Bibliografia del 30 de gener al 5 de febrer. 29 articles

CPR AND COVID-19

1. PLoS One. 2022 Feb 3;17(2):e0263607. doi: 10.1371/journal.pone.0263607. eCollection 2022.
Cases of acute coronary syndrome and presumed cardiac death prior to arrival at an urban tertiary care hospital in Pakistan during the COVID-19 pandemic.
Sheikh S(1), Van Cleve W(2), Kumar V(3), Peerwani G(1), Aijaz S(1), Pathan A(1).
ABSTRACT
BACKGROUND: A reduction in overall acute coronary syndrome (ACS) cases, increases in the severity of ACS presentation, and increased rates of out-of-hospital cardiac arrest (OHCA) have been reported from multiple countries during the COVID-19 pandemic. The attributed factors include COVID-19 infection, fear of COVID-19 and resultant avoidance of health care facilities, and restrictions on mobility. Pakistan, a country with a high burden of cardiovascular disease (CVD) and challenges related to health care access, will be expected to demonstrate these same findings. Therefore, we compared ACS hospitalization, ACS severity, and patients who have already died (dead on arrival, or DOA) due to presumed OHCA at a tertiary cardiac hospital during pre-pandemic and intra-pandemic periods in Pakistan. METHODS: Standardized data elements were extracted from the charts of patients with ACS, and telephonic verbal autopsies (VA) using a validated tool were conducted for patients who were arrived DOA. As a comparison, cases during the same months prior to the COVID-19 were analyzed for respective waves. Events were counted, and proportions and frequencies are reported for each time period. RESULTS: A total of 4,480 ACS cases were reviewed; 1,216 cases during March-July 2019, 804 cases in the same months of 2020 (33.8% decrease); 1,304 cases in August 2019-January 2020 and 1,157 in the corresponding months of 2020 and 2021 (11.2% decrease). There was no observed change in the baseline characteristics of patients with ACS or their symptom-to-door time, and in-hospital mortality was unchanged across all time periods. There were 218 DOA cases in pre-pandemic months and 360 cases during the pandemic. The pre-pandemic rate of DOA was 12/1000 emergency patients (95% CI 10-13) compared to 22/1000 (95% CI 22-27) during the pandemic (30/1000in the 1st wave and 17/1000 during 2nd wave). On VA, CVD was found to be the major cause of death during both time periods. CONCLUSION: At a cardiac hospital in Pakistan, the COVID-19 pandemic was associated with a reduction in ACS hospitalization and an increased DOA rate.

2. Circ Cardiovasc Qual Outcomes. 2022 Jan 31:CIRCOUTCOMES121008420. doi: 10.1161/CIRCOUTCOMES.121.008420. Online ahead of print.
In-Hospital Cardiac Arrest Survival in the United States During and After the Initial Novel Coronavirus Disease 2019 Pandemic Surge.
Chan PS(1)(2), Spertus JA(1)(2), Kennedy K(1), Nallamothu BK(3), Starks MA(4), Girotra S(5); American Heart Association's Get With the Guidelines–Resuscitation Investigators.
ABSTRACT
BACKGROUND: Recent reports on challenges in resuscitation care at hospitals severely affected by the novel coronavirus disease 2019 (COVID-19) pandemic raise questions about how the pandemic affected outcomes for in-hospital cardiac arrest throughout the United States. METHODS: Within Get With The Guidelines-Resuscitation, we conducted a retrospective cohort study to compare in-hospital cardiac arrest survival during the presurge (January 1-February 29), surge (March 1-May 15) and immediate postsurge (May 16-June 30) periods in 2020 compared to 2015 to 2019. Monthly

COVID-19 mortality rates for each hospital's county were categorized, per 1 000 000 residents, as low (0-10), moderate (11-50), high (51-100), or very high (>100). Using hierarchical regression models, we compared rates of survival to discharge in 2020 versus 2015 to 2019 for each period. RESULTS: Of 61 586 in-hospital cardiac arrests, 21 208 (4309 in 2020), 26 459 (5949 in 2020), and 13 919 (2686 in 2020) occurred in the presurge, surge, and postsurge periods, respectively. During the presurge period, 24.2% survived todischarge in 2020 versus 24.7% in 2015 to 2019 (adjusted odds ratio, 1.12 [95% CI, 1.02-1.22]). In contrast, during the surge period, 19.6% survived to discharge in 2020 versus 26.0% in 2015 to 2019 (adjusted odds ratio, 0.81 [0.75-0.88]). Lower survival was most pronounced in communities with high (28% lower survival) and very high (42% lower survival) monthly COVID-19 mortality rates (interaction P<0.001). Resuscitation times were shorter (median: 22 versus 25 minutes; P<0.001), and delayed epinephrine treatment was more prevalent (11.3% versus 9.9%; P=0.004) during the surge period. Survival was lower even when patients with confirmed/suspected COVID-19 infection were excluded from analyses. During the postsurge period, survival rates were similar in 2020 versus 2015 to 2019 (22.3% versus 25.8%; adjusted odds ratio, 0.93 [0.83-1.04]), including communities with high COVID-19 mortality (interaction P=0.16). CONCLUSIONS: Early during the pandemic, rates of survival to discharge for IHCA decreased, even among patients without COVID-19 infection, highlighting the early impact of the COVID-19 pandemic on in-hospital resuscitation.

3. Resuscitation. 2022 Jan;170:134-140. doi: 10.1016/j.resuscitation.2021.11.025. Epub 2021 Nov 24.
Impact of the three COVID-19 surges in 2020 on in-hospital cardiac arrest survival in the United States.
Gupta K(1), Girotra S(2), Nallamothu BK(3), Kennedy K(4), Starks MA(5), Chan PS(6); American Heart Association's Get With the Guidelines®-Resuscitation Investigators (listed in Supplementary Appendix).
ABSTRACT
BACKGROUND: Studies have reported lower survival for in-hospital cardiac arrest (IHCA) during the initial COVID-19 surge. Whether the pandemic reduced IHCA survival during subsequent surges and in areas with lower COVID-19 rates is unknown. METHODS: Within Get-With-The-Guidelines®-Resuscitation, we identified 22,899 and 79,736 IHCAs during March to December in 2020 and 2015-2019, respectively. Using hierarchical regression, we compared risk-adjusted rates of survival to discharge in 2020 vs. 2015-19 during five COVID-19 periods: Surge 1 (March to mid-May), post-Surge 1 (mid-May to June), Surge 2 (July to mid-August), post-Surge 2 (mid-August to mid-October), and Surge 3 (mid-October to December). Monthly COVID-19 mortality rates for each hospital's county were categorized, per 1,000,000 residents, as very low (0-10), low (11-50), moderate (51-100), or high (>100). RESULTS: During each COVID-19 surge period in 2020, rates of survival to discharge for IHCA were lower, as compared with the same period in 2015-2019: Surge 1: adjusted OR: 0.81 (0.75-0.88); Surge 2: adjusted OR: 0.88 (0.79-0.97), Surge 3: adjusted OR: 0.79 (0.73-0.86). Lower survival was most pronounced at hospitals located in counties with moderate to high monthly COVID-19 mortality rates. In contrast, during the two post-surge periods, survival rates were similar in 2020 vs. 2015-2019: post-Surge 1: adjusted OR 0.93 (0.83-1.04) and post-Surge 2: adjusted OR 0.94 (0.86-1.03), even at hospitals with the highest county-level COVID-19 mortality rates. CONCLUSIONS: During the three COVID-19 surges in the U.S. during 2020, rates of survival to discharge for IHCA dropped substantially, especially in communities with moderate to high COVID-19 mortality rates.

CPR/MECHANICAL CHEST COMPRESSION

No articles identified.

REGISTRIES, REVIEWS AND EDITORIALS

1. Perspect Public Health. 2022 Jan 31:17579139211055497. doi: 10.1177/17579139211055497. Online ahead of print.

Barriers and facilitators to delivering bystander cardiopulmonary resuscitation in deprived communities: a systematic review.

Uny I(1), Angus K(2), Duncan E(3), Dobbie F(4).

ABSTRACT

BACKGROUND: There is a higher incidence of cardiac arrest in economically deprived areas; however, data show that bystander cardiopulmonary resuscitation (CPR) in those areas is lower. This results in lower survival rates, placing those communities at a double disadvantage. This systematic review explored the barriers and facilitators to engaging with bystander CPR in deprived communities. METHODS: Studies were eligible for inclusion if they addressed any barrier or facilitator to performing bystander CPR or being trained in CPR or training others. Studies had to either be set in a deprived area or examine a deprived population. Selected studies were published between January 2000 and December 2017 and reported on primary research. No language limitations were applied. Searches were conducted in the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, PsycINFO, PubMed, and Web of Science Core Collection. Unpublished 'grey' literature was also searched as well as the reference lists of any relevant studies. RESULTS: The systematic review highlighted several main factors acting as barriers or facilitators to engaging with bystander CPR in deprived communities: (1) the willingness to learn or perform CPR, (2) the confidence to perform CPR, and (3) self-reported likelihood of performing CPR. The review also revealed additional barriers to engaging with CPR which are specific to - or more acute for - individuals from socioeconomically deprived backgrounds or areas. DISCUSSION: We found little evidence suggesting that the willingness to perform or learn bystander CPR is lower in deprived communities compared to the general population. However, the confidence to perform CPR in deprived communities was affected by some measures of socioeconomic status. The results also crucially highlighted other barriers more acute in deprived communities: the risk to personal safety in administering CPR; the fear of legal consequences; and the lack of community cohesion and other cultural barriers.

IN-HOSPITAL CARDIAC ARREST

No articles identified.

INJURIES AND CPR

No articles identified.

CAUSE OF THE ARREST

1. Resuscitation. 2022 Jan 31:S0300-9572(22)00025-9. doi10.1016/j.resuscitation.2022.01.024. Online ahead of print.

Sex Disparities in Management and Outcomes of Cardiac Arrest Complicating Acute Myocardial Infarction in the United States.

Verghese D(1), Harsha Patlolla S(2), Cheungpasitporn W(3), Doshi R(4), Miller VM(5), Jentzer JC(6), Jaffe AS(7), Holmes DR(7), Vallabhajosyula S(8).

ABSTRACT

BACKGROUND: There have been limited large scale studies assessing sex disparities in the outcomes of cardiac arrest (CA) complicating acute myocardial infarction (AMI). METHODS AND RESULTS: Using the National Inpatient Sample (2000-2017), we identified adult admissions (≥ 18 years) with AMI and CA. Outcomes of interest included sex disparities in coronary angiography (early [hospital day zero] and overall), time to angiography, percutaneous coronary angiography (PCI), mechanical circulatory support (MCS) use, in-hospital mortality, hospitalization costs, hospital length of stay and discharge disposition. In the period between January 1, 2000-December 31, 2017, 11,622,528 admissions for AMI were identified, of which 584,216 (5.0%) were complicated by CA. Men had a higher frequency of CA compared to women (5.4% vs. 4.4%; p<0.001). Women were on average older (70.4±13.6 vs 65.0±13.1 years), of black race (12.6% vs 7.9%), with higher comorbidity, presenting with non-ST-segment-elevation AMI (36.4% vs 32.3%) and had a non-shockable rhythm (47.6% vs 33.3%); all p<0.001. Women received less frequent coronary angiography (56.0% vs 66.2%), early coronary angiography (32.0% vs 40.2%), PCI (40.4% vs 49.7%), MCS (17.6% vs 22.0%), and CABG (8.3% vs 10.8%), with a longer median time to angiography (all p<0.001). Women had higher in-hospital mortality (52.6% vs 40.6%, adjusted odds ratio 1.13 [95% confidence interval 1.11-1.14]; p<0.001), shorter length of hospital stays, lower hospitalization costs and less frequent discharges to home. CONCLUSION: Despite no difference in guideline recommendations for men and women with AMI-CA, there appears to be a systematic difference in the use of evidence-based care that disadvantages women.

2. Circ Genom Precis Med. 2022 Feb 1:CIRCGEN121003520. doi: 10.1161/CIRCGEN.121.003520. Online ahead of print.

Genetic Testing in Sudden Cardiac Arrest: the History and Physical Exam Remain Central in the Genomics Era.

Aryan Z(1)(2), Nascimben J(2), MacRae CA(1)(2)(3).

NO ABSTRACT AVAILABLE

3. Coron Artery Dis. 2022 Jan 31. doi: 10.1097/MCA.0000000000001119. Online ahead of print.

Incidence and predictors of sudden cardiac arrest in the immediate post-percutaneous coronary intervention period for ST-elevation myocardial infarction: a single-center study.

Abe T(1), Olanipekun T, Igwe J, Ndausung U, Amah C, Chang A, Effoe V, Egbuche O, Ogunbayo G, Onwuanyi A.

ABSTRACT

BACKGROUND: Data on the incidence, predictors, and outcomes of sudden cardiac arrest (SCA) in the immediate post-percutaneous coronary intervention (PCI) period for ST-elevation myocardial infarction (STEMI) are limited. OBJECTIVES: The study aimed to investigate the trends and predictors of SCA occurring within 48 h post PCI for STEMI. METHODS: We systematically reviewed data from the electronic medical records of 403 patients who underwent PCI for STEMI between January 2014 and December 2019. Trends in the incidence of SCA 48 h post PCI for STEMI were assessed using the Cochrane-Armitage test. Multivariable logistic regression was used to determine the predictors of SCA within 48 h post PCI for STEMI. RESULTS: Of the 403 patients who underwent PCI for STEMI, 44 (11%) had SCA within 48 h post PCI. The incidence of SCA within 48 h post PCI decreased from 22% in 2014 to 8% in 2019; P = 0.03. After adjusting for underlying confounding variables in the multi-variable logistic regression models, out of hospital cardiac arrest [adjusted odds ratio (aOR), 23.9; confidence interval (CI), 10.2-56.1], left main coronary artery disease (aOR, 3.1; CI, 1.1-9.4), left main

PCI (aOR, 6.6; CI: 1.4-31.7), new-onset heart failure (aOR, 2.0; CI, 4.3-9.4), and cardiogenic shock (aOR, 5.8; CI, 1.7-20.2) were statistically significant predictors of SCA within 48 h post PCI for STEMI. CONCLUSION: We identified essential factors associated with SCA within 48 h post PCI for STEMI. Future studies are needed to devise effective strategies to decrease the risk of SCA in the early post-PCI period.

4. Heart Rhythm. 2022 Feb;19(2):177-184. doi: 10.1016/j.hrthm.2021.09.040. Epub 2021 Dec 21.
Alcohol consumption and risk of ventricular arrhythmias and sudden cardiac death: An observational study of 408,712 individuals.
Tu SJ(1), Gallagher C(1), Elliott AD(1), Linz D(1), Pitman BM(1), Hendriks JML(2), Lau DH(1), Sanders P(1), Wong CX(3).
ABSTRACT
BACKGROUND: Although previous studies have demonstrated a U-shaped relationship between alcohol and sudden cardiac death (SCD), there is a paucity of evidence on the role of alcohol specifically on incident ventricular arrhythmias (VAs). OBJECTIVE: The purpose of this study was to characterize associations of total and beverage-specific alcohol consumption with incident VA and SCD using data from the UK Biobank. METHODS: Alcohol consumption reported at baseline was calculated as UK standard drinks (8 g of alcohol) per week. Outcomes were assessed through hospitalization and death records. Alcohol consumption was modeled as restricted cubic splines in multivariate Cox regression models and corrected for regression dilution bias. RESULTS: We studied 408,712 middle-aged individuals (52.1% female) over a median follow-up time of 11.5 years. A total of 1733 incident VA events and 2044 SCDs occurred. For incident VA, no clear association was seen with total alcohol consumption. Although consumption of greater amounts of spirits was associated with increased VA risk, no other significant beverage-specific associations were observed. For SCD, a U-shaped association was seen for total alcohol consumption, such that consumption of <26 drinks per week was associated with lowest risk. Consumption of greater amounts of beer, cider, and spirits was potentially associated with increasing SCD risk, whereas increasing red and white wine intake was associated with reduced risk. CONCLUSION: In this predominantly white cohort, no association of total alcohol consumption was observed with VA, whereas a U-shaped association was present for SCD. Additional studies utilizing accurately defined VA and SCD events are required to provide further insights into these contrasting findings.

5. High Alt Med Biol. 2022 Jan 28. doi: 10.1089/ham.2021.0144. Online ahead of print.
Induced Hypothermia to as Cold as 3°C in Humans: Forgotten Cases Rediscovered.
Zafren K(1)(2)(3), Lechner R(4), Paal P(3)(5), Brugger H(3)(6)(7), Peek G(8), Darocha T(9).
ABSTRACT
Zafren, Ken, Raimund Lechner, Peter Paal, Hermann Brugger, Giles Peek, and Tomasz Darocha. Induced hypothermia to as cold as 3°C in humans: Forgotten cases rediscovered. High Alt Med Biol. 22:000-000, 2021. The lowest temperature from which humans can be successfully rewarmed from accidental hypothermia is unknown. The lowest published core temperature with survival from accidental hypothermia is 11.8°C. We recently reported a rediscovered case series of patients in whom profound hypothermia was induced for surgery. The patient in this case series with the lowest core temperature, 4.2°C, survived neurologically intact. We subsequently rediscovered several additional case series of induced hypothermia to core temperatures below 11.8°C. In one case series, at least one patient was cooled to 3°C. We do not know if any patient survived cooling to 3°C. As in the previous case series, the authors of the additional reports presented physiological data at various core temperatures, showing wide variations in individual responses to hypothermia. These data add to our understanding of the physiology of profound hypothermia. Although induced

hypothermia for surgery differs from accidental hypothermia, survival from very low temperatures in induced hypothermia provides evidence that humans with accidental hypothermia can be resuscitated successfully from temperatures much lower than 11.8°C. We continue to advise against using core temperature alone to decide if a hypothermic patient in cardiac arrest has a chance of survival.

END-TIDAL CO_2

1. Resuscitation. 2022 Jan 28:S0300-9572(22)00023-5. doi: 10.1016/j.resuscitation.2022.01.022. Online ahead of print.

Hypothermia is associated with a low ETCO(2) and low pH-stat PaCO(2) in refractory cardiac arrest.

Darocha T(1), Debaty G(2), Ageron FX(3), Podsiadło P(4), Hutin A(5), Hymczak H(6), Blancher M(7), Kosiński S(8), Mendrala K(9), Carron PN(10), Lamhaut L(11), Bouzat P(12), Pasquier M(13).

ABSTRACT

AIMS: The end-tidal carbon dioxide (ETCO2) is frequently measured in cardiac arrest (CA) patients, for management and for predicting survival. Our goal was to study the PaCO2 and ETCO2 in hypothermic cardiac arrest patients. METHODS: We included patients with refractory CA assessed for extracorporeal cardiopulmonary resuscitation. Hypothermic patients were identified from previously prospectively collected data from Poland, France and Switzerland. The non-hypothermic CA patients were identified from two French cohort studies. The primary parameters of interest were ETCO2 and PaCO2 at hospital admission. We analysed the data according to both alpha-stat and pH-stat strategies. RESULTS: We included 131 CA patients (39 hypothermic and 92 non-hypothermic). Both ETCO2 ($p<0.001$) and pH-stat PaCO2 ($p<0.001$) were significantly lower in hypothermic compared to non-hypothermic patients, which was not the case for alpha-stat PaCO2 ($p=0.15$). The median PaCO2-ETCO2 gradient was greater for hypothermic compared to non-hypothermic patients when using the alpha-stat method (46 mmHg vs 30 mmHg, $p=0.007$), but not when using the pH-stat method ($p=0.10$). Temperature was positively correlated with ETCO2 ($p<0.01$) and pH-stat PaCO2 ($p<0.01$) but not with alpha-stat PaCO2 ($p=0.5$). The ETCO2 decreased by 0.5 mmHg and the pH-stat PaCO2 by 1.1 mmHg for every decrease of 1° C of the temperature. The proportion of survivors with an ETCO2 ≤10mmHg at hospital admission was 45% (9/25) for hypothermic and 12% (2/17) for non-hypothermic CA patients. CONCLUSIONS: Hypothermic CA is associated with a decrease of the ETCO2 and pH-stat PaCO2 compared with non-hypothermic CA. ETCO2 should not be used in hypothermic CA for predicting outcome.

ORGAN DONATION

1. Am J Transplant. 2022 Feb 3. doi: 10.1111/ajt.16987. Online ahead of print.

Critical warm ischemia time point for cardiac donation after circulatory death.

Sánchez-Cámara S(1)(2), Asensio-López MC(1)(3), Royo-Villanova M(1)(2)(4), Soler F(5), Jara-Rubio R(1)(2), Garrido-Peñalver JF(2), Pinar E(1)(3), Hernández-Vicente Á(1)(3), Hurtado JA(3), Lax A(1)(3), Pascual-Figal DA(1)(3)(6)(7).

ABSTRACT

BACKGROUND: Donation after circulatory death (DCD) represents a promising opportunity to overcome the relative shortage of donors for heart transplantation. However, the necessary period of warm ischemia is a concern. This study aims to determine the critical warm ischemia time based on in-vivo biochemical changes. METHODS: 16 DCD non-cardiac donors, without cardiovascular disease, underwent serial endomyocardial biopsies immediately before withdrawal of life-sustaining

therapy (WLST), at circulatory arrest (CA) and every two minutes thereafter. Samples were processed into representative pools to assess calcium homeostasis, mitochondrial function and cellular viability. RESULTS: Compared to baseline, no significant deterioration was observed in any studied parameter at the time of CA (median: 9 min; IQR: 7-13 min; range: 4-19 min). Ten-minutes after CA, phosphorylation of cAMP-dependent protein kinase-A on Thr197 and SERCA2 decreased markedly; and parallelly, mitochondrial complex II and IV activities decreased, and caspase 3/7 activity raised significantly. These results did not differ when donors with higher WLST to CA times (≥9 min) were analyzed separately. CONCLUSIONS: In human cardiomyocytes, the period from WLST to CA and the first ten minutes after CA were not associated with a significant compromise in cellular function or viability. These findings may help to incorporate DCD into heart transplant programs.

FEEDBACK

1. Pediatr Emerg Care. 2022 Feb 1;38(2):e993-e996. doi: 10.1097/PEC.0000000000002370.
Improving CPR Quality by Using a Real-Time Feedback Defibrillator During Pediatric Simulation Training.
Frazier M(1), Dewan M, Keller-Smith R(2), Shoemaker J(2), Stewart C(3), Tegtmeyer K.
ABSTRACT
OBJECTIVE: The aim of this study was to assess the effectiveness of a defibrillator with real-time feedback during code team training to improve adherence to the American Heart Association (AHA) resuscitation guidelines. METHODS: This is a retrospective cohort study designed to compare pediatric resident adherence to the AHA cardiopulmonary resuscitation guidelines before and after use of real-time feedback defibrillator during code team training simulation. After institution of a real-time feedback defibrillator, first-year resident's adherence to the AHA guidelines for chest compression rate (CCR), fraction, and depth during code team training from January 2017 to December 2018 was analyzed. It was then compared with results of a previously published study from our institution that analyzed the CCR and fraction from January 2015 to January 2016, before the implementation of a defibrillator with real-time feedback. RESULTS: We compared 19 eligible session preintervention and 36 postintervention sessions. Chest compression rate and chest compression fraction (CCF) were assessed preintervention and postintervention. The depth of compression was only available postintervention. There was improvement in the proportion of code team training sessions with mean compression rate (74% preintervention vs 100% postintervention, P = 0.003) and mean CCF (79% vs 97%, P = 0.04) in adherence with the AHA guideline. CONCLUSIONS: The use of real-time feedback defibrillators improved the adherence to the AHA cardiopulmonary resuscitation guidelines for CCF and CCR during pediatric resident simulation.

DRUGS

1. J Intensive Care. 2022 Feb 2;10(1):5. doi: 10.1186/s40560-022-00597-5.
Efficacy of combination triple therapy with vasopressin, steroid, and epinephrine in cardiac arrest: a systematic review and meta-analysis of randomized-controlled trials.
Saghafi F(1), Bagheri N(2), Salehi-Abargouei A(3)(4), Sahebnasagh A(5).
ABSTRACT
BACKGROUND: This study investigated whether combination therapy with vasopressin, steroid, and epinephrine (VSE) improves in-hospital survival and return of spontaneous circulation (ROSC) during and after resuscitation in-hospital cardiac arrest (CA). MATERIALS AND METHODS: Various databases were explored from inception until October 2021 for relevant published clinical trials and cohort

studies. RESULTS: Three clinical trials were included. Pooled analysis suggested that VSE was significantly associated with increased ROSC in patients with in-hospital CA (IHCA) (odds ratio (OR): 2.281, 95% confidence interval (CI): 1.304-3.989, P value = 0.004). Meta-analysis of two studies (368 patients) demonstrated a significant difference in the reduction of mean arterial pressure (MAP) during and 15-20 min after cardiopulmonary resuscitation (standardized mean difference (SMD): 1.069, 95% CI: 0.851-1.288, P value < 0.001), renal failure free days (SMD = 0.590; 95% CI: 0.312-0.869 days; P value < 0.001), and coagulation failure free days (SMD = 0.403; 95% CI: 0.128-0.679, P value = 0.004). However, no significant difference was observed for survival-to-discharge ratio (OR: 2.082, 95% CI: 0.638-6.796, P value = 0.225) and ventilator free days (SMD = 0.201, 95% CI: - 0.677, 1.079 days; P value = 0.838). CONCLUSIONS: VSE combination therapy during and after IHCA may have beneficial effects in terms of the ROSC, renal and circulatory failure free days, and MAP.

TRAUMA

No articles identified.

VENTILATION

No articles identified.

CERERBRAL MONITORING

No articles identified.

ULTRASOUND AND CPR

No articles identified.

ORGANISATION AND TRAINING

1. Ann Med. 2022 Dec;54(1):464-471. doi: 10.1080/07853890.2022.2032314.

Outcomes of audio-instructed and video-instructed dispatcher-assisted cardiopulmonary resuscitation: a systematic review and meta-analysis.

Bielski K(1)(2), Böttiger BW(3), Pruc M(2), Gasecka A(4)(5), Sieminski M(6), Jaguszewski MJ(7), Smereka J(2)(8), Gilis-Malinowska N(7), Peacock FW(9), Szarpak L(2)(10)(11).

ABSTRACT

BACKGROUND: The present meta-analysis of clinical and simulation trials aimed to compare video-instructed dispatcher-assisted bystander cardiopulmonary resuscitation (V-DACPR) with conventional audio-instructed dispatcher-assisted bystander cardiopulmonary resuscitation (C-DACPR). METHODS: We searched PubMed, Embase, Web of Science, Cochrane Collaboration databases and Scopus from inception until June 10, 2021. The primary outcomes were the prehospital return of spontaneous circulation (ROSC), survival to hospital discharge, and survival to hospital discharge with a good neurological outcome for clinical trials, and chest compression quality for simulation trials. Odds ratios (ORs) and mean differences (MDs) with 95% confidence intervals (CIs) indicated the pooled effect. The analyses were performed with the RevMan 5.4 and STATA 14 software. RESULTS: Overall, 2 clinical and 8 simulation trials were included. In

clinical trials, C-DACPR and V-DACPR were characterised by, respectively, 11.8% vs. 24.3% of prehospital ROSC (OR = 0.46; 95% CI: 0.30, 0.69; I2 = 66%; p < .001), 10.7% vs. 22.3% of survival to hospital discharge (OR = 0.46; 95% CI: 0.30, 0.70; I2 = 69%; p < .001), and 6.3% vs. 16.0% of survival to hospital discharge with a good neurological outcome (OR = 0.39; 95% CI: 0.23, 0.67; I2 = 73%; p < .001). In simulation trials, chest compression rate per minute equalled 91.3 ± 22.6 for C-DACPR and 107.8 ± 12.6 for V-DACPR (MD = -13.40; 95% CI: -21.86, -4.95; I2 = 97%; p = .002). The respective values for chest compression depth were 38.7 ± 14.3 and 41.8 ± 12.5 mm (MD = -2.67; 95% CI: -8.35, 3.01; I2 = 98%; p = .36). CONCLUSIONS: As compared with C-DACPR, V-DACPR significantly increased prehospital ROSC and survival to hospital discharge. Under simulated resuscitation conditions, V-DACPR exhibited a higher rate of adequate chest compressions than C-DACPR. Key messages. Bystander cardiopulmonary resuscitation parameters significantly depend on the dispatcher's support and the manner of the support provided. Video-instructed dispatcher-assisted bystander cardiopulmonary resuscitation can increase the rate of prehospital return of spontaneous circulation and survival to hospital discharge.Video-instructed dispatcher-assisted bystander cardiopulmonary resuscitation improves the quality of chest compressions compared with dispatcher-assisted resuscitation without video instruction.

2. BMJ Open. 2022 Feb 1;12(2):e055640. doi: 10.1136/bmjopen-2021-055640.
Effect of large-scale disasters on bystander-initiated cardiopulmonary resuscitation in family-witnessed, friend-witnessed and colleague-witnessed out-of-hospital cardiac arrest: a retrospective analysis of prospectively collected, nationwide, population-based data.
Ushimoto T(1), Takada K(2), Yamashita A(2)(3), Morita H(4), Wato Y(4), Inaba H(4).
ABSTRACT
IMPORTANCE: The effect of large-scale disasters on bystander cardiopulmonary resuscitation (BCPR) performance is unknown. OBJECTIVE: To investigate whether and how large-scale earthquake and tsunami as well as subsequent nuclear pollution influenced BCPR performance for out-of-hospital cardiac arrest (OHCA) witnessed by family and friends/colleagues. DESIGN AND SETTING: Retrospective analysis of prospectively collected, nationwide, population-based data for OHCA cases. PARTICIPANTS: From the nationwide OHCA registry recorded between 11 March 2010 and 1 March 2013, we extracted 74 684 family-witnessed and friend/colleague-witnessed OHCA cases without prehospital physician involvement. EXPOSURE: Earthquake and tsunamis that were followed by nuclear pollution and largely affected the social life of citizens for at least 24 weeks. MAIN OUTCOME AND MEASURE: Neurologically favourable outcome after 1 month, 1-month survival and BCPR. METHODS: We analysed the 4-week average trend of BCPR rates in the years affected and before and after the disaster. We used univariate and multivariate logistic regression analyses to investigate whether these disasters affected BCPR and OHCA results. RESULTS: Multivariable logistic regression for tsunami-affected prefectures revealed that the BCPR rate during the impact phase in 2011 was significantly lower than that in 2010/2012 (42.5% vs 48.2%; adjusted OR; 95% CI 0.82; 0.68 to 0.99). A lower level of bystander compliance with dispatcher-assisted CPR instructions (62.1% vs 69.5%, 0.72; 95% CI 0.57 to 0.92) in the presence of a preserved level of voluntary BCPR performance (23.6% vs 23.8%) was also observed. Both 1-month survival and neurologically favourable outcome rates during the impact phase in 2011 were significantly poorer than those in 2010/2012 (8.5% vs 10.7%, 0.72; 95% CI 0.52 to 0.99, 4.0% vs 5.2%, 0.62; 95% CI 0.38 to 0.98, respectively). CONCLUSION AND RELEVANCE: A large-scale disaster with nuclear pollution influences BCPR performance and clinical outcomes of OHCA witnessed by family and friends/colleagues. Basic life-support training leading to voluntary-initiated BCPR might serve as preparedness for disaster and major accidents.

3. Crit Care Med. 2022 Feb 1;50(2):338-340. doi: 10.1097/CCM.0000000000005379.
Are We Still Withdrawing Too Soon?-Predictors of Late Awakening After Cardiac Arrest.
Lachance BB(1), Nielsen N(2), Jia X(1)(2)(3)(4)(5)(6)(7).
NO ABSTRACT AVAILABLE

4. Resusc Plus. 2022 Jan 20;9:100201. doi: 10.1016/j.resplu.2022.100201. eCollection 2022 Mar.
Trends in out-of-hospital cardiac arrest incidence, patient characteristics and survival over 18 years in Perth, Western Australia.
Majewski D(1), Ball S(1)(2), Bailey P(1)(2), Bray J(1)(3), Finn J(1)(2)(3)(4).
ABSTRACT
OBJECTIVES: To investigate trends in the incidence, characteristics, and survival of out-of-hospital cardiac arrests (OHCA) in the Perth metropolitan area between 2001 and 2018. METHODS: We calculated the crude incidence rate, age-standardised incidence rate (ASIR) and age- and sex-specific incidence rates (per 100,000 population) for OHCA of presumed cardiac aetiology. ASIRs were calculated using the direct method of standardisation using the 2001 Australian Population standard. Survival was assessed at return of spontaneous circulation at emergency department arrival and at 30 days. Temporal trends in patient and arrest characteristics were assessed with logistic regression, while trends in incidence were assessed using Joinpoint regression. Survival trends were assessed using binary logistic regression. RESULTS: A total of 18,417 OHCAs of presumed cardiac aetiology were attended by emergency medical services in Perth between 2001 and 2018. Overall, there were no significant changes in the crude or ASIR of OHCA over the study period, although OHCA incidence in 15-39 year-old males increased by 12.5% annually between 2011 and 2018. Both bystander cardiopulmonary resuscitation and bystander defibrillation increased over the study period, while the proportion of shockable arrests declined. Thirty-day OHCA survival improved significantly over time, with the odds of survival (in bystander-witnessed, initial shockable rhythm arrests) improving 12% (95% CI, 9.0% to 14.0%) annually, from 8.4% in 2001 to 44.0% in 2018. CONCLUSION: Overall, there were no significant trends in OHCA incidence over the study period, although arrests in 15-39 year-old males increased significantly after 2011. There were significant improvements in 30-day survival between 2001 and 2018.

5. Eur Heart J Acute Cardiovasc Care. 2022 Jan 12;11(1):32-34. doi: 10.1093/ehjacc/zuab115.
Volunteer first-responder activation in out-of-hospital cardiac arrest-a lot of potential and a lot of unknowns.
Folke F(1)(2)(3), Hansen CM(1)(4).
NO ABSTRACT AVAILABLE

POST-CARDIAC ARREST TREATMENTS

No articles identified.

TARGETED TEMPERATURE MANAGEMENT

1. Resuscitation. 2022 Feb 2:S0300-9572(22)00028-4. doi: 10.1016/j.resuscitation.2022.01.026. Online ahead of print.
Effects of targeted temperature management at 33°C vs. 36°C on comatose patients after cardiac arrest stratified by the severity of encephalopathy.

Nutma S(1), Tjepkema-Cloostermans MC(2), Ruijter BJ(3), Tromp SC(4), van den Bergh WM(5), Foudraine NA(6), H M Kornips F(7), Drost G(8), Scholten E(9), Strang A(10), Beishuizen A(11), J A M van Putten M(12), Hofmeijer J(13).

ABSTRACT

OBJECTIVES: To assess neurological outcome after targeted temperature management (TTM) at 33°C vs. 36°C, stratified by the severity of encephalopathy based on EEG-patterns at 12 and 24h. DESIGN: Post hoc analysis of prospective cohort study. SETTING: Five Dutch Intensive Care units. PATIENTS: 479 adult comatose post-cardiac arrest patients. INTERVENTIONS: TTM at 33°C (n=270) or 36°C (n=209) and continuous EEG monitoring. MEASUREMENTS AND MAIN RESULTS: Outcome according to the cerebral performance category (CPC) score at 6 months post-cardiac arrest was similar after 33°C and 36°C. However, when stratified by the severity of encephalopathy based on EEG-patterns at 12 and 24h after cardiac arrest, the proportion of good outcome (CPC 1-2) in patients with moderate encephalopathy was significantly larger after TTM at 33°C (66% vs. 45%; Odds Ratios 2.38, 95% CI=1.32-4.30; p=0.004). In contrast, with mild encephalopathy, there was no statistically significant difference in the proportion of patients with good outcome between 33°C and 36°C (88% vs. 81%; OR 1.68, 95% CI=0.65-4.38; p=0.282). Ordinal regression analysis showed a shift towards higher CPC scores when treated with TTM 33°C as compared with 36°C in moderate encephalopathy (cOR 2.39; 95% CI=1.40-4.08; p=0.001), but not in mild encephalopathy (cOR 0.81 95% CI=0.41-1.59; p=0.537). Adjustment for initial cardiac rhythm and cause of arrest did not change this relationship. CONCLUSIONS: Effects of TTM probably depend on the severity of encephalopathy in comatose patients after cardiac arrest. These results support inclusion of predefined subgroup analyses based on EEG measures of the severity of encephalopathy in future clinical trials.

2. Resuscitation. 2022 Feb 2:S0300-9572(22)00026-0. doi: 10.1016/j.resuscitation.2022.01.025. Online ahead of print.

Society for Cardiovascular Angiography and Intervention Shock Classification Predicts Mortality After Out-of-Hospital Cardiac Arrest.

Sarma D(1), Tabi M(2), Jentzer JC(3).

ABSTRACT

BACKGROUND: Shock is common in patients resuscitated from out-of-hospital-cardiac arrest (OHCA). Shock severity can be classified using the Society for Cardiovascular Angiography and Intervention (SCAI) Shock Classification. We aimed to examine the association of SCAI Shock Stage with in-hospital mortality and neurological outcome in comatose OHCA patients undergoing targeted temperature management (TTM). METHODS: This study included 213 comatose adult patients who underwent TTM after OHCA between January 2007 and December 2017. SCAI shock stage (A through E) was assigned using data from the first 24 hours, with shock defined as SCAI shock stage C/D/E. Good neurological outcome was defined as a modified Rankin Scale (mRS) less than 3. RESULTS: In-hospital mortality was higher in the 144 (67.6%) patients with shock (46.5% v. 23.2%, unadjusted OR 2.88, 95% CI 1.51-5.51, p = 0.001). After multivariable adjustment, each SCAI shock stage was incrementally associated with an increased risk of in-hospital mortality (adjusted OR 1.80 per stage, 95% CI 1.20-2.71, p = 0.003). Good neurological outcome was less likely in patients with shock (31.9% vs. 53.6%, unadjusted OR 0.41, 95% CI 0.23-0.73, p = 0.002) and a higher SCAI shock stage was incrementally associated with a lower likelihood of good neurological outcome after multivariable adjustment (adjusted OR 0.67 per stage, 95% CI 0.48-0.93, p = 0.015). CONCLUSION: Higher shock severity, defined using the SCAI Shock Classification, was associated with increased in-hospital mortality and a lower likelihood of good neurological outcome in OHCA patients treated with TTM.

3. Medicine (Baltimore). 2022 Feb 4;101(5):e28688. doi: 10.1097/MD.0000000000028688.

Prognostic value of targeted temperature management on outcomes of hanging-induced out-of-hospital cardiac arrest: A nationwide observational study.

Kim JG(1), Choi HY, Kang GH, Jang YS, Kim W, Lee Y.

ABSTRACT

This study aimed to evaluate the prognostic significance of targeted temperature management (TTM) on hanging-induced out-of-hospital cardiac arrest (OHCA) patients using nationwide data of South Korea. Adult hanging-induced OHCA patients from 2008 to 2018 were included in this nationwide observational study. Patients who assigned into 2 groups based on whether they did (TTM group) or did not (non-TTM group) receive TTM. Outcome measures included survival to hospital discharge and a good neurological outcome at hospital discharge. Among the 293,852 OHCA patients, 3545 patients (non-TTM, n = 2762; TTM, n = 783) were investigated. After propensity score matching for all patients, 783 matched pairs were available for analysis. We observed no significant inter-group differences in the survival to hospital discharge (non-TTM, n = 27 [3.4%] vs TTM, n = 23 [2.9%], P = .666) or good neurological outcomes (non-TTM, n = 23 [2.9%] vs TTM, n = 14 [1.8%], P = .183). In the multivariate analysis, prehospital return of spontaneous circulation (odds ratio [OR], 22.849; 95% confidence interval [CI], 11.479-45.481, P < .001) was associated with an increase in survival to hospital discharge, and age (OR, 0.971; 95% CI, 0.944-0.998, P = .035), heart disease (OR, 16.875; 95% CI, 3.028-94.036, P = .001), and prehospital return of spontaneous circulation (OR, 133.251; 95% CI, 30.512-581.930, P < .001) were significant prognostic factors of good neurological outcome. However, TTM showed no significant association with either outcome.There were no significant differences in the survival to hospital discharge and good neurological outcomes between non-TTM and TTM groups of hanging-induced OHCA patients.

4. J Formos Med Assoc. 2022 Feb;121(2):490-499. doi: 10.1016/j.jfma.2021.07.004. Epub 2021 Jul 28.

Predicting the survivals and favorable neurologic outcomes after targeted temperature management by artificial neural networks.

Chiu WT(1), Chung CC(2), Huang CH(3), Chien YS(4), Hsu CH(5), Wu CH(6), Wang CH(7), Chiu HW(8), Chan L(9).

ABSTRACT

BACKGROUND: To identify the outcome-associated predictors and develop predictive models for patients receiving targeted temperature management (TTM) by artificial neural network (ANN). METHODS: The derived cohort consisted of 580 patients with cardiac arrest and ROSC treated with TTM between January 2014 and August 2019. We evaluated the predictive value of parameters associated with survival and favorable neurologic outcome. ANN were applied for developing outcome prediction models. The generalizability of the models was assessed through 5-fold cross-validation. The performance of the models was assessed according to the accuracy, sensitivity, specificity, and area under the receiver operating characteristic curve (AUC). RESULTS: The parameters associated with survival were age, duration of cardiopulmonary resuscitation, history of diabetes mellitus (DM), heart failure, end-stage renal disease (ESRD), systolic blood pressure (BP), diastolic BP, body temperature, motor response after ROSC, emergent coronary angiography or percutaneous coronary intervention (PCI), and the cooling methods. The parameters associated with the favorable neurologic outcomes were age, sex, DM, chronic obstructive pulmonary disease, ESRD, stroke, pre-arrest cerebral-performance category, BP, body temperature, motor response after ROSC, emergent coronary angiography or PCI, and cooling methods. After adequate training, ANN Model 1 to predict survival achieved an AUC of 0.80. Accuracy, sensitivity, and specificity were 75.9%, 71.6%, and 79.3%, respectively. ANN Model 4 to predict the favorable neurologic outcome

achieved an AUC of 0.87, with accuracy, sensitivity, and specificity of 86.7%, 77.7%, and 88.0%, respectively. CONCLUSION: The ANN-based models achieved good performance to predict the survival and favorable neurologic outcomes after TTM. The models proposed have clinical value to assist in decision-making.

ELECTROPHYSIOLOGY AND DEFIBRILLATION

No articles identified.

PEDIATRICS AND CHILDREN

1. Resusc Plus. 2022 Jan 20;9:100202. doi: 10.1016/j.resplu.2022.100202. eCollection 2022 Mar.
Should paediatric chest compression depth targets consider body habitus? - A chest computed tomography imaging study.
Ong GY(1)(2), Ang AJF(1), Chen ZJ(3), Chan YH(3), Tang PH(4), Fong ESS(1), Tan JY(1), Aurangzeb ASO(1), Pek JH(5), Maconochie I(6)(7), Ng KC(1)(2), Nadkarni V(8).
ABSTRACT
AIM: This study explored how body habitus in the paediatric population might potentially affect the use of one-third external anterior-posterior (APD) diameter when compared to age-appropriate absolute chest compression depth targets. It also explored how body habitus could potentially affect the relationship between one-third external and internal APD (compressible space) and if body habitus indices were independent predictors of internal APD at the lower half of the sternum. METHODS: This was a secondary analysis of a retrospective study of chest computed tomography (CT) scans of infants and children (>24-hours-of-life to less-than-18-years-old) from 2005 to 2017. Patients' scan images were reviewed for internal and external APDs at the mid-point of the lower half of the sternum. Body habitus and epidemiological data were extracted from the electronic medical records. RESULTS: Chest CT scans of 193 infants and 398 children were evaluated. There was poor concordance between one-third external APD measurements and age-specific absolute chest compression depth targets, especially in infants and overweight/obese adolescents. There was a co-dependent relationship between one-third external APD and internal APD measurements. Overweight/obese children's and adolescents' internal and external APDs were significant different from the normal/underweight groups. Body-mass-index (BMI) of children and adolescents ($p = 0.009$), but not weight-for-length (WFL) of infants ($p = 0.511$), was an independent predictor of internal APD at the compression landmark. CONCLUSION: This study demonstrated correlations between external and internal APDs which were affected by BMI but not WFL (infants). Clinical studies are needed to validate current chest compression guidelines especially for infants and overweight/obese adolescents.(250 words).

2. Pediatr Emerg Care. 2022 Feb 1;38(2):e451-e457. doi: 10.1097/PEC.0000000000002392.
Can Video Assistance Improve the Quality of Pediatric Dispatcher-Assisted Cardiopulmonary Resuscitation?
Peters M(1), Stipulante S, Cloes V(1), Mulder A(2), Lebrun F(2), Donneau AF(3), Ghuysen A.
ABSTRACT
OBJECTIVES: This study aimed to evaluate the impact of adding video conferencing to dispatcher-assisted telephone cardiopulmonary resuscitation (CPR) on pediatric bystander CPR quality. METHODS: We conducted a prospective, randomized manikin study among volunteers with no CPR training and among bachelor nurses. Volunteers randomly received either video or audio assistance

in a 6-minute pediatric cardiac arrest scenario. The main outcome measures were the results of the Cardiff Test to assess compression and ventilation performance. RESULTS: Of 255 candidates assessed for eligibility, 120 subjects were randomly assigned to 1 of the 4 following groups: untrained telephone-guided (U-T; n = 30) or video-guided (U-V; n = 30) groups and trained telephone-guided (T-T; n = 30) or video-guided (T-V; n = 30) groups. Cardiac arrest was appropriately identified in 86.7% of the U-T group and in 100% in the other groups (P = 0.0061). Hand positioning was adequate in 76.7% of T-T, 80% of T-V, and 60% of U-V, as compared with 23.4% of the U-T group (P = 0.0001). Fewer volunteers managed to deliver 2 rescue breaths/cycle (P = 0.0001) in the U-T (16.7%) compared with the U-V (43.3%), the T-T (56.7%), and the T-V groups (60%).Subjects in the video groups had a lower fraction of minute to ventilate as compared with the telephone groups (P = 0.0005). CONCLUSIONS: In dispatcher-instructed children CPR simulation, using video assistance improves cardiac arrest recognition and CPR quality with more appropriate chest compression technique and ventilation delivering. The long interruptions in chest compression combined with the mixed success rate to deliver proper ventilation raise question about ventilation quality and its effectiveness.

3. Pediatr Emerg Care. 2022 Feb 1;38(2):e973-e977. doi: 10.1097/PEC.0000000000002505.
Infant Cardiopulmonary Resuscitation Quality While Walking Fast: A Simulation Study.
Santos-Folgar M, Fernández-Méndez F, Otero-Agra M, Abelairas-Gómez C, Murciano M(1), Rodríguez-Núñez A, Barcala-Furelos R.
ABSTRACT
OBJECTIVE: This study focuses on the characteristics (feasibility, resuscitation quality, and physical demands) of infant cardiopulmonary resuscitation (CPR) on the forearm during fast walking, performed by a trained lay rescuer. METHODS: Twenty-one university students from the infant education degree participated in a randomized crossover simulation study to compare a standard pediatric CPR versus a walking pediatric CPR with a manikin on the rescue forearm. Each rescuer performed 2 resuscitation tests of 2 minutes on the infant manikin. Cardiopulmonary resuscitation, physiological, and perceived effort variables were measured. RESULTS: The quality of chest compressions was higher in standard pediatric CPR than in walking pediatric CPR (72% vs 51%; P < 0.001) and overall CPR quality (59% vs 49%; P = 0.02). There were no differences between ventilation quality (47% vs 46%). Walking pediatric CPR presented a higher percentage of maximum heart rate (52% vs 69%; P < 0.001) and perceived exertion rate (2 vs 5; P < 0.001). Participants walked an average of 197 m during the test. CONCLUSIONS: In conclusion, pediatric walking CPR is feasible although it represents a slight quality decrease in a simulation infant CPR setting. The option "CPR while walking fast to a safe place" seems to be suitable in terms of safety both for the victim and the rescuer, as well as CPR quality in special circumstances.

EXTRACORPOREAL LIFE SUPPORT

1. Sci Rep. 2022 Jan 31;12(1):1653. doi: 10.1038/s41598-022-05786-8.
The feasibility of extracorporeal cardiopulmonary resuscitation for patients with active cancer who undergo in-hospital cardiac arrest.
Shin YS(#)(1), Kang PJ(#)(2), Kim YJ(1), Ryoo SM(1), Jung SH(2), Hong SB(3), Kim WY(4).
ABSTRACT
Indications of extracorporeal cardiopulmonary resuscitation (ECPR) are still debatable, particularly in patients with cancer. Prediction of the prognosis of in-hospital cardiac arrest (IHCA) in patients with cancer receiving ECPR is important given the increasing prevalence and survival rate of cancer. We

compared the neurologic outcomes and survival rates of IHCA patients with and without cancer receiving ECPR. Data from the extracorporeal membrane oxygenation registry between 2015 and 2019 were used in a retrospective manner. The primary outcome was 6-month good neurologic outcome, defined as a Cerebral performance category score of 1 or 2. The secondary outcomes were 1- and 3-month good neurologic outcome, and 6-month survival. Among 247 IHCA patients with ECPR, 43 had active cancer. The 6-month good neurologic outcome rate was 27.9% and 32.4% in patients with and without active cancer, respectively ($P > 0.05$). Good neurologic outcomes at 1-month (30.2% vs. 20.6%) and 3-month (30.2% vs. 28.4%), and the survival rate at 6-month (39.5% vs. 36.5%) were not significantly different (all $P > 0.05$) Active cancer was not associated with 6-month good neurologic outcome by logistic regression analyses. Therefore, patients with IHCA should not be excluded from ECPR solely for the presence of cancer itself.

EXPERIMENTAL RESEARCH

1. Neurochem Res. 2022 Jan 30. doi: 10.1007/s11064-021-03511-x. Online ahead of print.
Alda-1, an Activator of ALDH2, Improves Postresuscitation Cardiac and Neurological Outcomes by Inhibiting Pyroptosis in Swine.
Diao M(#)(1), Xu J(#)(2)(3), Wang J(#)(4), Zhang M(2)(3), Wu C(1), Hu X(5), Zhu Y(1), Zhang M(6)(7), Hu W(8).

ABSTRACT
Aldehyde dehydrogenase 2 (ALDH2) has been proven to protect the heart and brain against regional ischemia/reperfusion injury, in which the protective role is related to the inhibition of pyroptosis. In the present study, we investigated whether an ALDH2 activator N-(1,3-benzodioxol-5-ylmethyl)-2,6-dichloro-benzamide (Alda-1) would improve postresuscitation cardiac and neurological outcomes in a clinically relevant swine model of cardiac arrest (CA) and resuscitation. The animal model was established by 8 min of untreated ventricular fibrillation and then 8 min of cardiopulmonary resuscitation (CPR). After restoring spontaneous circulation, the animals were randomly divided to receive either Alda-1 (0.88 mg/kg, n = 6) or saline (n = 5). Postresuscitation hemodynamic parameters, cardiac function, and cardiac and cerebral injuries were periodically measured for a total of 24 h. At 24 h postresuscitation, neurological function was evaluated, and then the animals were sacrificed, and cardiac and cerebral tissue samples were obtained for the measurements of oxidative stress, inflammation and pyroptosis. Consequently, postresuscitation cardiac and neurological dysfunction were significantly improved accompanied with significantly milder cardiac and cerebral injuries in the Alda-1 group compared with the CPR group. In addition, the increase in NLR family pyrin domain-containing 3 inflammasome expression and proinflammatory cytokine production, which indicated the occurrence of inflammatory response, were significantly less in the Alda1 group than in the CPR group. The expression level of gasdermin D used as a protein marker of pyroptosis was also significantly reduced in all resuscitated animals receiving Alda1 treatment. Moreover, the severity of oxidative stress indicated by the changes of 4-hydroxy-2-nonenal and malondialdehyde was significantly decreased in the heart and brain in all animals treated with Alda-1 compared to the CPR group. Thus, Alda-1 mitigated postresuscitation cardiac and neurological dysfunction and injuries possibly by inhibiting oxidative stress-mediated NLRP3 inflammasome activation and pyroptosis in a swine model of CA and resuscitation.

CASE REPORTS

1. Eur J Med Res. 2022 Feb 3;27(1):19. doi: 10.1186/s40001-021-00628-1.

Successful ECMO-assisted open chest cardiopulmonary resuscitation in a postpartum patient with delayed amniotic fluid embolism.

Wu Y(1), Luo J(1), Chen T(1), Zhan H(1), Liu J(1), Chen J(1), Wang S(2).

ABSTRACT

BACKGROUND: Amniotic fluid embolism (AFE) is a rare but potentially dangerous severe obstetrics complication, which is accompanied by an incidence between 1.9 and 6.1 per 100,000 births. CASE PRESENTATION: Here, we report an AFE case after cesarean delivery diagnosed on a cardiac arrest complicated by acute respiratory distress syndrome and coagulopathy. Diagnosis, risk factors and pathophysiology for AFE have been fully discussed, besides, extracorporeal membrane oxygenation in the early management of cardiac arrest was used, describing the indication, efficacy and successful performed of open-chest cardiopulmonary resuscitation for the patient. CONCLUSION: In AFE with cute cardiovascular collapse, extracorporeal membrane oxygenation support can be considered as the alternative therapies.

2. Intern Med. 2022 Feb 1. doi: 10.2169/internalmedicine.8813-21. Online ahead of print.

Asystole-induced Bradycardia by Dexmedetomidine during Endoscopic Submucosal Dissection.

Yamasaki T(1), Sakata Y(1), Suekane T(1), Nebiki H(1).

ABSTRACT

Although dexmedetomidine (DEX) is a widely used analgesic and sedative agent for endoscopic procedures, cardiovascular complications, such as bradycardia and hypotension, are frequently experienced. We herein report the first case of asystole-induced bradycardia due to DEX during endoscopic submucosal dissection (ESD). An 81-year-old man without cardiovascular diseases was referred for gastric carcinoma. ESD was started after administering a loading dose of DEX followed by a continuous maintenance infusion of DEX. The patient's heart rate gradually decreased, and then cardiac arrest occurred. DEX has a risk of cardiac arrest, so bradycardia should not be underestimated during sedation with DEX.