This week's PubMed 12th – 18th September 2021: articles of interest n = 30

CPR AND COVID-19

1. J Korean Med Sci. 2021 Sep 13;36(36):e255. doi: 10.3346/jkms.2021.36.e255.
The Comparison of Emergency Medical Service Responses to and Outcomes of Out-of-hospital Cardiac Arrest before and during the COVID-19 Pandemic in an Area of Korea.
Lim D(1), Park SY(2), Choi B(3), Kim SH(3), Ryu JH(4), Kim YH(5), Sung AJ(6), Bae BK(7), Kim HB(8).
ABSTRACT
BACKGROUND: Since the declaration of the coronavirus disease 2019 (COVID-19) pandemic, COVID-19 has affected the responses of emergency medical service (EMS) systems to cases of out-of-hospital cardiac arrest (OHCA). The purpose of this study was to identify the impact of the COVID-19 pandemic on EMS responses to and outcomes of adult OHCA in an area of South Korea. METHODS: This was a retrospective observational study of adult OHCA patients attended by EMS providers comparing the EMS responses to and outcomes of adult OHCA during the COVID-19 pandemic to those during the pre-COVID-19 period. Propensity score matching was used to compare the survival rates, and logistic regression analysis was used to assess the impact of the COVID-19 pandemic on the survival of OHCA patients. RESULTS: A total of 891 patients in the pre-COVID-19 group and 1,063 patients in the COVID-19 group were included in the final analysis. During the COVID-19 period, the EMS call time was shifted to a later time period (16:00-24:00, P < 0.001), and the presence of an initial shockable rhythm was increased (pre-COVID-19 vs. COVID-19, 7.97% vs. 11.95%, P = 0.004). The number of tracheal intubations decreased (5.27% vs. 1.22%, P < 0.001), and the use of mechanical chest compression devices (30.53% vs. 44.59%, P < 0.001) and EMS response time (median [quartile 1-quartile 3], 7 [5-10] vs. 8 [6-11], P < 0.001) increased. After propensity score matching, the survival at admission rate (22.52% vs. 18.24%, P = 0.025), survival to discharge rate (7.77% vs. 5.52%, P = 0.056), and favorable neurological outcome (5.97% vs. 3.49%, P < 0.001) decreased. In the propensity score matching analysis of the impact of COVID-19, odds ratios of 0.768 (95% confidence interval [CI], 0.592-0.995) for survival at admission and 0.693 (95% CI, 0.446-1.077) for survival to discharge were found. CONCLUSION: During the COVID-19 period, there were significant changes in the EMS responses to OHCA. These changes are considered to be partly due to social distancing measures. As a result, the proportion of patients with an initial shockable rhythm in the COVID-19 period was greater than that in the pre-COVID-19 period, but the final survival rate and favorable neurological outcome were lower.

CPR/MECHANICAL CHEST COMPRESSION

No articles identified.

REGISTRIES, REVIEWS AND EDITORIALS

1. BMJ Open. 2021 Sep 14;11(9):e051502. doi: 10.1136/bmjopen-2021-051502.
Risk of out-of-hospital cardiac arrest among sepsis survivors in Taiwan: analysis of a nationwide population-based cohort.
Hsu WT(1), Sherrod CF(2), Tehrani B(2), Papaila A(2), Porta L(3), Hsu TC(4), Sheng WH(5), Lee CC(6)(7)(8).
ABSTRACT

OBJECTIVES: There is minimal literature examining the association of sepsis with out-of-hospital cardiac arrest (OHCA). Using a large national database, we aimed to quantify the risk of OHCA among sepsis patients after hospital discharge. DESIGN: Population-based cohort study. SETTING: Nationwide sepsis cohort retrieved from the National Health Insurance Research Database of Taiwan between 2000 and 2013. PARTICIPANTS: We included 17 304 patients with sepsis. After hospital discharge, 144 patients developed OHCA within 30 days and 640 between days 31 and 365. PRIMARY AND SECONDARY OUTCOME MEASURES: The main outcomes were OHCA events following hospital discharge for sepsis. To evaluate the independent association between sepsis and OHCA after a sepsis hospitalisation, we constructed two non-sepsis comparison cohorts using risk set sampling and propensity score matching techniques (non-infection cohort, non-sepsis infection cohort). We plotted the daily number and daily risk of OHCA within 1 year of hospital discharge between sepsis and matched non-sepsis cohorts. We used Cox regression to evaluate the risk of early and late OHCA, comparing sepsis to non-sepsis patients. RESULTS: Compared with non-infected patients, sepsis patients had a higher rate of early (HR 1.66, 95% CI: 1.27 to 2.16) and late (HR 1.19, 95% CI: 1.06 to 1.33) OHCA events. This association was independent of age, sex or cardiovascular history. Compared with non-sepsis patients with infections, sepsis patients had a higher rate of both early (HR 1.28, 95% CI: 1.00 to 1.63) and late (HR 1.13, 95% CI: 1.01 to 1.27) OHCA events, especially among patients with cardiovascular disease (OR 1.35, 95% CI: 1.01 to 1.81). CONCLUSIONS: Sepsis patients had increased risk of OHCA compared with matched non-sepsis controls, which lasted up to 1 year after hospital discharge.

IN-HOSPITAL CARDIAC ARREST

1. Eur J Cardiovasc Nurs. 2021 Sep 15:zvab079. doi: 10.1093/eurjcn/zvab079. Online ahead of print.
Treatment and survival following in-hospital cardiac arrest: does patient ethnicity matter?
Agerström J(1), Carlsson M(2), Bremer A(3), Herlitz J(4)(5), Rawshani A(6), Årestedt K(3)(7), Israelsson J(3)(8).

ABSTRACT

AIMS: Previous research on racial/ethnic disparities in relation to cardiac arrest has mainly focused on black vs. white disparities in the USA. The great majority of these studies concerns out-of-hospital cardiac arrest (OHCA). The current nationwide registry study aims to explore whether there are ethnic differences in treatment and survival following in-hospital cardiac arrest (IHCA), examining possible disparities towards Middle Eastern and African minorities in a European context. METHODS AND RESULTS: In this retrospective registry study, 24 217 patients from the IHCA part of the Swedish Registry of Cardiopulmonary Resuscitation were included. Data on patient ethnicity were obtained from Statistics Sweden. Regression analysis was performed to assess the impact of ethnicity on cardiopulmonary resuscitation (CPR) delay, CPR duration, survival immediately after CPR, and the medical team's reported satisfaction with the treatment. Middle Eastern and African patients were not treated significantly different compared to Nordic patients when controlling for hospital, year, age, sex, socioeconomic status, comorbidity, aetiology, and initial heart rhythm. Interestingly, we find that Middle Eastern patients were more likely to survive than Nordic patients (odds ratio = 1.52). CONCLUSION: Overall, hospital staff do not appear to treat IHCA patients differently based on their ethnicity. Nevertheless, Middle Eastern patients are more likely to survive IHCA.

2. J Med Internet Res. 2021 Sep 13;23(9):e27798. doi: 10.2196/27798.
Predicting the Mortality and Readmission of In-Hospital Cardiac Arrest Patients With Electronic Health Records: A Machine Learning Approach.
Chi CY(#)(1), Ao S(#)(2), Winkler A(2), Fu KC(2), Xu J(2), Ho YL(3), Huang CH(4), Soltani R(2).

ABSTRACT

BACKGROUND: In-hospital cardiac arrest (IHCA) is associated with high mortality and health care costs in the recovery phase. Predicting adverse outcome events, including readmission, improves the chance for appropriate interventions and reduces health care costs. However, studies related to the early prediction of adverse events of IHCA survivors are rare. Therefore, we used a deep learning model for prediction in this study. OBJECTIVE: This study aimed to demonstrate that with the proper data set and learning strategies, we can predict the 30-day mortality and readmission of IHCA survivors based on their historical claims. METHODS: National Health Insurance Research Database claims data, including 168,693 patients who had experienced IHCA at least once and 1,569,478 clinical records, were obtained to generate a data set for outcome prediction. We predicted the 30-day mortality/readmission after each current record (ALL-mortality/ALL-readmission) and 30-day mortality/readmission after IHCA (cardiac arrest [CA]-mortality/CA-readmission). We developed a hierarchical vectorizer (HVec) deep learning model to extract patients' information and predict mortality and readmission. To embed the textual medical concepts of the clinical records into our deep learning model, we used Text2Node to compute the distributed representations of all medical concept codes as a 128-dimensional vector. Along with the patient's demographic information, our novel HVec model generated embedding vectors to hierarchically describe the health status at the record-level and patient-level. Multitask learning involving two main tasks and auxiliary tasks was proposed. As CA-mortality and CA-readmission were rare, person upsampling of patients with CA and weighting of CA records were used to improve prediction performance. RESULTS: With the multitask learning setting in the model learning process, we achieved an area under the receiver operating characteristic of 0.752 for CA-mortality, 0.711 for ALL-mortality, 0.852 for CA-readmission, and 0.889 for ALL-readmission. The area under the receiver operating characteristic was improved to 0.808 for CA-mortality and 0.862 for CA-readmission after solving the extremely imbalanced issue for CA-mortality/CA-readmission by upsampling and weighting. CONCLUSIONS: This study demonstrated the potential of predicting future outcomes for IHCA survivors by machine learning. The results showed that our proposed approach could effectively alleviate data imbalance problems and train a better model for outcome prediction.

INJURIES AND CPR

No articles identified.

CAUSE OF THE ARREST

1. Europace. 2021 Sep 13:euab214. doi: 10.1093/europace/euab214. Online ahead of print.
Preclinical short QT syndrome models: studying the phenotype and drug-screening.
Fan X(1)(2), Yang G(3)(4), Kowitz J(1), Duru F(5)(6), Saguner AM(5), Akin I(1)(7), Zhou X(1)(2)(7), El-Battrawy I(1)(5).

ABSTRACT

Cardiovascular diseases are the main cause of sudden cardiac death (SCD) in developed and developing countries. Inherited cardiac channelopathies are linked to 5-10% of SCDs, mainly in the young. Short QT syndrome (SQTS) is a rare inherited channelopathy, which leads to both atrial and ventricular tachyarrhythmias, syncope, and even SCD. International European Society of Cardiology guidelines include as diagnostic criteria: (i) QTc ≤ 340 ms on electrocardiogram, (ii) QTc ≤ 360 ms plus one of the follwing, an affected short QT syndrome pathogenic gene mutation, or family history of SQTS, or aborted cardiac arrest, or family history of cardiac arrest in the young. However, further evaluation of the QTc ranges seems to be required, which might be possible by assembling large short QT cohorts and considering genetic screening of the newly described pathogenic mutations. Since the mechanisms underlying the arrhythmogenesis of SQTS is unclear, optimal therapy for SQTS

is still lacking. The disease is rare, unclear genotype-phenotype correlations exist in a bevy of cases and the absence of an international short QT registry limit studies on the pathophysiological mechanisms of arrhythmogenesis and therapy of SQTS. This leads to the necessity of experimental models or platforms for studying SQTS. Here, we focus on reviewing preclinical SQTS models and platforms such as animal models, heterologous expression systems, human-induced pluripotent stem cell-derived cardiomyocyte models and computer models as well as three-dimensional engineered heart tissues. We discuss their usefulness for SQTS studies to examine genotype-phenotype associations, uncover disease mechanisms and test drugs. These models might be helpful for providing novel insights into the exact pathophysiological mechanisms of this channelopathy and may offer opportunities to improve the diagnosis and treatment of patients with SQT syndrome.

END-TIDAL CO_2

No articles identified.

ORGAN DONATION

1. Rev Esp Cardiol (Engl Ed). 2021 Sep 8:S1885-5857(21)00246-2. doi: 10.1016/j.rec.2021.08.001. Online ahead of print.
Spanish Heart Transplant Registry. 32nd Official Report of the Heart Failure Association of the Spanish Society of Cardiology. [Article in English, Spanish]
González-Vílchez F(1), Almenar-Bonet L(2), Crespo-Leiro MG(3), Gómez-Bueno M(4), González-Costello J(5), Pérez-Villa F(6), Delgado-Jiménez JF(7), Arizón Del Prado JM(8), Sobrino-Márquez JM(9), Valero-Masa MJ(10); Spanish Heart Transplant Teams.
ABSTRACT
INTRODUCTION AND OBJECTIVES: The present report updates the main characteristics and outcomes of heart transplants in Spain to 2020. METHODS: We describe the main features of recipients, donors, surgical procedure, and immunosuppression in 2020. We also analyze the temporal trends of these characteristics and outcomes (survival) for the period 2011 to 2019. RESULTS: In 2020, 278 heart transplants were performed (7.3% decrease vs 2019). The findings in 2020 confirmed previous observations of an increase in pretransplant sternotomy, a slight decrease in urgent transplants carried out with ventricular assist devices, a slight decrease in donor age, an increase in the use of allografts with previous arrest, and a decrease in ischemia time. Survival continued to improve in recent triennia, reaching 82.0% at 1 year in the period 2017 to 2019. CONCLUSIONS: The slight decrease in the number of heart transplants performed in 2020 in Spain, most likely due to the SARS-CoV-2 pandemic, did not change the main characteristics of the procedure. No change was observed in the tendency to improved survival.

FEEDBACK

No articles identified.

DRUGS

1. Cardiol J. 2021;28(2):279-292. doi: 10.5603/CJ.a2020.0133. Epub 2020 Nov 3.

Systematic review and meta-analysis appraising efficacy and safety of adrenaline for adult cardiopulmonary resuscitation.

Ludwin K(1), Safiejko K(2), Smereka J(1)(3), Nadolny K(4)(5), Cyran M(6), Yakubtsevich R(7), Jaguszewski MJ(8), Filipiak KJ(9), Szarpak L(10)(11)(12), Rodríguez-Núñez A(13).

ABSTRACT

BACKGROUND: There is a beneficial effect of adrenaline during adult cardiopulmonary resuscitation (CPR) from cardiac arrest but there is also uncertainty about its safety and effectiveness. The aim of this study was to evaluate the use of adrenaline versus non-adrenaline CPR. METHODS: PubMed, ScienceDirect, Embase, CENTRAL (Cochrane Central Register of Controlled Trials) and Google Scholar databases were searched from their inception up to 1st July 2020. Two reviewers independently assessed eligibility and risk of bias, with conflicts resolved by a third reviewer. Risk ratio (RR) or mean difference of groups were calculated using fixed or random-effect models. RESULTS: Nineteen trials were identified. The use of adrenaline during CPR was associated with a significantly higher percentage of return of spontaneous circulation (ROSC) compared to non-adrenaline treatment (20.9% vs. 5.9%; RR = 1.87; 95% confidence interval [CI] 1.37-2.55; $p < 0.001$). The use of adrenaline in CPR was associated with ROSC at 19.4% and for non-adrenaline treatment - 4.3% (RR = 3.23; 95% CI 1.89-5.53; $p < 0.001$). Survival to discharge (or 30-day survival) when using adrenaline was 6.8% compared to non-adrenaline treatment (5.5%; RR = 0.99; 95% CI 0.76-1.30; $p = 0.97$). However, the use of adrenaline was associated with a worse neurological outcome (1.6% vs. 2.2%; RR = 0.57; 95% CI 0.42-0.78; $p < 0.001$). CONCLUSIONS: This review suggests that resuscitation with adrenaline is associated with the ROSC and survival to hospital discharge, but no higher effectiveness was observed at discharge with favorable neurological outcome. The analysis showed higher effectiveness of ROSC and survival to hospital discharge in non-shockable rhythms. But more multicenter randomized controlled trials are needed in the future.

TRAUMA

No articles identified.

VENTILATION

No articles identified.

CERERBRAL MONITORING

1. Am J Emerg Med. 2021 Sep 6;50:486-491. doi: 10.1016/j.ajem.2021.09.006. Online ahead of print.

Association of the duration of on-scene advanced life support with good neurological recovery in out-of-hospital cardiac arrest.

Jang DH(1), Jo YH(2), Park SM(2), Lee KJ(3), Kim YJ(4), Lee DK(5).

ABSTRACT

BACKGROUND: As advanced life support (ALS) provided by emergency medical services (EMS) on scene becomes more common, the scene time interval (STI) for which EMS providers stay on scene tends to lengthen. We investigated the relationship between the STI and neurological outcome of patients at hospital discharge when ALS was provided by EMS on scene. METHODS: We conducted a retrospective analysis of prospectively collected out-of-hospital cardiac arrest (OHCA) data between August 2015 and December 2018. A restricted cubic spline curve was used to investigate the relationship between the STI and neurologic outcome, and patients were divided into two groups

based on the cut-off value obtained through receiver operating characteristic (ROC) analysis. Comparisons of outcomes between the two groups were performed before and after propensity score matching. RESULTS: 4548 patients were included in the analysis. In ROC analysis, the optimal cut-off value for STI was 19 min. For the group with an STI <19 min, survival admission, survival discharge, and good neurologic outcome at hospital discharge were all higher than for the group with STI ≥19 min before and after propensity score matching. The multivariable model also showed that the STI ≥19 min was significantly associated with poor neurologic outcome at hospital discharge compared with the STI <19 min (adjusted odds ratio, 2.00; 95% CI, 1.40-2.88). CONCLUSIONS: A duration of on-scene ALS more than 19 min was associated with a poor neurologic outcome of patients at hospital discharge in OHCA.

2. Resuscitation. 2021 Sep 9:S0300-9572(21)00358-0. doi: 10.1016/j.resuscitation.2021.09.004. Online ahead of print.

Emergency medical services employing intra-arrest transport less frequently for out-of-hospital cardiac arrest have higher survival and favorable neurological outcomes.

Grunau B(1), Kawano T(2), Rea T(3), Okubo M(4), Scheuermeyer F(5), Reynolds J(6), Heidet M(7), Drennan IR(8), Cheskes S(8), Fordyce C(9), Twaites Als B(10), Christenson J(5).

ABSTRACT

BACKGROUND: There is substantial regional variation in out-of-hospital cardiac arrest (OHCA) survival. We investigated whether regional emergency medical services (EMS) intra-arrest transport (IAT) practices are associated with patient outcomes. METHODS: We performed a secondary analysis of a multi-center North American clinical trial dataset, which enrolled EMS-treated adult OHCA cases from 49 regional population-based clusters. The exposure of interest was regional-level intra-arrest transport (IAT), calculated as the proportion of cases in each cluster transported to hospital prior to return of spontaneous circulation, examined as quartiles and as a continuous variable. Multilevel mixed-effects logistic regression modeling estimated the association between regional IAT with survival to hospital discharge and favorable neurologic status (modified Rankin Scale ≤ 3) at hospital discharge. RESULTS: Of 26,148 subjects (median age 68 years; 36% female; 23% shockable initial rhythm) 2,424 (9.3%), survived to hospital discharge and 1,993 (7.6%) had favourable neurological outcomes. Across regional clusters, IAT ranged from 0.84% to 75% (quartiles <6.2%, 6.2 - 19.6%, 19.6 - 30.4%, and ≥ 30.4%). For each quartile, 13.3%, 7.9%, 7.4%, and 4.8% survived, and 10.4%, 7.8%, 7.4%, and 4.8% had favourable neurological status. Regional IAT (per 10% change) was associated with decreased probability of survival (AOR 0.86, 95% CI 0.82-0.91) and favorable neurological outcome (AOR 0.80, 95% CI 0.76-0.85). CONCLUSION: Treatment within a region that utilizes IAT less frequently was associated with improved clinical outcomes at hospital discharge. These findings may account for some of the known regional variation in OHCA outcomes.

3. Med Klin Intensivmed Notfmed. 2021 Sep;116(6):535-536. doi: 10.1007/s00063-021-00841-0. Epub 2021 Aug 3.

[Cardiac arrest in patients aged over 90 years-neurological outcome and intensive care treatment].

[Article in German]

Roedl K(1).

NO ABSTRACT AVAILABLE

ULTRASOUND AND CPR

No articles identified.

ORGANISATION AND TRAINING

1. Int J Emerg Med. 2021 Sep 15;14(1):54. doi: 10.1186/s12245-021-00378-1.
Public attitudes towards cardiopulmonary resuscitation training and performance in Singapore.
Roy Chowdhury S(1), Anantharaman V(2).
ABSTRACT
BACKGROUND: Bystander cardiopulmonary resuscitation (CPR) rates remain fairly low through most communities despite multiple interventions through the years. Understanding the attitudes and fears behind CPR training and performance would help target education and training to raise the rates of bystander CPR and consequently survival rates of victims. 7909 participants at a single-day mass CPR training session in Singapore were given survey questionnaires to fill out. 6473 people submitted completed forms upon the conclusion of the training session. Some issues looked at were the overall level of difficulty of CPR, difficulty levels of specific skills, attitudes towards refresher training, attitudes towards performing CPR, and fears when doing so. RESULTS: The mean level of difficulty of CPR was rated 3.98 (scale of 1-10), with those with previous CPR training rating it easier. The skills rated most difficult were performing mouth-to-mouth breathing and chest compressions, while the easiest rated was recognizing non-responsiveness. A majority (69.7%) would agree to go for refresher training every 2 years and 88.7% felt everyone should be trained in CPR. 71.6% would perform full CPR for a member of the public in cardiac arrest and only 20.7% would prefer to only do chest compressions. The most cited fear was a low level of confidence, and fears of acquiring infections or aversion to mouth-to-mouth breathing were low. CONCLUSIONS: The survey results show that most participants in Singapore are keen to perform conventional CPR for a member of the public and can help to target future CPR training accordingly.

2. J Am Heart Assoc. 2021 Sep 14:e021360. doi: 10.1161/JAHA.120.021360. Online ahead of print.
Incidence, Mechanism, and Outcomes of On-Plane Versus Off-Plane Cardiac Arrest in Air Travelers.
Chatterjee NA(1), Kume K(2), Drucker C(2), Kudenchuk PJ(1), Rea TD(2)(3).
ABSTRACT
Background Air travel affords an opportunity to evaluate resuscitation performance and outcome in a setting where automated external defibrillators (AEDs) are readily available. Methods and Results The study cohort included people aged ≥18 years with out of hospital cardiac arrest (OHCA) traveling through Seattle-Tacoma International Airport between January 1, 2004 and December 31, 2019 treated by emergency medical services (EMS). The primary outcomes were pre-EMS therapies (cardiopulmonary resuscitation, application of AED), return of spontaneous circulation, and survival to hospital discharge. Over the 16-year study period, there were 143 OHCA occurring before EMS arrival, 34 (24%) on-plane and 109 (76%) off-plane. Cardiac etiology (81%) was the most common mechanism of arrest. The majority of arrests were bystander-witnessed and presented with a shockable rhythm; these characteristics were more common in off-plane OHCA compared with on-plane (witnessed: 89% versus 74% and shockable: 72% versus 50%). Pre-EMS therapies including cardiopulmonary resuscitation and AED application were common regardless of arrest location. Compared with on-plane OHCA, off-plane OHCA was associated with greater rates of return of spontaneous circulation (68% versus 44%) and 3-fold higher rate of survival to hospital discharge (44% versus 15%). All survivors of on-plane OHCA had AED application with defibrillation before EMS arrival. Conclusions When applied to air travel volumes, we estimate 350 air travel-associated OHCA occur in the United States and 2000 OHCA worldwide each year, nearly a quarter of which happen on-plane. These events are survivable when early arrest interventions including rapid arrest recognition, AED application, and CPR are deployed.

3. Resuscitation. 2021 Sep 9:S0300-9572(21)00351-8. doi: 10.1016/j.resuscitation.2021.08.048. Online ahead of print.

Live video from bystanders' smartphones to improve cardiopulmonary resuscitation.

Linderoth G(1), Rosenkrantz O(2), Lippert F(3), Østergaard D(4), Ersbøll AK(5), Meyhoff CS(6), Folke F(7), Christensen HC(8).

ABSTRACT

AIM: To investigate whether live video streaming from the bystander's smartphone to a medical dispatcher can improve the quality of bystander cardiopulmonary resuscitation (CPR) in out-of-hospital cardiac arrest (OHCA). METHODS: After CPR was initiated, live video was added to the communication by the medical dispatcher using smartphone technology. From the video recordings, we subjectively evaluated changes in CPR quality after themedical dispatcher had used live video to dispatcher-assisted CPR (DA-CPR). CPR quality was registered for each bystander and compared with CPR quality after video-instructed DA-CPR. Data were analysed using logistic regression adjusted for bystander's relation to the patient and whether the arrest was witnessed. RESULTS: CPR was provided with live video streaming in 52 OHCA calls, with 90 bystanders who performed chest compressions. Hand position was incorrect for 38 bystanders (42.2%) and improved for 23 bystanders (60.5%) after video-instructed DA-CPR. The compression rate was incorrect for 36 bystanders (40.0%) and improved for 27 bystanders (75.0%). Compression depth was incorrect for 57 bystanders (63.3%) and improved for 33 bystanders (57.9%). The adjusted odds ratios for improved CPR after video-instructed DA-CPR were; hand position 5.8 (95% CI: 2.8-12.1), compression rate 7.7 (95% CI: 3.4-17.3), and compression depth 7.1 (95% CI: 3.9-12.9). Hands-off time was reduced for 34 (37.8%) bystanders. CONCLUSIONS: Live video streaming from the scene of a cardiac arrest to medical dispatchers is feasible. It allowed an opportunity for dispatchers to coach those providing CPR which was associated with a subjectively evaluated improvement in CPR performance.

4. Resuscitation. 2021 Sep 9:S0300-9572(21)00359-2. doi: 10.1016/j.resuscitation.2021.09.005. Online ahead of print.

Methodology and framework for the analysis of cardiopulmonary resuscitation quality in large and heterogeneous cardiac arrest datasets.

Jaureguibeitia X(1), Aramendi E(2), Irusta U(3), Alonso E(4), Aufderheide TP(5), Schmicker RH(6), Hansen M(7), Suchting R(8), Carlson JN(9), Idris AH(10), Wang HE(11).

ABSTRACT

BACKGROUND: Out-of-hospital cardiac arrest (OHCA) data debriefing and clinical research often require the retrospective analysis of large datasets containing defibrillator files from different vendors and clinical annotations by the emergency medical services. AIM: To introduce and evaluate a methodology to automatically extract cardiopulmonary resuscitation (CPR) quality data in a uniform and systematic way from OHCA datasets from multiple heterogeneous sources. METHODS: A dataset of 2236 OHCA cases from multiple defibrillator models and manufacturers was analyzed. Chest compressions were automatically identified using the thoracic impedance and compression depth signals. Device event time-stamps and clinical annotations were used to set the start and end of the analysis interval, and to identify periods with spontaneous circulation. A manual audit of the automatic annotations was conducted and used as gold standard. Chest compression fraction (CCF), rate (CCR) and interruption ratio were computed as CPR quality variables. The unsigned error between the automated procedure and the gold standard was calculated. RESULTS: Full-episode median errors below 2% in CCF, 1min-1 in CCR, and 1.5% in interruption ratio, were measured for all signals and devices. The proportion of cases with large errors (>10% in CCF and interruption ratio,

and >10min-1 in CCR) was below 10%. Errors were lower for shorter sub-intervals of interest, like the airway insertion interval. CONCLUSIONS: An automated methodology was validated to accurately compute CPR metrics in large and heterogeneous OHCA datasets. Automated processing of defibrillator files and the associated clinical annotations enables the aggregation and analysis of CPR data from multiple sources.

5. Int J Cardiol. 2021 Sep 9:S0167-5273(21)01329-2. doi: 10.1016/j.ijcard.2021.09.007. Online ahead of print.

Sex differences in incidence of out-of-hospital cardiac arrest across ethnic and socioeconomic groups: A population-based cohort study in the Netherlands.

Bolijn R(1), Sieben CHAM(2), Kunst AE(2), Blom M(3), Tan HL(4), van Valkengoed IGM(2).

ABSTRACT

BACKGROUND: Insight into the occurrence of out-of-hospital cardiac arrest (OHCA) within general populations may help to target prevention strategies. Case registries suggest that there may be substantial differences in emergency medical service (EMS)-attended OHCA incidence between men and women, but relative sex differences across ethnic groups and socioeconomic (SES) groups have not been studied. We investigated sex differences in OHCA incidence, overall and across these subgroups. METHODS: We performed a retrospective population-based cohort study, combining individual-level data on ethnicity and income (as SES measure) from Statistics Netherlands of all men and women aged ≥25 years living in one study region in the Netherlands on 01-01-2009 (n = 1,688,285) with prospectively collected EMS-attended OHCA cases (n = 5676) from the ARREST registry until 31-12-2015. We calculated age-standardised incidence rates of OHCA. Sex differences were assessed with Cox proportional hazards regression analyses, adjusted for age, ethnicity and income, in the overall population, and across ethnic and SES groups. RESULTS: The age-standardised incidence rate of OHCA was lower in women than in men (30.9 versus 87.3 per 100,000 person-years), corresponding with a hazard ratio (HR) of 0.33 (95% confidence interval [CI] 0.31-0.35). These sex differences in hazard for OHCA existed in all income quintiles (HR range: 0.30-0.35) and ethnic groups (HR range: 0.19-0.40), except among Moroccans (HR 0.89, 95% CI 0.51-1.57). CONCLUSION: Women have a substantial, yet lower OHCA incidence rate than men. The magnitude of these sex differences did not vary across social strata.

6. Scand J Prim Health Care. 2021 Sep 13:1-10. doi: 10.1080/02813432.2021.1973250. Online ahead of print.

Impediments to and impact of checklists on performance of emergency interventions in primary care: an in situ simulation-based randomized controlled trial.

Dryver E(1)(2)(3), Knutsson J(3), Ekelund U(1)(2), Bergenfelz A(2)(3).

ABSTRACT

OBJECTIVE: Medical crises occur rather seldom in the primary care setting, but when they do, initial management impacts on morbidity and mortality. Factors that impede the performance of emergency interventions in primary care have not been studied through in-situ simulation. Checklists reportedly improve crisis management. DESIGN: This randomized controlled trial evaluated emergency intervention performance during two scenarios (hypoglycemia-coma and anaphylaxis-cardiac arrest) simulated at primary care centers, and whether checklist access improved performance. SETTING: Twenty-two primary care centers in Southern Sweden participated in the study. SUBJECTS: A total of 347 personnel performed 100 simulations, 45 with and 55 without checklist access. MAIN OUTCOME MEASURES: Time and impediments to performance of five emergency interventions in each scenario. RESULTS: On 28 of the 37 occasions when the adrenalin auto-injector was employed, the administration technique was incorrect. In 9 of 49 scenarios,

teams had trouble locating the 30% glucose solution. Median time to supplemental oxygen administration during the first scenario was 186 s compared with 96 s during the second scenario ($p < 0.001$). Checklist access had no significant impact on time to performance of emergency interventions, aside from shorter time to adequate glucose or glucagon administration (median times 632 s with, 756 s without checklist access; $p = 0.03$). CONCLUSION: Unfamiliarity with local emergency equipment impedes the performance of emergency interventions during crises simulated in the primary care setting. Simply providing checklist access does not improve the performance of emergency interventions. KEY POINTSLittle is known about the factors that affect the performance of emergency interventions in the primary care setting.Unfamiliarity with local emergency equipment impedes the performance of emergency interventions during crises simulated in the primary care setting .Simply providing crisis checklist access does not improve the performance of emergency interventions in the primary care setting.

7. Eur Heart J. 2021 Sep 13:ehab652. doi: 10.1093/eurheartj/ehab652. Online ahead of print.
Virtual delivery of cardiopulmonary resuscitation training for the public: how to make it work.
Khanji MY(1)(2)(3), Ali B(4), Ahmed S(5)(6).
NO ABSTRACT AVAILABLE

8. Nurs Crit Care. 2021 Sep 13. doi: 10.1111/nicc.12713. Online ahead of print.
Impact of blended learning on manual defibrillator's use: A simulation-based randomized trial.
Siebert JN(1), Glangetas A(1), Grange M(1), Haddad K(1), Courvoisier DS(2), Lacroix L(1).
ABSTRACT
BACKGROUND: Blended learning, defined as the combination of traditional face-to-face instructor-led learning and e-learning course, has never been validated as a teaching method for the effective use of manual defibrillators in cardiopulmonary resuscitation. AIM: To evaluate whether paediatric emergency and critical care providers exposed to a blended learning session performed better and recalled more defibrillator skills than those exposed to face-to-face learning only. STUDY DESIGN: A two-period prospective, stratified, single-centre, simulation-based, randomized, controlled trial. METHODS: Registered nurses and postgraduate residents from either a paediatric emergency department or an intensive care unit were randomly assigned to a blended learning or face-to-face learning sessions on the recommended use of a manual defibrillator. Participants' adherence to recommendations was assessed by testing defibrillator skills in three consecutive paediatric cardio-pulmonary scenarios performed on the day of the training and once again 2 months later. The primary endpoint was the number of errors observed during defibrillation, cardioversion, and transcutaneous pacing at the time of the initial intervention. RESULTS: Fifty participants were randomized to receive the intervention and 51 to the control group. When pooling all three procedures, the median total errors per participant was lower (2 [IQR: 1-4]) in providers exposed to blended learning than in those exposed to face-to-face learning only (3 [IQR: 2-5]; P = .06). The median of total errors per procedure was also lower. However, both training methods appeared insufficient to maintain appropriate skill retention over time as a repetition of procedures 2 months later without any refresher learning session yielded more errors in both groups. CONCLUSIONS: Learners exposed to blended learning showed a reduced number in the total amount of errors compared with those exposed to face-to-face learning alone, with waning of skills over time. RELEVANCE TO CLINICAL PRACTICE: Proficiently teaching the use of a manual defibrillator can be performed through blended learning.

POST-CARDIAC ARREST TREATMENTS

1. Arq Bras Cardiol. 2021 Aug;117(2):404-406. doi: 10.36660/abc.20201097.
Patient in Cardiorespiratory Arrest - Is it Possible to Perform Transcatheter Aortic Valve Implantation (TAVI) in this Scenario? [Article in English, Portuguese]
Soeiro AM(1), Cardozo FA(1), Guimarães PO(1), Pereira MP(1), Souza PVR(1), Boros GAB(1), Veiga VC(1), Rojas SSO(1), Mangione FM(1), Cristóvão SAB(1), Dutra GA(1), Salman AA(1), Bettarello LEL(1), Mangione JA(1).
NO ABSTRACT AVAILABLE

TARGETED TEMPERATURE MANAGEMENT

1. Crit Care Med. 2021 Sep 15. doi: 10.1097/CCM.0000000000005274. Online ahead of print.
Late Awakening Is Common in Settings Without Withdrawal of Life-Sustaining Therapy in Out-of-Hospital Cardiac Arrest Survivors Who Undergo Targeted Temperature Management.
Lee DH(1), Cho YS, Lee BK, Lee HY, Jeung KW, Jung YH, Park KN, Kim YJ, Chae MK, Seo DW; KORHN Investigators.
ABSTRACT
OBJECTIVES: We investigated awakening time and characteristics of awakening compared nonawakening and factors contributing to poor neurologic outcomes in out-of-hospital cardiac arrest survivors in no withdrawal of life-sustaining therapy settings. DESIGN: Retrospective analysis of the Korean Hypothermia Network Pro registry. SETTING: Multicenter ICU. PATIENTS: Adult (≥ 18 yr) comatose out-of-hospital cardiac arrest survivors who underwent targeted temperature management at 33-36°C between October 2015 and December 2018. INTERVENTIONS: None. MEASUREMENTS AND MAIN RESULTS: We measured the time from the end of rewarming to awakening, defined as a total Glasgow Coma Scale score greater than or equal to 9 or Glasgow Coma Scale motor score equals to 6. The primary outcome was awakening time. The secondary outcome was 6-month neurologic outcomes (poor outcome: Cerebral Performance Category 3-5). Among 1,145 out-of-hospital cardiac arrest survivors, 477 patients (41.7%) regained consciousness 30 hours (6-71 hr) later, and 116 patients (24.3%) awakened late (72 hr after the end of rewarming). Young age, witnessed arrest, shockable rhythm, cardiac etiology, shorter time to return of spontaneous circulation, lower serum lactate level, absence of seizures, and multisedative requirement were associated with awakening. Of the 477 who woke up, 74 (15.5%) had poor neurologic outcomes. Older age, liver cirrhosis, nonshockable rhythm, noncardiac etiology, a higher Sequential Organ Failure Assessment score, and higher serum lactate levels were associated with poor neurologic outcomes. Late awakeners were more common in the poor than in the good neurologic outcome group (38/74 [51.4%] vs 78/403 [19.4%]; $p < 0.001$). The awakening time (odds ratio, 1.005; 95% CIs, 1.003-1.008) and late awakening (odds ratio, 3.194; 95% CIs, 1.776-5.746) were independently associated with poor neurologic outcomes. CONCLUSIONS: Late awakening after out-of-hospital cardiac arrest was common in no withdrawal of life-sustaining therapy settings and the probability of awakening decreased over time.

ELECTROPHYSIOLOGY AND DEFIBRILLATION

1. Resuscitation. 2021 Sep 9:S0300-9572(21)00356-7. doi: 10.1016/j.resuscitation.2021.08.051. Online ahead of print.
Pseudo-PEA: an easily overlooked player in cardiac arrest.
Chun-Hei Cheung J(1), Yip YY(2).

NO ABSTRACT AVAILABLE

PEDIATRICS AND CHILDREN

1. Acta Anaesthesiol Scand. 2021 Sep 12. doi: 10.1111/aas.13980. Online ahead of print.
Frequency, indications and success of out-of-hospital intubations in Finnish children.
Elonheimo L(1), Ljungqvist H(2), Harve-Rytsälä H(1)(2), Jäntti H(3), Nurmi J(1)(2)(4).
ABSTRACT
BACKGROUND: Earlier studies have shown variable results regarding the success of paediatric emergency endotracheal intubation between different settings and operators. We aimed to describe the paediatric population intubated by physician-staffed helicopter emergency medical service (HEMS) and evaluate the factors associated with overall and first-pass success (FPS). METHODS: We conducted a retrospective observational cohort study in Finland including all children less than 16 years old who required endotracheal intubation by a HEMS physician from January 2014 to August 2019. Utilising a national HEMS database we analysed the incidence, indications, overall and first pass success rates of endotracheal intubation. RESULTS: A total of 2,731 children were encountered by HEMS, and intubation was attempted in 245 (9%); of these, 22 were younger than 1 year, 103 were aged 1-5 years and 120 were aged 6-15 years. The most common indications for airway management were cardiac arrest for the youngest age group, neurological reasons (e.g., seizures) for those aged 1-5 years and trauma for those aged 6-15. The HEMS physicians had an overall success rate of 100% (95% CI: 98-100) and an FPS rate of 86% (95% CI: 82-90). The FPS rate was lower in the youngest age group (p=0.002) and for patients in cardiac arrest (p<0.001). CONCLUSIONS: Emergency endotracheal intubation of children is successfully performed by a physician staffed HEMS unit even though these procedures are rare. To improve the care, emphasis should be on airway management of infants and patients in cardiac arrest.

2. Pediatr Cardiol. 2021 Sep 12. doi: 10.1007/s00246-021-02720-z. Online ahead of print.
Supraventricular Tachycardia Without Preexcitation as a Cause of Sudden Cardiac Arrest in Pediatric Patients.
Choi NH(1), Silver ES(1), Liberman L(2).
ABSTRACT
Sudden cardiac arrest in pediatric patients is a rare occurrence. Supraventricular tachycardia without the presence of ventricular preexcitation in pediatric patients with a structurally normal heart is generally considered benign. Previous literature in adults reported a subset of patients in whom SVT was suspected to be the primary trigger of sudden cardiac arrest. We performed a single-center, retrospective cohort study of pediatric patients without known heart disease, 1-21 years of age, presenting with aborted SCA between 2009 and 2019. We collected diagnostic studies in all patients to identify the etiology of the aborted SCA. Thirty patients met the inclusion criteria. The median age at the time of SCA was 15.2 years. The etiology of SCA was identified in 23 (77%) patients. Of the seven patients with unknown diagnosis after initial diagnostic studies, three patients subsequently developed fast SVT that was presumed to be the etiology of the initial SCA. These three patients had varying diagnoses of atrioventricular nodal reentry tachycardia, ectopic atrial tachycardia, and a concealed accessory pathway with atrioventricular reentrant tachycardia. After ablation or medical treatment of the SVT substrate, no further tachyarrhythmias were observed. Pediatric patients presenting with an aborted SCA of unknown etiology ought to be considered for electrophysiology testing to elicit occult SVT substrates that may lead to a malignant ventricular tachyarrhythmia.

EXTRACORPOREAL LIFE SUPPORT

1. Artif Organs. 2021 Sep 13. doi: 10.1111/aor.14067. Online ahead of print.
Impact of left ventricular unloading using a peripheral Impella®-pump in eCPR patients.
Gaisendrees C(1), Djordjevic I(1), Sabashnikov A(1), Adler C(2), Eghbalzadeh K(1), Ivanov B(1), Walter S(1), Schlachtenberger G(1), Merkle J(1), Gerfer S(1), Carstens H(1), Deppe AC(1), Kuhn E(1), Wahlers T(1).
ABSTRACT
OBJECTIVES: Extracorporeal cardiopulmonary resuscitation (eCPR) is a rapidly growing treatment strategy due to increasing survival rates in selected patients. Additional left ventricular mechanical unloading, using a transfemoral micro-axial blood pump (Impella® Denver, Massachusetts, USA), might improve patients' outcomes. In this regard, we sought to investigate patients who suffered OHCA (out-of hospital cardiac arrest) or IHCA (in-hospital cardiac arrest) with subsequent eCPR (extracorporeal cardiopulmonary resuscitation) via VA-ECMO (veno-arterial extracorporeal membrane oxygenation) and concomitant Impella® implantation based on survival and feasibility of ECMO weaning. METHODS: From January 2016 until December 2020, 108 patients underwent eCPR at our institution. Data prior to eCPR and early outcome parameters were analyzed comparing patients who were supported with an additional Impella® (2.5 or CP) (ECMO+Impella®, n= 18) and patients without additional (ECMO, n=90) support during V-A ECMO therapy. The primary endpoint was in-hospital mortality; secondary endpoints were, amongst others: ECMO-explantation, need for hemodialysis, stroke, and need for blood transfusions. RESULTS: Low-flow time was significantly lower in the ECMO+Impella group (60 min vs. 55 min, p=0.01). All-cause mortality was significantly lower in the ECMO+Impella® group (82% vs. 56%, p= 0.01). The time of circulatory support was shorter in the ECMO cohort (2.0±1.73 vs. 4.76±2.88 p=0.05). ECMO decannulation was significantly more feasible in patients with ECMO+Impella® (72% vs. 32%, p =0.01). Patients treated with additional Impella® showed significantly more acute kidney injury (AKI) with the need for dialysis (72% vs. 18%, p=<0.01). CONCLUSION: Concomitant Impella® support might positively influence survival and ECMO weaning in eCPR patients. Treatment-associated complications such as the need for dialysis were more common in this highly selected patient group. Further studies with larger numbers are necessary to evaluate the clinical relevance of concomitant LV-unloading in eCPR patients using an Impella® device.

EXPERIMENTAL RESEARCH

1. J Ultrasound Med. 2021 Sep 15. doi: 10.1002/jum.15825. Online ahead of print.
Intracranial Pressure and Cerebral Hemodynamic Monitoring After Cardiac Arrest in Pediatric Pigs Using Contrast Ultrasound-Derived Parameters.
Shin SS(1), Sridharan A(2), Khaw K(2), Hallowell T(3), Morgan RW(3), Kilbaugh TJ(3), Hwang M(2).
ABSTRACT
OBJECTIVES: We explore the correlation of contrast-enhanced ultrasound (CEUS) parameters to intracranial pressure (ICP) in a porcine experimental model of pediatric cardiac arrest. METHODS: Eleven pediatric pigs underwent electrically induced cardiac arrest followed by cardiopulmonary resuscitation. ICP was measured using intracranial bolt monitor and CEUS was monitored through a cranial window. Various CEUS parameters were monitored at baseline, immediately post return of spontaneous circulation (ROSC), 1 hour-post ROSC, and 3 hours post-ROSC. RESULTS: There was significant ICP correlation with wash-out slope assessed by CEUS time intensity curve analysis at immediate post-ROSC. At 3 hours post-ROSC there was also significant negative correlation between ICP and peak enhancement which may be due to the evolution of anoxic injury. CONCLUSION: The use of CEUS in assessing disruption of cerebral hemodynamics and ICP post cardiac arrest will need future validation and comparison to other imaging modalities. The correlation between CEUS

parameters and ICP may be due to the alterations in cerebral autoregulation that result from anoxic brain injury.

2. World J Emerg Med. 2021;12(4):309-316. doi: 10.5847/wjem.j.1920-8642.2021.04.010.
Left-sided vagus nerve stimulation improves cardiopulmonary resuscitation outcomes in rats as effectively as right-sided vagus nerve stimulation.
Shao WJ(1), Shu TT(1)(2), Xu S(1), Liang LC(3), Grange JML(1), Zhou YR(1), Huang H(4), Cai Y(5), Zhang Q(6), Sun P(1).
ABSTRACT
BACKGROUND: Our group previously reported that right-sided vagus nerve stimulation (RVNS) significantly improved outcomes after cardiopulmonary resuscitation (CPR) in a rat model of cardiac arrest (CA). However, whether left-sided vagus nerve stimulation (LVNS) could achieve the same effect as RVNS in CPR outcomes remains unknown. METHODS: A rat model of CA was established using modified percutaneous epicardial electrical stimulation to induce ventricular fibrillation (VF). Rats were treated with LVNS or RVNS for 30 minutes before the induction of VF. All animals were observed closely within 72 hours after return of spontaneous circulation (ROSC), and their health and behavior were evaluated every 24 hours. RESULTS: Compared with those in the RVNS group, the hemodynamic measurements in the LVNS group decreased more notably. Vagus nerve stimulation (VNS) decreased the serum levels of tumor necrosis factor-alpha (TNF-α) and the arrhythmia score, and attenuated inflammatory infiltration in myocardial tissue after ROSC, regardless of the side of stimulation, compared with findings in the CPR group. Both LVNS and RVNS ameliorated myocardial function and increased the expression of α-7 nicotinic acetylcholine receptor in the myocardium after ROSC. Moreover, a clear improvement in 72-hour survival was shown with VNS pre-treatment, with no significant difference in efficacy when comparing the laterality of stimulation. CONCLUSIONS: LVNS may have similar effects as RVNS on improving outcomes after CPR.

3. World J Emerg Med. 2021;12(4):303-308. doi: 10.5847/wjem.j.1920-8642.2021.04.009.
Protective effect of extracorporeal membrane pulmonary oxygenation combined with cardiopulmonary resuscitation on post-resuscitation lung injury.
Ling JY(1), Li CS(2), Zhang Y(1), Yuan XL(1), Liu B(3), Liang Y(3), Zhang Q(3).
ABSTRACT
BACKGROUND: Cardiac arrest (CA) is a critical condition that is a concern to healthcare workers. Comparative studies on extracorporeal cardiopulmonary resuscitation (ECPR) and conventional cardiopulmonary resuscitation (CCPR) technologies have shown that ECPR is superior to CCPR. However, there is a lack of studies that compare the protective effects of these two resuscitative methods on organs. Therefore, we aim to perform experiments in swine models of ventricular fibrillation-induced CA to study whether the early application of ECPR has advantages over CCPR in the lung injury and to explore the protective mechanism of ECPR on the post-resuscitation pulmonary injury. METHODS: Sixteen male swine were randomized to CCPR (CCPR; n=8; CCPR alone) and ECPR (ECPR; n=8; extracorporeal membrane oxygenation with CCPR) groups, with the restoration of spontaneous circulation at 6 hours as an endpoint. RESULTS: For the two groups, the survival rates between the two groups were not statistically significant ($P>0.05$), the blood and lung biomarkers were statistically significant ($P<0.05$), and the extravascular lung water and pulmonary vascular permeability index were statistically significant ($P<0.01$). Compared with the ECPR group,

electron microscopy revealed mostly vacuolated intracellular alveolar type II lamellar bodies and a fuzzy lamellar structure with widening and blurring of the blood-gas barrier in the CCPR group. CONCLUSIONS: ECPR may have pulmonary protective effects, possibly related to the regulation of alveolar surface-active proteins and mitigated oxidative stress response post-resuscitation.

CASE REPORTS

1. Case Rep Cardiol. 2021 Aug 31;2021:7198667. doi: 10.1155/2021/7198667. eCollection 2021.
Anomalous Left Coronary Artery Connected to the Pulmonary Artery in a 15-Year-Old Girl: Case Report and Discussion on Secondary Prevention of Sudden Death.
Laïk J(1), Fouilloux V(2), Aldebert P(3), Koutbi L(3), Hourdain J(3), De Swardt P(4), Tiger F(4), Bellemain-Appaix A(1), Bernasconi F(1), Jacq L(1).

ABSTRACT
Background. Anomalous left coronary artery connected to the pulmonary artery (ALCAPA) is a rare congenital heart disease. Adaptive development of sufficient heterocoronary collaterality in the newborn may allow survival to a later age. In older children or adults, malignant ventricular arrhythmias can reveal the disease. Case Report. A 15-year-old girl was referred to the local hospital after a resuscitated out-of-hospital cardiac arrest. CT scan and coronary angiography revealed an ALCAPA. Direct aortic reimplantation of the left coronary artery was performed. Postoperative ECG monitoring showed short episodes of nonsustained ventricular tachycardia. Transthoracic echocardiography and cardiac MRI revealed subendocardial fibrosis of the anterolateral papillary muscle. Beta-blockade therapy was initiated at first intention. After hospital discharge, the patient reported several fainting without loss of consciousness. Considering sudden death nonrelated to effort, episodes of nonsustained ventricular tachycardia, and areas of myocardial fibrosis, the patient underwent subcutaneous cardioverter-defibrillator implantation. 6-month follow-up is satisfactory without clinical or rhythmic abnormalities. Discussion. Indication for surgical correction of ALCAPA is well defined, but rhythmic secondary prevention after resuscitated cardiac arrest is less consensual. Cardiac MRI is an essential tool in the identification of a potential rhythmic substrate and should be taken into account in the discussion of a preventive cardioverter-defibrillator implantation.

2. Acta Med Okayama. 2021 Aug;75(4):517-521. doi: 10.18926/AMO/62405.
Arrhythmogenic Right Ventricular Cardiomyopathy Diagnosed during Hospitalization for Cardiac Arrest.
Ochi M(1), Iida A(2), Takahashi Y(3), Tanaka M(1), Saito H(1), Naito H(4), Mikane T(2), Fuke S(1).

ABSTRACT
Arrhythmogenic right ventricular cardiomyopathy (ARVC) is a genetically mediated cardiomyopathy charac-terized by progressive myocardial loss of the right ventricle and its replacement by fibrofatty tissue, causing dyskinesia, aneurysm, and/or arrhythmia. The prevalence of ARVC is estimated to be 1 in 2,000-5,000, with the condition accounting for up to 20% of sudden cardiac deaths in individuals < 35 years old. This report describes the case of 61-year-old Japanese who was diagnosed with ARVC after cardiac arrest (CA) and successful resuscitation. After the sudden CA, the restoration of spontaneous circulation was achieved with appropriate resuscitation, followed by the introduction of target temperature management in the intensive care unit. He was diagnosed with ARVC based on angiography and histology results. An ICD (implantable cardioverter-defibrillator) was implanted, and he was discharged without neurological sequelae 1 month post-CA. ARVC is an important cause of sudden CA, and successfully resuscitated patients with right ventricular dilation should undergo testing to rule out ARVC.

3. World J Emerg Med. 2021;12(4):324-326. doi: 10.5847/wjem.j.1920-8642.2021.04.013.
Extracorporeal membrane oxygenation treatment for high-risk pulmonary embolism with cardiac arrest in a young adult male.
Zhang ZR(1), Zhou XQ(2), Fan ZK(1), Shi Y(1), Shen YY(1), Zhu C(1), Feng W(1), Wang LC(3).
NO ABSTRACT AVAILABLE