

FÀRMACS

Un estudi retrospectiu amb molta població, sobre l'ús de l'adrenalina a les ACR prehospitalàries.

BMJ. 2013 Dec 10;347:f6829. doi: 10.1136/bmj.f6829.

Evaluation of pre-hospital administration of adrenaline (epinephrine) by emergency medical services for patients with out of hospital cardiac arrest in Japan: controlled propensity matched retrospective cohort study.

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Abstract

OBJECTIVES: To evaluate the effectiveness of pre-hospital adrenaline (epinephrine) administered by emergency medical services to patients with out of hospital cardiac arrest.

DESIGN: Controlled propensity matched retrospective cohort study, in which pairs of patients with or without (control) adrenaline were created with a sequential risk set matching based on time dependent propensity score.

SETTING: Japan's nationwide registry database of patients with out of hospital cardiac arrest registered between January 2007 and December 2010.

PARTICIPANTS: Among patients aged 15-94 with out of hospital cardiac arrest witnessed by a bystander, we created 1990 pairs of patients with and without adrenaline with an initial rhythm of ventricular fibrillation or pulseless ventricular tachycardia (VF/VT) and 9058 pairs among those with non-VF/VT.

MAIN OUTCOME MEASURES: Overall and neurologically intact survival at one month or at discharge, whichever was earlier.

RESULTS: After propensity matching, pre-hospital administration of adrenaline by emergency medical services was associated with a higher proportion of overall survival (17.0% v 13.4%; unadjusted odds ratio 1.34, 95% confidence interval 1.12 to 1.60) but not with neurologically intact survival (6.6% v 6.6%; 1.01, 0.78 to 1.30) among those with VF/VT; and higher proportions of overall survival (4.0% v 2.4%; odds ratio 1.72, 1.45 to 2.04) and neurologically intact survival (0.7% v 0.4%; 1.57, 1.04 to 2.37) among those with non-VF/VT.

CONCLUSIONS: Pre-hospital administration of adrenaline by emergency medical services improves the long term outcome in patients with out of hospital cardiac arrest, although the absolute increase of neurologically intact survival was minimal.

ACR INTRAHOPITALÀRIA

Un estudi de perquè es donen les ACR dins la UCI.

Resuscitation. 2013 Dec 7. pii: S0300-9572(13)00881-2. doi: 10.1016/j.resuscitation.2013.11.018. [Epub ahead of print]

Antecedents to cardiac arrests in a teaching hospital Intensive Care Unit.

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Abstract

BACKGROUND: In hospital cardiac arrests (CA) treated with Cardio-Pulmonary Resuscitation (CPR) outside of the Intensive Care Unit (ICU) have poor outcomes. Most are preceded by deranged vital signs. There are, however, limited studies assessing antecedents to CAs inside the ICU.

OBJECTIVES: To study the antecedents to, and characteristics of CAs in ICU STUDY

POPULATION: We prospectively identified CA cases that occurred inside our ICU between January 2010 and July 2012. Controls were obtained by sequentially matching ICU patients based on APACHE III diagnosis, APACHE III score, age, gender and length of stay in ICU.

RESULTS: Thirty-six patients had a CA during the study period (6.28/1000 admissions). In the 12 hours prior to CA, index patients had higher maximum (22 vs. 18 breaths/min; $p=0.001$) and minimum respiratory rates (16 vs. 12 breaths/min; $p=0.031$); a lower median mean arterial pressure (65 vs. 70mmHg; $p=0.029$) and systolic blood pressure (97 vs. 106mmHg; $p=0.033$); a higher central venous pressure (14 vs. 11cmH₂O; $p=0.008$) and a lower bicarbonate level (20.5 vs. 26mmol; $p=0.018$) compared to controls. CA patients also had a higher maximum dose of noradrenaline (norepinephrine) (17.5 vs. 8.0 mcg/min; $p=0.052$) but there was no difference in any other levels of intensive care support. Two thirds of CA's occurred within the first 48hr of ICU admission. The initial monitored rhythm was non-shock responsive (pulseless electrical activity, bradycardia or asystole) in 26/36 (72%). Return of spontaneous circulation was achieved in 29/36 (80.6%) patients, with 16/36 (44.4%) surviving to hospital discharge.

CONCLUSIONS: In the period leading up to the CA inside ICU, there were signs of physiological instability and the need for higher doses of noradrenaline. Return of spontaneous circulation was achieved in 80%. However, in-hospital mortality was greater than 50%.

RCP PER TESTIMONIS

Els consells telefònics augmenten la taxa de RCP pels testimonis, però no sembla que això millori el pronòstic. Al menys al Japó.

Resuscitation. 2013 Nov 26. pii: S0300-9572(13)00853-8. doi: 10.1016/j.resuscitation.2013.11.013. [Epub ahead of print]

Do dispatcher instructions facilitate bystander-initiated cardiopulmonary resuscitation and improve outcomes in patients with out-of-hospital cardiac arrest?: A comparison of family and non-family bystanders.

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Abstract

OBJECTIVES: Bystander-initiated cardiopulmonary resuscitation (CPR) has been reported to increase the possibility of survival in patients with out-of-hospital cardiopulmonary arrest (OHCA). We evaluated the effects of CPR instructions by emergency medical dispatchers on the frequency of bystander CPR and outcomes, and whether these effects differed between family and non-family bystanders.

METHODS: We conducted a retrospective cohort study, using Utstein-style records of OHCA taken in a rural area of Japan between January 2004 and December 2009.

RESULTS: Of the 559 patients with non-traumatic OHCA witnessed by laypeople, 231 (41.3%) were given bystander CPR. More OHCA patients received resuscitation when the OHCA was witnessed by non-family bystanders than when it was witnessed by family members (61.4% vs. 34.2%). The patients with non-family-witnessed OHCA were more likely to be given conventional CPR (chest compression plus rescue breathing) or defibrillation with an AED than were those with family-witnessed OHCA. Dispatcher instructions significantly increased the provision of bystander CPR regardless of who the witnesses were. Neurologically favorable survival was increased by CPR in non-family-witnessed, but not in family-witnessed, OHCA patients. No difference in survival rate was observed between the cases provided with dispatcher instructions and those not provided with the instructions.

CONCLUSIONS: Dispatcher instructions increased the frequency of bystander CPR, but did not improve the rate of neurologically favorable survival in patients with witnessed OHCA. Efforts to

enhance the frequency and quality of resuscitation, especially by family members, are required for dispatcher-assisted CPR.

HIPOTÈRMIA

Hipotèrmia prehospitalària mitjantçant el dispositiu RinoChill (per inoculació d'un gas fred a la rino faringe)

Eur J Emerg Med. 2013 Nov 29. [Epub ahead of print]

Prehospital intranasal evaporative cooling for out-of-hospital cardiac arrest: a pilot, feasibility study.

Lyon RM, Van Antwerp J, Henderson C, Weaver A, Davies G, Lockey D.

Source: London's Air Ambulance bLondon Ambulance Service, London cEmergency Medicine Research Group, Edinburgh dNorth Bristol NHS Trust, Bristol, UK.

Abstract

Intranasal evaporative cooling presents a novel means of initiating therapeutic hypothermia after an out-of-hospital cardiac arrest (OHCA). Few studies have evaluated the use of intranasal therapeutic hypothermia using the Rhinohill device in the prehospital setting. We sought to evaluate the use of Rhinohill in the Physician Response Unit of London's Air Ambulance, aiming to describe the feasibility of employing it during prehospital resuscitation for OHCA. We prospectively evaluated the Rhinohill device over a 7-month period. Inclusion criteria for deployment included: age above 18 years, Physician Response Unit on-scene within maximum of 10 min after return-of-spontaneous circulation (ROSC), witnessed OHCA or unwitnessed downtime of less than 10 min, pregnancy not suspected, normal nasal anatomy, and likely ICU candidate if ROSC were to be achieved. Thirteen patients were included in the evaluation. The average time from the 999 call to initiation of cooling was 39.5 min (range 22-61 min). The average prehospital temperature change in patients who achieved ROSC was -1.9°C. Patients were cooled for an average of 38 min prehospital. In all cases, the doctor and paramedic involved with the resuscitation reported that the Rhinohill was easy to set up and use during resuscitation and that it did not interfere with standard resuscitation practice. Intranasal evaporative cooling using the Rhinohill system is feasible in an urban, prehospital, doctor/paramedic response unit. Cooling with Rhinohill was not found to interfere with prehospital resuscitation and resulted in significant core body temperature reduction. Further research on the potential benefit of intra-arrest and early initiation of intranasal evaporative cooling is warranted.

Estudi sobre la infrautilització de la hipotèrmia a Itàlia

Resuscitation. 2013 Nov 30. pii: S0300-9572(13)00854-X. doi: 10.1016/j.resuscitation.2013.11.014. [Epub ahead of print]

Therapeutic Hypothermia in Italian Intensive Care Units after 2010 Resuscitation Guidelines: still a lot to do.

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Abstract

BACKGROUND: Therapeutic hypothermia (TH) is one of three interventions that have demonstrated to improve patients' neurological outcome after cardiac arrest. The aim of this study was to investigate the effect of the 2010 resuscitation guidelines on TH implementation in various Italian Intensive Care Units (ICU).

METHODS: A structured questionnaire was submitted to Italian ICU. The questionnaire was addressed to determine the procedures of TH in each ICU or, on the contrary, the reason for not employing the therapy.

RESULTS: We obtained complete information from 770 of 847 Italian ICU (91%). Out of 405 Units included in the analysis only 223 (55.1%) reported to use TH in comatose patients after return of spontaneous circulation. The trend of TH implementation shows a stable increase, particularly after 2006 but there is no evident acceleration after the strong indication of the 2010 guidelines. There was a rise of about 3.4 times in the number of Italian ICU using TH as compared to the 2007 survey (an increase of 68% per year). One hundred and eighty-two (44.9%) units did not use TH mainly because of lack of equipment, economic issues or the conviction of the difficulty of execution.

CONCLUSIONS: TH is still under-used in Italy (55.1%) even though the therapy is strongly recommended in the 2010 guidelines. However, the increase in the adoption of hypothermia has been significant in the past 5 years (68%/years) and the awareness of the efficacy is almost consolidated among intensivists, being logistic problems the leading cause for non-adoption.

PEDIATRIA

Sobre la desfibril·lació en pediatria. Més del 80% dels nens que fibril·len tenen una malaltia subjacent i la supervivència no té res a veure amb el tipus d'ona del DF, l'energia de la descàrrega per kg,...

Resuscitation. 2013 Nov 28. pii: S0300-9572(13)00878-2. doi: 10.1016/j.resuscitation.2013.11.015. [Epub ahead of print]

SHOCKABLE RHYTHMS AND DEFIBRILLATION DURING IN-HOSPITAL PAEDIATRIC CARDIAC ARREST.

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Abstract

OBJECTIVE: To analyze the results of cardiopulmonary resuscitation (CPR) that included defibrillation during in-hospital cardiac arrest (IH-CA) in children.

METHODS: A prospective multicenter, international, observational study on paediatric IH-CA in 12 European and Latin American countries, during 24 months. Data from 502 children between 1 month and 18 years were collected using the Utstein template. Patients with a shockable rhythm that was treated by electric shock(s) were included. The primary endpoint was survival at hospital discharge. Univariate logistic regression analysis was performed to find outcome factors.

RESULTS: Forty events in 37 children (mean age 48 months, IQR: 7-15 months) were analyzed. An underlying disease was present in 81.1% of cases and 24.3% had a previous CA. The main cause of arrest was a cardiac disease (56.8%). In 17 episodes (42.5%) ventricular fibrillation (VF) or pulseless ventricular tachycardia (pVT) was the first documented rhythm, and in 23 (57.5%) it developed during CPR efforts. In 11 patients (27.5%) three or more shocks were needed to achieve defibrillation. Return of spontaneous circulation (ROSC) was obtained in 25 cases (62.5%), that was sustained in 20 (50.0%); however only 12 children (32.4%) survived to hospital discharge. Children with VF/pVT as first documented rhythm had better sustained ROSC (64.7% vs. 39.1%, $p=0.046$) and survival to hospital discharge rates (58.8% vs. 21.7%, $p=0.02$) than those with subsequent VF/pVT. Survival rate was inversely related to duration of CPR. Clinical outcome was not related to the cause or location of arrest, type of defibrillator and waveform, energy dose per shock, number of shocks, or cumulative energy dose, although there was a trend to better survival with higher doses per shock (25.0% with $<2\text{J/kg}$, 43.4% with $2\text{-}4\text{J/kg}$ and 50.0% with $>4\text{J/kg}$) and worse with higher number of shocks and cumulative energy dose.

CONCLUSION: The termination of paediatric VF/pVT in the IH-CA setting is achieved in a low percentage of instances with one electrical shock at 4J/kg . When VF/pVT is the first documented rhythm, the results of defibrillation are better than in the case of subsequent VF/pVT. No clear relationship between defibrillation protocol and ROSC or survival has been observed. The optimal paediatric defibrillation dose remains to be determined; therefore current resuscitation guidelines cannot be considered evidence-based, and additional research is needed.

CAUSES DE L'ACR

Tercer article que en poc temps parla de la relació de la polúció ambiental i la mort sobtada

Eur Heart J. 2013 Dec 2. [Epub ahead of print]

Short-term effects of air pollution on out-of-hospital cardiac arrest in Stockholm.

Raza A, Bellander T, Bero-Bedada G, Dahlquist M, Hollenberg J, Jonsson M, Lind T, Rosenqvist M, Svensson L, Ljungman PL.

Source: Institute of Environmental Medicine, Karolinska Institutet, Nobels väg 13, SE-17177 Stockholm, Sweden.

Abstract

BACKGROUND: Although ozone (O₃) and other pollutants have been associated with cardiovascular morbidity and mortality, the effects of O₃ on out-of-hospital cardiac arrest (OHCA) have rarely been addressed and existing studies have presented inconsistent findings. The objective of this study was to determine the effects of short-term exposure to air pollution including O₃ on the occurrence of OHCA, and assess effect modification by season, age, and gender.

METHODS AND RESULTS: A total of 5973 Emergency Medical Service-assessed OHCA cases in Stockholm County 2000-10 were obtained from the Swedish cardiac arrest register. A time-stratified case-crossover design was used to analyse exposure to air pollution and the risk of OHCA. Exposure to O₃, PM_{2.5}, PM₁₀, NO₂, and NO_x was defined as the mean urban background level during 0-2, 0-24, and 0-72 h before the event and control time points. We adjusted for temperature and relative humidity. Ozone in urban background was associated with an increased risk of OHCA for all time windows. The respective odds ratio (confidence interval) for a 10 µg/m³ increase was 1.02 (1.01-1.05) for a 2-h window, 1.04 (1.01-1.07) for 24-h, and 1.05 (1.01-1.09) for 3 day. The association with 2-h O₃ was stronger for events that occurred outdoors: 1.13 (1.06-1.21). We observed no effects for other pollutants and no effect modification by age, gender, or season.

CONCLUSION: Short-term exposure to moderate levels of O₃ is associated with an increased risk of OHCA.

PRONÒSTIC

Un "score" per pronosticar la supervivència dels pacients, tot i que en majors de 70 anys no sembla gaire útil.

Int Heart J. 2013;54(6):362-70.

Usefulness of a Simple Prognostication Score in Prediction of the Prognoses of Patients With Out-of-Hospital Cardiac Arrests.

Ishikawa S, Niwano S, Imaki R, Takeuchi I, Irie W, Toyooka T, Soma K, Kurihara K, Izumi T.

Source: Department of Cardio-Angiology, Kitasato University School of Medicine.

Abstract

Sudden cardiac death is a serious problem in public health but the overall survival rate of out-of-hospital cardiac arrests (OHCAs) remains low. In this study, we identified clinical parameters to predict the prognosis of OHCA patients and proposed a simple prognostication score for prediction of their prognoses. The study population consisted of 750 consecutive patients with OHCAs of internal cause who were transported to our institute from July 2008 to June 2010. They were divided into survivors and nonsurvivors, and clinical parameters were compared between them to detect significant parameters for prediction of their prognoses. The population of those who survived at 1 month numbered 34. Multivariate analysis exhibited 10 independent predictive factors of survival, which included witnessed cardiac arrest and bystander-initiated CPR. When the prognostication score was calculated from these independent predictive factors, a score of ≥ 6 points indicated survival with a sensitivity of 88.6% and a specificity of 97.6%. When the patients were divided into younger and older populations with a threshold of 70 years, these values were

94.1% and 96.1% in younger but 70.0% and 98.4% in older patients, respectively. In retrospective observation, a simple prognostication score was useful to predict patient prognoses in OHCA, but its usefulness was limited in an older population.

CASE REPORTS

Aquesta setmana un cas de reanimació en una chinchilla!!! Amb intraòssia i tot! (ens estem tornant bojos???)

J Vet Emerg Crit Care (San Antonio). 2013 Nov;23(6):657-62. doi: 10.1111/vec.12119.

Successful cardiopulmonary resuscitation following cardiopulmonary arrest in a geriatric chinchilla.

Fernandez CM, Peyton JL, Miller M, Johnson EG, Kovacic JP.

Source

Four Seasons Animal Hospital, 3210 Old Tunnel Road, Lafayette, CA 94549.

Abstract

OBJECTIVE: To describe the successful application of CPR in a geriatric chinchilla employing basic and advanced life support measures during cardiopulmonary arrest (CPA).

CASE SUMMARY: A 13-year-old female intact chinchilla presented to a general and multispecialty referral hospital for a dental procedure. During recovery from anesthesia the patient suffered CPA and CPR was initiated. Noninvasive positive pressure mask ventilation was initiated and external chest compressions were performed. An 18-Ga needle was introduced into the medullary cavity of the right humerus as an intraosseous catheter and provided access for administration of drugs and fluids. After return of spontaneous circulation was noted mannitol was administered via the intraosseous catheter to alleviate suspected increased intracranial pressure. Clinical improvement was noted shortly after administration. Monitoring during the recovery period showed a normal sinus cardiac rhythm and a SpO₂ of 100% while on supplemental oxygen. Neurologic function continued to improve over the following hours. Oxygen therapy was provided via an oxygen cage, and administration of antimicrobials, gastrointestinal protectants, and nutritional supplementation were part of the post resuscitation care. Oxygen therapy was discontinued after 24 hours, during which time normal behaviors were observed and neurologic status was considered appropriate. The patient was discharged 48 hours after CPA.

NEW OR UNIQUE INFORMATION PROVIDED: Published reports from clinical practice on the outcomes of CPR for exotic small mammals are limited. This report details the successful outcome of the use of combined basic and advanced life support measures for the provision of CPR in a chinchilla. This report also highlights the utility of an intraosseous catheter for administration of drugs and fluids novel to this species during resuscitation and recovery. To the authors' knowledge this is the first published report of successful CPR following CPA in a geriatric chinchilla.