4 mmol/L. The lactate level is most frequently measured in the arterial blood gas (ABG). Aim of this study is to evaluate the agreement of venous blood gas (VBG) lactate compared to ABG lactate.

Method Prospectively collected data from twenty patients were included in this study. All patients were admitted to the emergency department. ABG and three types of VBG samples were collected from each patient. To compare the VBG samples, processing was done in three different ways; VBG1 was held steady and analysed within 5 min, VBG2 was tilted for 5 min and analysed within 7 min, VBG3 was held steady and analysed after 15 min. ABG and VBG samples were compared using Bland-Altman plot.

Results The Bland-Altman plot showed narrow 95% limits of agreement and average differences in lactate of $-0.24, -0.25$ and -0.33 between ABG and VBG1–3, respectively.

Conclusion Venous blood lactate is a valid parameter when measuring the level of lactate. However larger studies are needed to further evaluate the reliability regarding patients with severe hyperlactataemia.

Conflict of interest None declared

Funding This study did not receive external funding.

31 OUT-OF-HOSPITAL TREATMENT OF ACUTE FOREIGN BODY AIRWAY OBSTRUCTION IN ADULTS: A STRUCTURED LITERATURE REVIEW

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Aim There were 4700 deaths due to choking in the United States in 2012. This study was a structured literature review with the objective of determining whether in adults, either conscious or unconscious, with acute foreign body airway obstructions, if any specific resuscitation technique, compared to other techniques, leads to different outcomes.

Method We developed an a priori search definition, and searched PubMed, Google, and OneSearch@IU. We sought additional articles by reviewing the reference lists of articles that we included. We included articles if they addressed original research of treatment of foreign body airway obstruction in adults. We excluded articles if the skill was not applicable to an out-of-hospital rescuer or if there was no abstract available in English. For those articles that met our criteria, two investigators independently collected the results and assessed the quality of the evidence.

Results We identified 534 articles for screening and performed full-text reviews on 64. We included 44 articles in our qualitative synthesis. We found one fair quality study that supported the use of abdominal thrusts, two fair quality studies that supported back blows, and one fair quality study that supported chest thrusts.

Conclusion Rescuers attempting to resolve a complete foreign body airway obstruction in a conscious adult should provide back blows and either abdominal and/or chest thrusts to the victim. Rescuers attempting to resolve a complete foreign body airway obstruction in an unconscious adult should provide CPR and use a finger sweep if a foreign body is seen in the mouth.

Conflict of interest RNB and SL are both employed by their respective medical schools. Some travel expenses are

reimbursed as SL is a member and RNB is the chair of the Resuscitation Subcouncil of the American Red Cross Scientific Advisory Council.

Funding None

32 DERIVATION OF A NOVEL INPATIENT MORTALITY PREDICTION MODEL FOR EMERGENCY DEPARTMENT PATIENTS IN SINGAPORE

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Aim Inpatient mortality is an indicator of hospital performance and patient care. In this retrospective cohort study, we aimed to develop and validate an inpatient mortality model for use during ED consultation to efficiently risk stratify patients for better care and resource allocation.

Method Data was extracted from the Electronic Health Records (unified patient care data) of Singapore General Hospital in the year of 2014. Patients admitted through the ED were included and patients <21 were excluded. Variables, such as demographics, comorbidities, socioeconomic status and laboratory tests, were selected through literature review and clinician judgement before analysis with univariable and multivariable logistic regression. The model was assessed with receiver operating characteristic area under the curve.

Results Among the 35 699 patients admitted from ED in 2014, 690 died in-hospital. Univariate-analysis showed males, lower socioeconomic status, multiple comorbidities and increased acuity of illness as significant variables contributing to inpatient mortality. The final model included gender, use of medifund (financial aid), Charlson Comorbidity Index (CCI), albumin, creatinine, white blood cell counts, and number of ED visits within the past 1 year. This model (AUC 0.840) performed the best compared to other scores, including just using CCI, age, gender and principal diagnosis (AUC 0.723).

Conclusion A novel model for predicting inpatient mortality could effectively risk stratify patients early in the ED. This model may have future applications to improve management and disposition.

Conflict of interest None

Funding None

33 INTERACTION EFFECTS BETWEEN TARGETED TEMPERATURE MANAGEMENT AND HYPERTENSION ON SURVIVAL OUTCOMES AFTER OUT-OF-HOSPITAL CARDIAC ARREST

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Aim Targeted temperature management (TTM) currently represents the most efficacious treatment to improve neurological recovery in comatose patients who have return of spontaneous circulation (ROSC) after out-of-hospital cardiac arrest (OHCA). The effect of TTM with HTN have not been reported. This study aimed to investigate whether the effect of TTM on neurological recovery after OHCA differed between patients with or without HTN.

Method This study was conducted using the national cardiac arrest registry of OHCA patients with presumed cardiac aetiology who survived to hospital admission from 2009 to 2016. The primary exposure was TTM. The histories of HTN were obtained from patients' medical records. The endpoint was cerebral performance category (CPC) 1 and 2 at discharge and survival to discharge. We compared outcomes between TTM and non-TTM groups using multivariable logistic regression with an interaction term between TTM and HTN for calculating adjusted odd ratios (AORs) and 95% confidence intervals (CIs) after adjusting for confounding factors.

Results Among 25 985 patients following OHCA survived hospital admission with presumed cardiac aetiology. TTM was performed in 12.2%. TTM group showed better outcomes than non-TTM group: 28.1% vs 15.5% for good neurologic recovery ($p<0.0001$). AOR (95% CI) of TTM for good neurological recovery for all study groups was 1.65 (1.47–1.85). In interaction model (generalised linear mixed model), AOR (95% CI) of TTM for good neurological recovery was 1.87 (1.26–2.76) in patients without HTN vs 0.87 (0.75–1.02) in patients with HTN.

Conclusion TTM is associated with good neurological recovery in non-hypertension group, but not significant effect in hypertension group in Korea.

Conflict of interest None

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34 IMPLEMENTATION OF A BUNDLE OF UTSTEIN TEN STEP RECOMMENDATIONS FROM THE GLOBAL RESUSCITATION ALLIANCE TO IMPROVE SURVIVAL OUTCOMES AFTER OUT-OF-HOSPITAL CARDIAC ARREST IN A METROPOLIS: A BEFORE AND AFTER STUDY

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Aim We aimed to evaluate whether implementation of a bundle of three programs of Utstein ten-step implementation strategy (UTIS) proposed by the Global Resuscitation Alliance improved outcomes after OHCA.

Method This study was a before-and-after study. All emergency medical services (EMS)-treated adults OHCA with cardiac aetiology were included. Seoul implemented a bundle of three CPR programs among UTIS programs in 2015;

1. Telephone-CPR (T-CPR) program: a monthly-based and individual dispatcher-targeted quality assurance protocol on telephone-CPR for every OHCA,
2. Rapid CPR program: a multi-tier response, and
3. Feedback CPR program: professional recording of EMS-CPR and feedback to individual team by medical director using high technology defibrillator devices.

The EMS process and outcomes of OHCA in the study period (2015–2016) were compared with control period (2013–2014). The primary outcome was a good neurological recovery (cerebral performance category 1 or 2). A mixed-effects logistic regression model including random intercepts for district EMS agency level

was used to estimate the association between study period with outcomes, adjusted for potential confounders.

Results Total 5968 and 6232 patients were included in the control and study period. T-CPR rate, Rapid CPR, and Feedback CPR in control versus study period were 48.1% versus 54.2%, 1.0% versus 35.8%, and 27.8% versus 63.8%, respectively (all p -values <0.001). Good neurological recovery rate was increased from 5.6% to 6.5%. In multivariable analyses, the adjusted OR of study period for good neurological recovery was 1.31 (95% CI: 1.11 to 1.55).

Conclusion The citywide implementation of a bundle of UTIS programs was significantly associated with better OHCA outcomes.

Conflict of interest None

Funding None

35 NO GENDER DIFFERENCES FOUND IN BYSTANDER CPR IN PRAGUE

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Aim The aim of our study is to compare bystander resuscitation ratios between male and female cardiac arrest patients.

Method This is a retrospective analysis of Prague pre-hospital cardiac arrest Utstein-style registry from 2012 to 2016. All patients resuscitated by EMS crew with exception of EMS-witnessed cardiac arrests were included.

Results Total 2302 patients were included. There were 1715 men (M group) and 587 in women (W group) in the study. Bystander CPR was provided in 1368 (79%) cases in M group and in 477 (81%) cases in W group. The difference between M and G groups is non-significant ($p=0.31$).

Conclusion We found no gender differences in the chance of cardiac arrest victim to receive bystander CPR. This finding is in contradiction with the results published by A. Blewer at the American Heart Association's Scientific Sessions in November 2017, where men are more likely to receive CPR in public than women. One possible explanation is the systematic approach of the EMS Prague dispatchers to provide the dispatcher-assisted resuscitation (D-CPR), which can break potential barriers between bystander and cardiac arrest victim.

Conflict of interest None

Funding None

36 PRE-HOSPITAL RESUSCITATION OF CHILDREN IN THE CITY OF PRAGUE

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Aim While there is a lot of studies dealing with out of-hospital cardiac arrest (OHCA) in adults, data about OHCA in children age (CH-OHCA) are rarely published. The aim of this study is to describe epidemiology and results of CH-OHCA in City of Prague.

Method This is a retrospective analysis of epidemiology and survival rates of CH-OHCA during period from 2003 to 2015. The data are taken from Prague OHCA Utstein-style database.