A CLINICAL AUDIT OF CURRENT PRACTICE

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Aim There has been a drive towards an increase in community-based management of heart failure. When patients experience acute heart failure (AHF), the complex nature of this condition poses diagnostic uncertainty for first responders. It is widely accepted that all patients should be transferred promptly to hospital, however with the introduction of pre-hospital diuresis, nitrate therapy and more recently non-invasive ventilation (NIV), the debate into the appropriateness and limitations of so-called ‘stay-and-play’ management strategies for patients in AHF has been re-ignited. We examine the current clinical assessment and management of AHF within the London Ambulance Service.

Method Ambulance Patient Report Forms (PRFs) from cases that were coded with heart failure, shortness of breath, cardiac problem and in cases of GTN administration. These cases were further analysed by a clinical review panel to identify patients with suspected AHF.

Results 182 patients were included in the analysis between April and November 2016. There was a 68% compliance with national guidelines for clinical assessment (history, examination and ECG). 51 (28%) patients presenting with AHF were appropriately identified and given a primary diagnosis of AHF by the attending clinician. 136 (76%) patients in the analysis received sublingual nitrate therapy. 90 (49%) patients received nitrates where there was no clinical indication. No patients in the analysis received NIV.

Conclusion Some aspects of AHF assessment and management are not consistent with national guidelines. Our work has further demonstrated the diagnostic challenges facing pre-hospital clinicians and the potential overuse of nitrate therapy in this patient group.

Conflict of interest None

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REFERENCES

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Aim Systemic proteolysis has been proposed as part of the complex pathologic events occurring during haemorrhagic shock (HS). Hypoperfusion may increase permeability of the gut mucosa, promoting intestinal proteases translocation into the circulation and multigorgan failure (‘autodigestion hypothesis’).1 The interruption of this cascade of events may improve systemic perfusion and organ functions.

Method The present study investigated the effects of the enteral administration of a protease inhibitor, i.e tranexamic acid (TXA), on hemodynamics in a porcine model of controlled severe acute bleeding, fluid resuscitation and blood transfusion. Six animals underwent HS without any treatment while five animals were treated with enteral TXA.
**Results** Baseline measurements were similar in both HS and TXA groups. Both groups showed a significant reduction in mean arterial pressure (MAP) after bleeding compared to baseline values, however at the end of the fluid resuscitation MAP was significantly higher in the TXA group (62.67±13.17 vs 92.20±22.35 mmHg, p<0.01). Echocardiographic stroke volume (SV) and left ventricle ejection fraction (LVEF) were higher in the TXA group at the end of both fluid resuscitation and blood transfusion phases (SV: 32.42±5.83 vs 45.23% ±13.76% and 35.11±14.62 vs 43.68%±13.92%, p not significant; LVEF: 65.9±5.3 vs 77.8±4.7%, p=0.05 and 61.5 ±8.2 vs 76.3%±4.3%, p<0.01). No significant differences were observed in mixed venous saturation (SvO2) and lactate levels, despite SvO2 remained higher in the TXA group throughout the experiment except at baseline.

**Conclusion** In this experimental model of HS the enteral administration of TXA was associated with a global improvement in hemodynamics; however, only small benefits were observed on mixed venous saturation and lactate levels.

**REFERENCE**

**Conflict of interest** None

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**Abstracts**

**88 GOVERNMENTAL IMPLEMENTATION OF COMMUNITY Bystander DEFIBRILLATION PROGRAM AND GOOD NEUROLOGICAL OUTCOME IN OUT-OF-HOSPITAL CARDIAC ARREST (OHCA)**

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**Aim** We examined the effect of governmental implementation of community-wide bystander defibrillation program on good neurological outcome in patients after OHCA during a four-year prospective follow-up period.

**Method** A prospective 4 year community-wide observational database collected from an OHCA e-Register in a metropolitan was studied, after a citywide bystander defibrillation rescue program had been launched by the government that legitimised the strategic provision of AEDs (automated external defibrillators) in certain public locations and electronically registered the devices. Outcomes included 2-hour sustained ROSC (return of spontaneous circulation) at hospital, survival to hospital discharge, and good CPC (Cerebral Performance Category Scale 1 or 2). All patient prehospital characteristics and outcome relations were evaluated and adjusted by regression analysis.

**Results** The density of public AEDs distribution increased from 0.85 to 6.24 per square kilometres in the studied 4 years. Among a total of 12,368 OHCA, 1210 occurred in public locations, and 52 patients (male for 83%, witnessed arrest for 77%) received bystander aid by public accessed AED and CPR rescue. For these 52 patients, 44.2% (23/52) achieved prehospital ROSC at scene or during transport, 67.3% (35/52) achieved sustained ROSC after resuscitation at hospital, 44.2% (23/52) achieved survival-to-discharge and noticeably all those 23 (100%, 23/23) survival-to-discharge patients achieved excellent neurological outcome of CPC 1. Their outcomes were significantly better (67.3 vs 26.5%, OR: 5.7 [95% CI: 5.7 to 10.4] for sustained ROSC; 44.2 vs 10.1%, OR: 7.0 [95% CI: 3.9 to 12.6] for survival-to-discharge; 44.2 vs 6.6%, OR: 11.6 [95% CI: 6.4 to 21.2] for good CPC 1 or 2, and 100 vs 62.9% for good CPC among survival-to-discharge) compared with those without public accessed AED plus CPR rescue. In all 52 patients, there was one man without prehospital ROSC still achieved survival-to-discharge and good CPC.

**Conclusion** In our study, we found that governmental implementation of bystander defibrillation rescue program was significantly associated with excellent neurological outcome of CPC 1 and higher survival to hospital discharge. It would be noticeably in our community that by this rescue program all patients achieving survival-to-discharge could achieve excellent CPC1.

**Conflict of interest** None

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1. MM Hossain*, 1A Kroeger, 1H-J Buch, 1M Winching, 1B Lange, 1G Norwood, 1University of Freiburg, Germany; 2Björn Steiger Stiftung, Germany

**Method** A prospective 4 year community-wide observational study each of 4 selected hospitals in Dhaka was conducted in July 2017. Available medical records were analysed. Additionally, 56 emergency patients` relatives and 23 stakeholders were interviewed.

**Results** Cardiovascular diseases, accidents and suicide occurred 46% of total deaths (n=13707) in 2015 in study hospitals in Dhaka. Of the recorded 734 emergency patients in 4 hospitals, 63% arrived by rickshaws/motor-rickshaws and 25.7% by public locations, and 52 patients (male for 83%, witnessed arrest for 77%) received bystander aid by public accessed AED and CPR rescue. For these 52 patients, 44.2% (23/52) achieved prehospital ROSC at scene or during transport, 67.3% (35/52) achieved sustained ROSC after resuscitation at hospital, 44.2% (23/52) achieved survival-to-discharge and noticeably all those 23 (100%, 23/23) survival-to-discharge patients achieved excellent neurological outcome of CPC 1. Their outcomes were significantly better (67.3 vs 26.5%, OR: 5.7 [95% CI: 5.7 to 10.4] for sustained ROSC; 44.2 vs 10.1%, OR: 7.0 [95% CI: 3.9 to 12.6] for survival-to-discharge; 44.2 vs 6.6%, OR: 11.6 [95% CI: 6.4 to 21.2] for good CPC 1 or 2, and 100 vs 62.9% for good CPC among survival-to-discharge) compared with those without public accessed AED plus CPR rescue. In all 52 patients, there was one man without prehospital ROSC still achieved survival-to-discharge and good CPC.

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