This week's PubMed 30th October – 5th November 2022: articles of interest n = 39

CPR AND COVID-19

1. Am J Emerg Med. 2022 Oct 21;63:61-68. doi: 10.1016/j.ajem.2022.10.023. Online ahead of print.
The impact of COVID-19 pandemic on out-of-hospital cardiac arrest system-of-care: Which survival chain factor contributed the most?
Park JH(1), Song KJ(2), Do Shin S(3), Hong KJ(4).
ABSTRACT
OBJECTIVES: In many communities, out-of-hospital cardiac arrest (OHCA) survival outcomes decreased after the coronavirus disease 2019 (COVID-19) pandemic. This study aimed to identify and compare the impacts of each survival chain factor on the change of survival outcomes after COVID-19. METHODS: Using a Korean out-of-hospital cardiac arrest registry, we analyzed OHCA patients whose arrest was not witnessed by emergency medical service (EMS) providers between 2017 and 2021. Because lack of hospital and survival information in 2021, the 2021 data were used only to identify the expected trend. We developed a prediction model for survival to discharge using patients from 2017 to 2019 (Pre-COVID-19 set) and validated it using patients from 2020 (post-COVID-19 set). Using Utstein elements, a stepwise logistic regression model was constructed, and discrimination and calibration were evaluated by c-statistics and scaled Brier score. Using the distribution change of predictors from one year before the pandemic (2019) to post-COVDI-19, we calculated the magnitude of survival difference according to each predictor's distribution change using the marginal standardization method. RESULTS: Among 83,273 patients (mean age 67.2 years and 64.3% males), 61,180 and 22,092 patients belonged to pre-COVOD-19 and post-COVID-19 sets. Survival to discharge was 5019 (8.2%) in pre-COVID-19 set and 1457 (6.6%) in post-COVID-19 set. The proportion of bystander cardiopulmonary resuscitation was 59.0% in the pre-COVID-19 set and 61.0% in the post-COVID-19 set. The median (interquartile range) response time was 7 (5-9) minutes in the pre-COVID-19 set and 8 (6-10) minutes in the post-COVID-19 set. The area under the receiver operating characteristic (AUROC) curve (95% confidence interval) was 0.907 (0.902-0.912) in the pre-COVID-19 set, and 0.924 (0.916-0.931) in the post-COVID-19 set, and scaled Brier score were 0.39 in pre-COVID-19 sets, and 0.40 in the post-COVID-19 set. Among various predictors, EMS factors showed the highest impact. Response time and on-scene management of EMS showed the highest impact on decreased survival. A similar trend was also expected in the 2021. CONCLUSION: The effort to create a rapid response system for OHCA patients could have priority for the recovery of survival outcomes in OHCA patients in the post-COVID-19 period. Further studies to recover survival outcomes of OHCA are warranted.

2. Crit Care. 2022 Oct 31;26(1):335. doi: 10.1186/s13054-022-04220-9.
Public-access defibrillation and favorable neurological outcome after out-of-hospital cardiac arrest during the COVID-19 pandemic in Japan.
Matsuyama T(1), Kiyohara K(2), Kitamura T(3), Nishiyama C(4), Kiguchi T(5), Iwami T(5).
ABSTRACT
BACKGROUND: Early public-access defibrillation (PAD) effectively improves the outcomes of out-of-hospital cardiac arrests (OHCA), but several strategies implemented to prevent the spread of coronavirus disease 2019 (COVID-19) could decrease the availability of PAD and worsen outcomes after OHCA. Previous studies have reported conflicting findings, and there is a paucity of nationwide observations. This study aims to investigate the impact of COVID-19 on PAD and OHCA outcomes using a nationwide OHCA registry in Japan, where PAD is well-documented. METHODS: This secondary analysis of the All-Japan Utstein Registry, a prospective population-based nationwide

registry of OHCA patients, included patients aged ≥ 18 years with bystander-witnessed OHCA and an initial shockable rhythm who were transported to medical facilities between January 1, 2005, and December 31, 2020. The analytical parameters of this study were the proportion of patients who underwent PAD and patients with one-month survival with favorable neurological outcomes, defined as a cerebral performance category score of 1 or 2. We compared the data between 2019 and 2020 using a multivariable logistic regression analysis. RESULTS: During the study period, 1,930,273 OHCA patients were registered; of these, 78,302 were eligible for the analysis. Before the COVID-19 pandemic, the proportion of OHCA patients who underwent PAD and demonstrated favorable neurological outcomes increased gradually from 2005 to 2019 (P for trend < 0.001). The proportion of patient who had PAD were 17.7% (876/4959) in 2019 and 15.1% (735/4869) in 2020, respectively. The proportion of patient who displayed favorable neurological outcomes were 25.1% (1245/4959) in 2019 and 22.8% (1109/4869) in 2020, respectively. After adjusting for potential confounders, a significant reduction in the proportion of PAD was observed compared to that in 2019 (adjusted odds ratio [AOR], 0.86; 95% confidence interval [CI], 0.76-0.97), while no significant reduction was observed in favorable neurological outcomes (AOR, 0.97; 95% CI 0.87-1.07). CONCLUSION: The proportion of PAD clearly decreased in 2020, probably due to the COVID-19 pandemic in Japan. In contrast, no significant reduction was observed in favorable neurological outcomes.

CPR/MECHANICAL CHEST COMPRESSION

No articles identified.

REGISTRIES, REVIEWS AND EDITORIALS

1. Resuscitation. 2022 Nov 2:S0300-9572(22)00701-8. doi: 10.1016/j.resuscitation.2022.10.021. Online ahead of print.

Symptoms reported in calls to emergency medical services within 24 hours prior to out-of-hospital cardiac arrest.

Gnesin F(1), Helen Anna Mills E(2), Jensen B(3), Lykkemark Møller A(4), Zylyftari N(5), Bøggild H(3), Bundgaard Ringgren K(6), Kragholm K(2), Nikolaj Fasmer Blomberg S(7), Collatz Christensen H(8), Lippert F(9), Køber L(10), Folke F(11), Torp-Pedersen C(12).

ABSTRACT

AIM: There is limited evidence regarding prodromal symptoms of out-of-hospital cardiac arrest (OHCA). We aimed to describe patient characteristics, prodromal symptoms, and prognosis of patients contacting emergency medical services (EMS) within 24 hours before OHCA. METHODS: We identified all OHCA treated by Copenhagen EMS from 2016 through 2018 using the Danish Cardiac Arrest Registry and linked them to emergency calls. We included all pre-arrest calls by patients or bystanders if they were performed 1) within 24 hours before the OHCA call or 2) during the OHCA event for EMS-witnessed OHCA. Calls were reviewed by healthcare professionals using a survey guide. RESULTS: Among 4,071 patients, 481 patients (12%) had 539 calls within 24 hours prior to OHCA (60% male, median age 74 years of age). The patient spoke on the phone in 25% of calls. The most common symptoms were breathing problems (59%), confusion (23%), unconsciousness (20%), chest pain (20%), and paleness (19%). Patients with breathing problems compared to chest pain were more likely to be ≤75 years of age (55% versus 35%), less likely to be male (52% versus 73%), have shockable rhythm (10% versus 38%), receive bystander defibrillation (6% versus 19%) or EMS defibrillation (15% versus 65%), achieve return of spontaneous circulation (37% versus 68%) and

survive 30 days following OHCA (10% versus 50%). CONCLUSION: More than 10% of patients with OHCA had a call to EMS within 24 hours before OHCA. The most common symptom was breathing problems which compared to chest pain had lower 30-day survival.

2. Front Neurol. 2022 Oct 18;13:990294. doi: 10.3389/fneur.2022.990294. eCollection 2022.
Implementation of neurocritical care in Thailand.
Viarasilpa T(1).
ABSTRACT
Dedicated neurointensive care units and neurointensivists are rarely available in Thailand, a developing country, despite the high burden of life-threatening neurologic illness, including strokes, post-cardiac arrest brain injury, status epilepticus, and cerebral edema from various etiologies. Therefore, the implementation of neurocritical care is essential to improve patient outcomes. With the resource-limited circumstances, the integration of neurocritical care service by collaboration between intensivists, neurologists, neurosurgeons, and other multidisciplinary care teams into the current institutional practice to take care of critically-ill neurologic patients is more suitable than building a new neurointensive care unit since this approach can promptly be made without reorganization of the hospital system. Providing neurocritical care knowledge to internal medicine and neurology residents and critical care fellows and developing a research system will lead to sustainable quality improvement in patient care. This review article will describe our current situation and strategies to implement neurocritical care in Thailand.

3. Cureus. 2022 Sep 26;14(9):e29604. doi: 10.7759/cureus.29604. eCollection 2022 Sep.
Prone Cardiopulmonary Resuscitation (CPR) Protocol: A Single-Center Experience at Implementation and Review of Literature.
McCraw C(1), Baber C(1), Williamson AH(1), Zhang Y(1), Sinit RS(1), Alway AD(2), Jain S(3), Jain NK(4), Trivedi K(5).
ABSTRACT
The prone position is a crucial position used in the operating rooms and the intensive care units, with its importance highly recognized during the COVID-19 pandemic in patients with acute respiratory distress syndrome (ARDS). Cardiopulmonary resuscitation (CPR) is a cardinal procedure that is indicated and performed on any eligible patient who has cardiopulmonary arrest and resultant lack of perfusion and oxygenation. When a patient has a cardiopulmonary arrest in the prone position, the options include rotating the patient supine before starting cardiopulmonary resuscitation (CPR) or beginning CPR while prone. Prone CPR has not had a widely accepted use so far. In this article, we narrate the process of protocol development and staff education at our hospital for the initiation of prone CPR and review the literature related to it. Prone CPR is an effective technique with good outcomes and involves a learning curve. Appropriate training needs to be done before implementing the protocol, and adequate quality control measures need to be set to ensure that the skill set is maintained.

4. Prehosp Emerg Care. 2022 Nov 1:1-8. doi: 10.1080/10903127.2022.2137862. Online ahead of print.
The Impact of Missing Data on the Measurement of Cardiac Arrest Outcomes According to Race.
Rykulski NS(1), Berger DA(1), Paxton JH(2), Klausner H(3), Smith G(4), Swor RA(1); CARES Investigators..
ABSTRACT
IntroductionHigh-quality data is important to understanding racial differences in outcome following out of hospital cardiac arrest (OHCA). Previous studies have shown differences in OHCA outcomes

according to both race and socioeconomic status. EMS reporting of data on race is often incomplete. We aim to determine the impact of missing data on the determination of racial differences in outcomes for OHCA patients.MethodsWe performed a secondary analysis of a data set developed by probabilistically linking the Michigan Cardiac Arrest Registry to Enhance Survival (CARES) and the Michigan Inpatient Database (MIDB). Adult OHCA patients (age >18) who survived to hospital admission between 2014-2017 were included. Both datasets recorded patient race and ethnicity with CARES using a single race/ethnicity variable. Patients were categorized as White, Black, other, or missing and only a single choice was allowed. Due to the small number of Hispanic patients and the combined race/ethnicity variable, these patients were excluded. The outcomes of interest were survival to hospital discharge and survival to discharge with Cerebral Performance Category 1 or 2 (Good Outcome). Outcomes were stratified according to EMS- or hospital-documented race. Results We included 3,756 matched patients, after excluding 34 Hispanic patients from analysis. Documentation of patient race was missing in 892 (22.1%) of CARES and 212 (5.6%) of MIDB patients. When both datasets documented Black or White Race, agreement in race documentation was excellent (?=0.83). White patients were more likely to have a good outcome than Black in both the CARES (27.3% vs 14.8%) and MIDB (26.9% vs 16.1%) databases (both $p < 0.001$), but were not more likely to survive (30.8% vs 27.3% $p = 0.22$; 30.3% vs 28.1%, $p = 0.07$). Moreover, we found no significant difference in outcome measures based on race documentation for White vs Black patients (Good Outcome [27.3 vs 26.9% (MIDB)] and [16.1% vs 14.8% (CARES)] respectively and Survive [30.8% vs 30.3% (MIDB)] and [27.3 vs 28.1% (CARES)] respectively). Conclusion Despite higher rates of missing EMS documentation, we identified statistically similar rates in OHCA outcome measures between databases. Further work is needed to determine the true impact of missing documentation of race on OHCA outcome measures.

5. Prehosp Emerg Care. 2022 Nov-Dec;26(6):782-791. doi: 10.1080/10903127.2021.1995799. Epub 2021 Nov 22.

The Association Between the Number of Prehospital Providers On-Scene and Out-of-Hospital Cardiac Arrest Outcomes.

Lupton JR, Neth MR, Sahni R, Wittwer L, Le N, Jui J, Newgard CD, Daya MR.

ABSTRACT

Objective: The ideal number of emergency medical services (EMS) providers needed on-scene during an out-of-hospital cardiac arrest (OHCA) resuscitation is unknown. Our objective was to evaluate the association between the number of providers on-scene and OHCA outcomes. Methods: This was a secondary analysis of adults (≥ 18 years old) with non-traumatic OHCA from a 10-site North American prospective cardiac arrest registry (Resuscitation Outcomes Consortium) including a 2005-2011 cohort and a 2011-2015 cohort. The primary outcome was survival to hospital discharge. We calculated the median number of EMS providers on-scene during the first 10 minutes of the resuscitation and used multivariable logistic regression adjusting for age, sex, witness status, bystander CPR, arrest location, initial rhythm, and dispatch to EMS arrival time. Results: There were 30,613 and 41,946 patients with necessary variables in the 2005-2011 and 2011-2015 cohorts, respectively. Survival to hospital discharge (95% CI) was higher with 9 or more providers on-scene (17.2% [15.8-18.5] and 14.0% [12.6-15.4]) compared to 7-8 (14.1% [13.4-14.8] and 10.5% [9.9-11.1]), 5-6 (10.0% [9.5-10.5] and 8.5% [8.1-8.9]), 3-4 (10.5% [9.3-11.6] and 9.3% [8.5-10.1]), and 1-2 (8.6% [7.2-10.0] and 8.0% [7.1-9.0]) providers for the 2005-2011 and 2011-2015 cohorts, respectively. In multivariable logistic regressions, compared to 5-6 providers, there were no significant differences in survival to hospital discharge for 1-2 or 3-4 providers, while having 7-8 (adjusted odds ratios (aORs) 1.53 [1.39-1.67] and 1.31 [1.20-1.44]) and 9 or more (aORs 1.76 [1.56-1.98] and 1.63 [1.41-1.89]) providers were associated with improved survival in both the 2005-2011 and 2011-2015 cohorts,

respectively. Conclusions: The presence of seven or more prehospital providers on-scene was associated with significantly greater adjusted odds of survival to hospital discharge after OHCA compared to fewer on-scene providers.

IN-HOSPITAL CARDIAC ARREST

1. J Am Coll Cardiol. 2022 Nov 8;80(19):1788-1798. doi: 10.1016/j.jacc.2022.08.797.
Risk Factors for In-Hospital Cardiac Arrest in Patients With ST-Segment Elevation Myocardial Infarction.
Gong W(1), Yan Y(1), Wang X(1), Zheng W(1), Smith SC Jr(2), Fonarow GC(3), Morgan L(4), Liu J(5), Zhao D(5), Ma C(6), Han Y(7), Montalescot G(8), Nie S(9); CCC-ACS Investigators.
ABSTRACT
BACKGROUND: In-hospital cardiac arrest (IHCA) is one of the most deleterious complications of ST-segment elevation myocardial infarction (STEMI). OBJECTIVES: We systematically analyzed the clinical characteristics of STEMI patients with IHCA, as well as predictors and treatments associated with risk of IHCA, using a nationwide database. METHODS: In the CCC-ACS (Improving Care for Cardiovascular Disease in China-Acute Coronary Syndrome) project (2014-2019), we stratified patients presenting with STEMI within 24 hours after symptom onset according to IHCA or no IHCA during the index hospitalization. We analyzed patients' clinical characteristics, mortality, and independent correlates of IHCA. RESULTS: Of 40,670 STEMI patients, 2.2% (95% CI: 2.1%-2.4%) experienced IHCA. Among IHCA patients, the in-hospital mortality was 53.0% (95% CI: 49.7%-56.3%). IHCA represents 55.0% (95% CI: 51.6%-58.4%) of inpatient deaths. Age ≥75 years, female, nonsmoker, prior diabetes mellitus, prior renal failure, out-of-hospital cardiac arrest, heart rate >100 beats/min, systolic blood pressure <90 mm Hg, and Killip IV were identified as predictors of IHCA. IHCA patients were less likely to receive β-blockers and ticagrelor during the first 24 hours after first medical contact and were less likely to undergo primary percutaneous coronary intervention. After adjustment, primary percutaneous coronary intervention (adjusted HR: 0.82; 95% CI: 0.71-0.95), β-blockers (adjusted HR: 0.63; 95% CI: 0.47-0.86), and ticagrelor (adjusted HR: 0.57; 95% CI: 0.42-0.76) were associated with a reduced risk of IHCA. CONCLUSIONS: IHCA is rare in STEMI but is associated with high mortality. Multiple modifiable and unmodifiable factors are associated with its occurrence, suggesting that early intervention and rational drug treatment may improve its prognosis.

INJURIES AND CPR

No articles identified.

CAUSE OF THE ARREST

1. Resuscitation. 2022 Nov 2:S0300-9572(22)00702-X. doi: 10.1016/j.resuscitation.2022.10.022. Online ahead of print.
An epidemiological assessment of choking-induced out-of-hospital cardiac arrest: A post hoc analysis of the S OS-KANTO 2012 study.
Miyoshi T(1), Endo H(2), Yamamoto H(3), Gonmori S(4), Miyata H(5), Takuma K(6), Sakurai A(7), Kitamura N(8), Tagami T(9), Nakada TA(10), Takeda M(11).
ABSTRACT
OBJECTIVES: The aim of this study was to reveal the neurological outcomes of choking-induced out-of-hospital cardiac arrest (OHCA) and evaluate the presence of witnesses, cardiopulmonary resuscitation (CPR) performed by a witness (bystander-witnessed CPR), and the proportion of

patients with favourable neurological outcomes by the time from CPR by emergency medical services (EMS) to the return of spontaneous circulation (ROSC) (CPR-ROSC time). METHODS: We retrospectively analysed the SOS-KANTO 2012 database, which included data of 16,452 OHCAs in Japan. We selected choking-induced OHCA patients aged ≥ 20 years. We evaluated the neurological outcomes at 1 month with the Cerebral Performance Category (CPC). We defined favourable neurological outcomes (CPCs: 1-2) and present the outcomes with descriptive statistics. RESULTS: Of 1,045 choking-induced OHCA patients, 18 (1.7%) had a favourable neurological outcome. Of 1,045 OHCAs, 757 (72.6%) were witnessed, and 375 (36.0%) underwent bystander-witnessed CPR. Of the 18 OHCAs with favourable outcomes, 17 (94.4%) were witnessed, and 11 (61.1%) underwent bystander-witnessed CPR. With a CPR-ROSC time of 0-5 minutes, the proportion of patients with favourable neurological outcomes was 29.7%, ranging from 0% to 6% in the following time groups. CONCLUSIONS: The neurological outcome of choking-induced OHCA was poor. The neurological outcomes deteriorated rapidly from 5 minutes after the initiation of CPR by EMS. The presence of witnesses and bystander-witnessed CPR may be factors that contribute to improved outcomes, but the effects were not remarkable. As another approach to reduce deaths due to choking, citizen education for the prevention of choking may be effective.

2. Lancet Public Health. 2022 Nov;7(11):e932-e941. doi: 10.1016/S2468-2667(22)00234-1.
Air quality and the risk of out-of-hospital cardiac arrest in Singapore (PAROS): a time series analysis.
Ho AFW(1), Ho JSY(2), Tan BY(3), Saffari SE(4), Yeo JW(5), Sia CH(6), Wang M(7), Aik J(8), Zheng H(9), Morgan G(10), Tam WWS(11), Seow WJ(12), Ong MEH(13); PAROS Singapore Investigators.
ABSTRACT
BACKGROUND: Previous studies have reported positive associations between out-of-hospital cardiac arrest (OHCA) and air pollutant concentrations, but there are inconsistencies across studies. We aimed to investigate the association between pollutant concentrations and the risk of OHCA in Singapore. METHODS: We did a time series analysis of all cases of OHCA in Singapore reported between July 1, 2010, and Dec 31, 2018, to the Pan-Asian Resuscitation Outcomes Study (PAROS), a prospective, population-based registry. Using multivariable fractional polynomial modelling, we investigated the immediate (day 0) and lagged (up to 5 days after exposure) association between 10 μg/m3 increases in concentrations of particulate matter with a diameter of 2·5 μm or smaller (PM2·5), particulate matter with a diameter of 10 μm or smaller (PM10), ozone (O3), nitrogen dioxide (NO2), and sulphur dioxide (SO2) and 1 mg/m3 increase in carbon monoxide (CO) and relative risk (RR) of OHCA. FINDINGS: We extracted data for 18 131 cases of OHCA. The median age of this cohort of cases was 65 years (IQR 56-80), 6484 (35·8%) were female, 11 647 (64·2%) were male, 12 270 (67·7%) were Chinese, 2873 (15·8%) were Malay, and 2010 (11·1%) were Indian. Every 10 μg/m3 increase in PM2·5 was associated with increased risk of OHCA (RR 1·022 [95% 1·002-1·043]) over the next 2 days, which decreased over the subsequent 3 days (3-5 days after exposure; 0·976 [0·955-0·998]). For PM10, O3, NO2, and SO2, we did not observe any associations between increased concentration and risk of OHCA on day 0 or cumulative risk over time (ie, at 0-1 days, 0-2 days, 0-3 days, 0-4 days, 0-5 days, and 3-5 days after exposure). For CO, we observed a cumulative decreased risk of OHCA across 0-5 days after exposure (0·876 [0·770-0·997]) and at days 3-5 after exposure (0·810 [0·690-0·949]). We observed effect modification of the association between increasing PM2·5 concentration and OHCA 0-2 days after exposure by cardiac arrest rhythm (non-shockable 1·027 [1·004-1·050] vs shockable 1·002 [0·956-1·051]) and location of OHCA (at home: 1·033 [1·008-1·057] vs not at home 0·955 [0·957-1·035]). In hypothetical modelling, the number of OHCA events associated with PM2·5 could be reduced by 8% with a 1 μg/m3 decrease in PM2·5 concentrations and by 30% with a 3 μg/m3 decrease in PM2·5 concentrations. INTERPRETATION:

Increases in PM2·5 concentration were associated with an initial increased risk of OHCA and a subsequent reduced risk from 3-5 days after exposure, suggesting a short-term harvesting effect. A decrease in PM2·5 concentrations could reduce population demand for emergency health services.

3. EBioMedicine. 2022 Oct 30;86:104327. doi: 10.1016/j.ebiom.2022.104327. Online ahead of print.
A systematic review and meta-analysis of intraday effects of ambient air pollution and temperature on cardiorespiratory morbidities: First few hours of exposure matters to life.
Wu K(1), Ho HC(2), Su H(1), Huang C(3), Zheng H(4), Zhang W(5), Tao J(1), Hossain MZ(6), Zhang Y(7), Hu K(8), Yang M(1), Wu Q(1), Xu Z(9), Cheng J(10).

ABSTRACT
BACKGROUND: A growing number of studies have reported an increased risk of cardiovascular disease (CVD) and respiratory disease (RD) within hours after exposure to ambient air pollution or temperature. We assemble published evidence on the sub-daily associations of CVD and RD with ambient air pollution and temperature. METHODS: Databases of PubMed and Web of Science were searched for original case-crossover and time-series designs of English articles examining the intra-day effects of ambient air pollution [particulate matter with aerodynamic diameter ≤2.5 μm (PM2.5), ≤10 μm (PM10), 2.5-10μm (PM10-2.5), and < 7 μm (SPM), O3, SO2, NO2, CO, and NO] and temperatures (heat and cold) on cardiorespiratory diseases within 24 h after exposure in the general population by comparing with exposure at different exposure levels or periods. Meta-analyses were conducted to pool excess risks (ERs, absolute percentage increase in risk) of CVD and RD morbidities associated with an increase of 10 μg/m3 in particulate matters, 0.1 ppm in CO, and 10 ppb in other gaseous pollutants. FINDINGS: Final analysis included thirty-three papers from North America, Europe, Oceania, and Asia. Meta-analysis found an increased risk of total CVD morbidity within 3 h after exposure to PM2.5 [ER%: 2.65% (95% CI: 1.00% to 4.34%)], PM10-2.5 [0.31% (0.02% to 0.59%)], O3 [1.42% (0.14% to 2.73%)], and CO [0.41% (0.01% to 0.81%)]. The risk of total RD morbidity elevated at lag 7-12 h after exposure to PM2.5 [0.69% (0.14% to 1.24%)] and PM10 [0.38% (0.02% to 0.73%)] and at lag 12-24 h after exposure to SO2 [2.68% (0.94% to 4.44%)]. Cause-specific CVD analysis observed an increased risk of myocardial infarction morbidity within 6 h after exposure to PM2.5, PM10, and NO2, and an increased risk of out-of-hospital cardiac arrest morbidity within 12 h after exposure to CO. Risk of total CVD also increased within 24 h after exposure to heat. INTERPRETATION: This study supports a sudden risk increase of cardiorespiratory diseases within a few hours after exposure to air pollution or heat, and some acute and highly lethal diseases such as myocardial infarction and cardiac arrest could be affected within a shorter time.

4. J Am Heart Assoc. 2022 Nov;11(21):e027386. doi: 10.1161/JAHA.122.027386. Epub 2022 Oct 31.
Dynamic Change of Cardiovascular Health Metrics and Long-Term Risk of Sudden Cardiac Death: The ARIC Study.
Zhai YS(1)(2), Bi WT(1)(2)(3), Li ZY(4), Qu LP(1)(2), Jia YH(5), Cheng YJ(1)(2)(6).

ABSTRACT
Background The change of cardiovascular health (CVH) status has been associated with risk of cardiovascular disease. However, no studies have explored the change patterns of CVH in relation to risk of sudden cardiac death (SCD). We aim to examine the link between baseline CVH and change of CVH over time with the risk of SCD. Methods and Results Analyses were conducted in the prospective cohort ARIC (Atherosclerosis Risk in Communities) study, started in 1987 to 1989. ARIC enrolled 15 792 individuals 45 to 64 years of age from 4 US communities (Forsyth County, North Carolina; Jackson, Mississippi; suburbs of Minneapolis, Minnesota; and Washington County, Maryland). Subjects with 0 to 2, 3 to 4, and 5 to 7 ideal metrics of CVH were categorized as having poor, intermediate, or ideal CVH, respectively. Change in CVH over 6 years between 1987 to 1989

and 1993 to 1995 was considered. The primary study outcome was physician adjudicated SCD. The study population consisted of 15 026 subjects, of whom 12 207 had data about CVH change. Over a median follow-up of 23.0 years, 583 cases of SCD were recorded. There was a strong inverse association between baseline CVH metrics and time varying CVH metrics with risk of SCD. Compared with subjects with consistently poor CVH, risk of SCD was lower in those changed from poor to intermediate/ideal (hazard ratio [HR], 0.67 [95% CI, 0.48-0.94]), intermediate to poor (HR, 0.73 [95% CI, 0.54-0.99]), intermediate to ideal (HR, 0.49 [95% CI, 0.24-0.99]), ideal to poor/intermediate CVH (HR, 0.23 [95% CI, 0.10-0.52]), or those with consistently intermediate (HR, 0.49 [95% CI, 0.36-0.66]) or consistently ideal CVH (HR, 0.31 [95% CI, 0.13-0.76]). Similar results were also observed for non-SCD. Conclusions Compared with consistently poor CVH, other patterns of change in CVH were associated with lower risk of SCD. These findings highlight the importance of promotion of ideal CVH in the primordial prevention of SCD.

END-TIDAL CO_2

No articles identified.

ORGAN DONATION

1. BMC Emerg Med. 2022 Nov 4;22(1):177. doi: 10.1186/s12873-022-00734-1.
Early prediction model of brain death in out-of-hospital cardiac arrest patients: a single-center retrospective and internal validation analysis.
Itagaki Y(1)(2)(3), Hayakawa M(4), Maekawa K(4), Kodate A(5), Moriki K(6), Takahashi Y(4), Sageshima H(5).
ABSTRACT
BACKGROUND: A shortage of donor organs amid high demand for transplantable organs is a worldwide problem, and an increase in organ donation would be welcomed by the global healthcare system. Patients with brain death (BD) are potential organ donors, and early prediction of patients with BD may facilitate the process of organ procurement. Therefore, we developed a model for the early prediction of BD in patients who survived the initial phase of out-of-hospital cardiac arrest (OHCA). METHODS: We retrospectively analyzed data of patients aged < 80 years who experienced OHCA with a return of spontaneous circulation (ROSC) and were admitted to our hospital between 2006 and 2018. We categorized patients into either a non-BD or BD group. Demographic and laboratory data on ED admission were used for stepwise logistic regression analysis. Prediction scores of BD after OHCA were based on β-coefficients of prognostic factors identified in the multivariable logistic model. RESULTS: Overall, 419 OHCA patients with ROSC were admitted to our hospital during the study period. Seventy-seven patients showed BD (18.3%). Age and etiology of OHCA were significantly different between the groups. Logistic regression analysis confirmed that age, low-flow time, pH, and etiology were independent predictors of BD. The area under the receiver operating characteristic curve for this model was 0.831 (95% confidence interval, 0.786-0.876). CONCLUSIONS: We developed and internally validated a new prediction model for BD after OHCA, which could aid in the early identification of potential organ donors for early donor organ procurement.

2. Arch Esp Urol. 2022 Oct;75(8):720-728. doi: 10.56434/j.arch.esp.urol.20227508.104.
What Donation Features are Related to Complications in Donation after Circulatory Death Kidney Transplant? Analysis of Risk Factors for Complication after Circulatory Death Kidney Transplant.

Coello I(1), Martínez AI(2), Peraire M(2), Aizpiri L(2), Vega CA(2), Amer M(2), Guldris RJ(2), Bauza JL(2), Pieras EC(2).

ABSTRACT

OBJECTIVE: Complications in donation after circulatory death (DCD) kidney transplants (KT) are barely described, while in some urological complications the cause is unknown. The aim of this study is to describe surgical and urological complications and analyze what donation features could be involved. METHODS: A prospective, single center study was performed from 2016 to 2019 including all KT from controlled cardiac death donors (cDCD). RESULTS: A total of 86 cDCD KT were included in the study. Recipient BMI, residual urine output (RUO) <500 mL/day, delayed graft function (DGF), and wound complication were related to UTI ($p = 0.020$, $p = 0.008$, $p = 0.016$, and $p = 0.004$, respectively). Features related to early graft nephrectomy were recipient BMI and recipients with diabetes mellitus (DM) ($p = 0.025$ and $p = 0.036$, respectively). DM in recipients was significantly associated with hematuria ($p = 0.046$). Urinary leak (UL) was associated to vascular complication and ureteral stricture (US) ($p = 0.029$ both). UL and lymphocele were associated to US ($p = 0.029$ both). Features related to lymphocele were recipient BMI and US ($p = 0.028$ and $p = 0.029$, respectively). History of previous transplant, time from cardiac arrest (CA) to cold flush, and DGF, were associated to wound complication ($p = 0.040$, $p = 0.011$ and $p = 0.016$, respectively). CONCLUSIONS: Surgical and urological complications after KT are an important issue to resolve. Our data revealed an association between RUO <500 mL/day, DGF, and wound complication with urinary infection, as well as between recipient DM and hematuria. Recipient BMI and DM were related to early graft nephrectomy. Vascular complications were associated with urinary leak, and lymphocele with US. Finally, wound complication was related to previous transplant, DGF, and time from CA to cold flush. This data revealed interesting associations between donor and recipient features and cDCD KT complications, providing more information to improve prevention and management.

FEEDBACK

No articles identified.

DRUGS

1. BMC Cardiovasc Disord. 2022 Nov 5;22(1):466. doi: 10.1186/s12872-022-02920-2.

Comparison of the effects of lidocaine and amiodarone for out-of-hospital cardiac arrest patients with shockable rhythms: a retrospective observational study from a multicenter registry.

Kishihara Y(1), Kashiura M(2), Amagasa S(3), Fukushima F(1), Yasuda H(1)(4), Moriya T(1).

ABSTRACT

BACKGROUND: Out-of-hospital cardiac arrest (OHCA) with shockable rhythms, including ventricular fibrillation and pulseless ventricular tachycardia, is associated with better prognosis and neurological outcome than OHCA due to other rhythms. Antiarrhythmic drugs, including lidocaine and amiodarone, are often used for defibrillation. This study aimed to compare the effects of lidocaine and amiodarone on the prognosis and neurological outcome of patients with OHCA due to shockable rhythms in a real-world setting. METHODS: We conducted a retrospective observational study using a multicenter OHCA registry of 91 participating hospitals in Japan. We included adult patients with shockable rhythms, such as ventricular fibrillation and pulseless ventricular tachycardia, who were administered either lidocaine or amiodarone. The primary outcome was 30-day survival, and the secondary outcome was a good neurological outcome at 30 days. We compared the effects of lidocaine and amiodarone for patients with OHCA due to shockable rhythms for these outcomes

using logistic regression analysis after propensity score matching (PSM). RESULTS: Of the 51,199 patients registered in the OHCA registry, 1970 patients were analyzed. In total, 105 patients (5.3%) were administered lidocaine, and 1865 (94.7%) were administered amiodarone. After performing PSM with amiodarone used as the reference, the odds ratios and 95% confidence intervals of lidocaine use for 30-day survival and 30-day good neurological outcome were 1.44 (0.58-3.61) and 1.77 (0.59-5.29), respectively. CONCLUSION: The use of lidocaine and amiodarone for patients with OHCA due to shockable rhythms within a real-world setting showed no significant differences in short-term mortality or neurological outcome. There is no evidence that either amiodarone or lidocaine is superior in treatment; thus, either or both drugs could be administered.

2. Chest. 2022 Nov 1:S0012-3692(22)04039-9. doi: 10.1016/j.chest.2022.10.024. Online ahead of print.

Comparative Effectiveness of Amiodarone and Lidocaine for Treatment of In-Hospital Cardiac Arrest (IHCA).

Wagner D(1), Kronick SL(2), Nawer H(3), Cranford JA(2), Bradley SM(4), Neumar RW(2).

ABSTRACT

BACKGROUND: American Heart Association (AHA) Advanced Cardiac Life Support (ACLS) guidelines support the use of either amiodarone or lidocaine for cardiac arrest due to ventricular tachycardia or ventricular fibrillation (VT/VF) based on studies of out of hospital cardiac arrest. Studies comparing amiodarone and lidocaine in adult populations with in-hospital VT/VF arrest are lacking. RESEARCH QUESTION: Does treatment with amiodarone vs. lidocaine therapy have differential associations with outcomes among adult patients with in-hospital cardiac arrest (IHCA) from VT/VF? STUDY DESIGN AND METHODS: Retrospective cohort study of adult patients receiving amiodarone or lidocaine for VT/VF in-hospital cardiac arrest refractory to cardiopulmonary resuscitation (CPR) and defibrillation between January 1, 2000, to December 31, 2014, within the American Heart Association Get With the Guidelines-Resuscitation® (GWTG-R) participating hospitals. The primary outcome was return of spontaneous circulation (ROSC). Secondary outcomes were 24-hour survival, survival to hospital discharge, and favorable neurological outcome. RESULTS: Among 14,630 patients with in-hospital VT/VF arrest, 68.7% (n=10,058) were treated with amiodarone and 31.2% (n=4,572) were treated with lidocaine. When all covariates were statistically controlled, compared with amiodarone, lidocaine was associated with statistically significantly higher odds of a) ROSC, adjusted odds ratio (AOR)=1.15, p=0.01, average marginal effect (AME)=2.3, 95% CI=.5, 4.2); b) 24-hour survival, AOR=1.16, p=.004, AME=3.0, 95% CI=0.9, 5.1; c) survival to discharge, AOR=1.19, $p < 0.001$, AME=3.3, 95% CI=1.5, 5.2; and d) favorable neurologic outcome at hospital discharge, AOR=1.18, $p < .001$, AME=3.1, 95% CI = 1.3, 4.9. Results using propensity score methods were similar to those from multivariable logistic regression analyses. INTERPRETATION: Compared with amiodarone, lidocaine therapy among adult patients with IHCA from VT/VF was associated with statistically significantly higher rates of ROSC, 24-hour survival, survival to hospital discharge, and favorable neurological outcome.

3. Prehosp Emerg Care. 2022 Nov 4:1-2. doi: 10.1080/10903127.2022.2141932. Online ahead of print.

Caveat cum CARES.

Menegazzi JJ(1), Nichol G(2), Salcido DD(1).

NO ABSTRACT AVAILABLE

4. Clin Exp Emerg Med. 2022 Nov 2. doi: 10.15441/ceem.22.367. Online ahead of print.

Augmented-Medication CardioPulmonary Resuscitation (AMCPR) trial: Study protocol for a randomized controlled trial.

Oh DK(1), Kim JS(1), Ryoo SM(1), Kim YJ(1), Kim SM(1), Hong SI(1), Chae B(1), Kim WY(1).

ABSTRACT

BACKGROUND: Because most previous studies about the usefulness of vasopressin during resuscitation had been physician-oriented, it is necessary to evaluate with patient-centered. The aim of this study is to investigate whether Augmented-Medication CardioPulmonary Resuscitation (AMCPR) would enhance chance to return of spontaneous circulation (ROSC) in patients with out-of-hospital cardiac arrest. METHODS: This is a double-blind, single-center, randomized placebo-controlled trial conducted in the emergency department in tertiary, university-affiliated hospital in Seoul, Korea. A total of 148 adult patients with non-traumatic, non-shockable, out-of-hospital cardiac arrest those who have initial diastolic blood pressure above 20 mmHg will be randomly assigned to two groups of 74 patients (1:1 ratio). Patients will receive intravenously a dose of 40 IU of vasopressin with epinephrine, or a placebo with epinephrine. The primary endpoint is a sustained ROSC (over 20 minutes). Secondary endpoints are enhancing diastolic blood pressures, end-tidal carbon dioxide levels, acidosis, and lactate levels during resuscitation. DISCUSSION: AMCPR is a trial about tailor made medication for selected patients during resuscitation. This is a first randomized control trial to find patients who will be help to ROSC by vasopressin. This study will provide evidence about the effect of additional administration of vasopressin with epinephrine to increase the ROSC rate.

5. Perfusion. 2022 Nov;37(8):835-846. doi: 10.1177/02676591211025163. Epub 2021 Jun 12.

Epinephrine dosing interval and neurological outcome in out-of-hospital cardiac arrest.

Fukuda T(1)(2), Kaneshima H(1), Matsudaira A(1), Chinen T(1), Sekiguchi H(1), Ohashi-Fukuda N(3), Inokuchi R(4), Kukita I(1).

ABSTRACT

OBJECTIVE: Current guidelines for cardiopulmonary resuscitation (CPR) recommend that standard-dose epinephrine be administered every 3-5 minutes during cardiac arrest. However, there is a knowledge gap regarding the optimal epinephrine dosing interval. This study aimed to examine the association between epinephrine dosing intervals and outcomes after out-of-hospital cardiac arrest (OHCA). METHODS: This was a nationwide population-based observational study using data from a Japanese government-led registry of OHCA, including patients who experienced OHCA in Japan from 2011 to 2017. We defined the epinephrine dosing interval as the time interval between the first epinephrine administration and return of spontaneous circulation in the prehospital setting, divided by the total number of epinephrine doses. The primary outcome was 1-month neurologically favorable survival. RESULTS: A total of 10,965 patients (mean (SD) age, 75.8 (14.3) years; 59.8% male) were included. The median epinephrine dosing interval was 3.5 minutes (IQR, 2.5-4.5; mean (SD), 3.6 (1.8)). Only approximately half of the patients received epinephrine administration with a standard dosing interval, as recommended in the current CPR guidelines. After multivariable adjustment, compared with the standard dosing interval, neither shorter nor longer epinephrine dosing intervals were associated with neurologically favorable survival after OHCA (Short vs Standard: adjusted OR 0.87 [95%CI 0.66-1.15]; and Long vs Standard: adjusted OR 1.08 [95%CI 0.76-1.55]). Similar associations were observed in propensity score-matched analyses. CONCLUSIONS: The epinephrine dosing interval was not associated with 1-month neurologically favorable survival after OHCA. Our findings do not deny the recommended epinephrine dosing interval in the current CPR guidelines.

TRAUMA

No articles identified.

VENTILATION

No articles identified.

CERERBRAL MONITORING

No articles identified.

ULTRASOUND AND CPR

No articles identified.

ORGANISATION AND TRAINING

1. Pediatrics. 2022 Nov 3. doi: 10.1542/peds.2022-060463. Online ahead of print.

2022 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces.

Wyckoff MH, Greif R, Morley PT, Ng KC, Olasveengen TM, Singletary EM, Soar J, Cheng A, Drennan IR, Liley HG.

ABSTRACT

This is the sixth annual summary of the International Liaison Committee on Resuscitation International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. This summary addresses the most recently published resuscitation evidence reviewed by International Liaison Committee on Resuscitation Task Force science experts. Topics covered by systematic reviews include cardiopulmonary resuscitation during transport; approach to resuscitation after drowning; passive ventilation; minimizing pauses during cardiopulmonary resuscitation; temperature management after cardiac arrest; use of diagnostic point-of-care ultrasound during cardiac arrest; use of vasopressin and corticosteroids during cardiac arrest; coronary angiography after cardiac arrest; public-access defibrillation devices for children; pediatric early warning systems; maintaining normal temperature immediately after birth; suctioning of amniotic fluid at birth; tactile stimulation for resuscitation immediately after birth; use of continuous positive airway pressure for respiratory distress at term birth; respiratory and heart rate monitoring in the delivery room; supraglottic airway use in neonates; prearrest prediction of in-hospital cardiac arrest mortality; basic life support training for likely rescuers of high-risk populations; effect of resuscitation team training; blended learning for life support training; training and recertification for resuscitation instructors; and recovery position for maintenance of breathing and prevention of cardiac arrest. Members from 6 task forces have assessed, discussed, and debated the quality of the evidence using Grading of Recommendations Assessment, Development, and Evaluation criteria and generated consensus treatment recommendations. Insights into the deliberations of the task forces are provided in the Justification and Evidence-to-Decision Framework Highlights sections, and priority knowledge gaps for future research are listed.

2. Circulation. 2022 Nov 3. doi: 10.1161/CIR.0000000000001095. Online ahead of print.
2022 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces.
Wyckoff MH, Greif R, Morley PT, Ng KC, Olasveengen TM, Singletary EM, Soar J, Cheng A, Drennan IR, Liley HG, Scholefield BR, Smyth MA, Welsford M, Zideman DA, Acworth J, Aickin R, Andersen LW, Atkins D, Berry DC, Bhanji F, Bierens J, Borra V, Böttiger BW, Bradley RN, Bray JE, Breckwoldt J, Callaway CW, Carlson JN, Cassan P, Castrén M, Chang WT, Charlton NP, Chung SP, Considine J, Costa-Nobre DT, Couper K, Couto TB, Dainty KN, Davis PG, de Almeida MF, de Caen AR, Deakin CD, Djärv T, Donnino MW, Douma MJ, Duff JP, Dunne CL, Eastwood K, El-Naggar W, Fabres JG, Fawke J, Finn J, Foglia EE, Folke F, Gilfoyle E, Goolsby CA, Granfeldt A, Guerguerian AM, Guinsburg R, Hirsch KG, Holmberg MJ, Hosono S, Hsieh MJ, Hsu CH, Ikeyama T, Isayama T, Johnson NJ, Kapadia VS, Kawakami MD, Kim HS, Kleinman M, Kloeck DA, Kudenchuk PJ, Lagina AT, Lauridsen KG, Lavonas EJ, Lee HC, Lin YJ, Lockey AS, Maconochie IK, Madar RJ, Malta Hansen C, Masterson S, Matsuyama T, McKinlay CJD, Meyran D, Morgan P, Morrison LJ, Nadkarni V, Nakwa FL, Nation KJ, Nehme Z, Nemeth M, Neumar RW, Nicholson T, Nikolaou N, Nishiyama C, Norii T, Nuthall GA, O'Neill BJ, Ong YG, Orkin AM, Paiva EF, Parr MJ, Patocka C, Pellegrino JL, Perkins GD, Perlman JM, Rabi Y, Reis AG, Reynolds JC, Ristagno G, Rodriguez-Nunez A, Roehr CC, Rüdiger M, Sakamoto T, Sandroni C, Sawyer TL, Schexnayder SM, Schmölzer GM, Schnaubelt S, Semeraro F, Skrifvars MB, Smith CM, Sugiura T, Tijssen JA, Trevisanuto D, Van de Voorde P, Wang TL, Weiner GM, Wyllie JP, Yang CW, Yeung J, Nolan JP, Berg KM.
ABSTRACT
This is the sixth annual summary of the International Liaison Committee on Resuscitation International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. This summary addresses the most recently published resuscitation evidence reviewed by International Liaison Committee on Resuscitation Task Force science experts. Topics covered by systematic reviews include cardiopulmonary resuscitation during transport; approach to resuscitation after drowning; passive ventilation; minimizing pauses during cardiopulmonary resuscitation; temperature management after cardiac arrest; use of diagnostic point-of-care ultrasound during cardiac arrest; use of vasopressin and corticosteroids during cardiac arrest; coronary angiography after cardiac arrest; public-access defibrillation devices for children; pediatric early warning systems; maintaining normal temperature immediately after birth; suctioning of amniotic fluid at birth; tactile stimulation for resuscitation immediately after birth; use of continuous positive airway pressure for respiratory distress at term birth; respiratory and heart rate monitoring in the delivery room; supraglottic airway use in neonates; prearrest prediction of in-hospital cardiac arrest mortality; basic life support training for likely rescuers of high-risk populations; effect of resuscitation team training; blended learning for life support training; training and recertification for resuscitation instructors; and recovery position for maintenance of breathing and prevention of cardiac arrest. Members from 6 task forces have assessed, discussed, and debated the quality of the evidence using Grading of Recommendations Assessment, Development, and Evaluation criteria and generated consensus treatment recommendations. Insights into the deliberations of the task forces are provided in the Justification and Evidence-to-Decision Framework Highlights sections, and priority knowledge gaps for future research are listed.

3. Nurs Ethics. 2022 Nov 1:9697330221133521. doi: 10.1177/09697330221133521. Online ahead of print.
Nurses' experiences of ethical and legal issues in post-resuscitation care: A qualitative content analysis.

Zali M(1), Rahmani A(1), Powers K(2), Hassankhani H(1), Namdar-Areshtanab H(1), Gilani N(1).
ABSTRACT
BACKGROUND: Cardiopulmonary resuscitation and subsequent care are subject to various ethical and legal issues. Few studies have addressed ethical and legal issues in post-resuscitation care. OBJECTIVE: To explore nurses' experiences of ethical and legal issues in post-resuscitation care. RESEARCH DESIGN: This qualitative study adopted an exploratory descriptive qualitative design using conventional content analysis. PARTICIPANTS AND RESEARCH CONTEXT: In-depth, semi-structured interviews were conducted in three educational hospital centers in northwestern Iran. Using purposive sampling, 17 nurses participated. Data were analyzed by conventional content analysis. ETHICAL CONSIDERATIONS: The study was approved by Research Ethics Committees at Tabriz University of Medical Sciences. Participation was voluntary and written informed consent was obtained. For each interview, the ethical principles including data confidentiality and social distance were respected. FINDINGS: Five main categories emerged: Pressure to provide unprincipled care, unprofessional interactions, ignoring the patient, falsifying documents, and specific ethical challenges. Pressures in the post-resuscitation period can cause nurses to provide care that is not consistent with guidelines, and to avoid communicating with physicians, patients and their families. Patients can also be labeled negatively, with early judgments made about their condition. Medical records can be written in a way to indicate that all necessary care has been provided. Disclosure, withdrawing, and withholding of therapy were also specific important ethical challenges in the field of post-resuscitation care. CONCLUSION: There are many ethical and legal issues in post-resuscitation care. Developing evidence-based guidelines and training staff to provide ethical care can help to reduce these challenges.

POST-CARDIAC ARREST TREATMENTS

1. Resuscitation. 2022 Nov 1:S0300-9572(22)00700-6. doi: 10.1016/j.resuscitation.2022.10.020. Online ahead of print.
Variation in Coronary Angiography Use in Out-of-Hospital Cardiac Arrest.
Agusala V(1), Dale P(1), Khera R(2), Brown SP(3), Idris A(1), Link MS(1), Mody P(4).
ABSTRACT
INTRODUCTION: Multiple studies have examined the association of early coronary angiography (CAG) among out-of-hospital cardiac arrest (OHCA) patients with conflicting results. However, patterns of use of CAG among OHCA patients in real-world settings are not well-described. METHODS: Utilizing data from the Resuscitation Outcomes Consortium's Continuous Chest Compressions trial for our analysis, we stratified patients based on initial arrest rhythm and ST elevation on initial post-resuscitation electrocardiogram (ECG) and examined the rates of CAG in resuscitated patients. We also examined the rates of CAG across different trial clusters in the overall study population as well as in pre-specified patient subgroups. RESULTS: Of 26,148 patients in the CCC trial, 5,608 survived to hospital admission and were enrolled in the study. Among them, 26.0% underwent CAG. Patients with ST-elevation underwent CAG at a significantly higher rate than patients presenting without ST-elevation (70% vs. 31%, $p<0.001$). Similarly, patients presenting with shockable rhythms underwent CAG more frequently compared with patients with non-shockable rhythms (28% vs. 5%, $p<0.001$). There was marked variation in CAG frequency across different trial clusters with the proportion of patients within a trial cluster receiving CAG ranging from 4% - 41%. The proportion varied more among patients with ST-elevation (16% - 82%) or initial shockable rhythm (11% - 75%) compared with no ST-elevation (2% - 28%) or initial non-shockable rhythm (0% - 19%). CONCLUSION: Among a national cohort of OHCA patients, large variation in the use of CAG exists, highlighting the existing uncertainty regarding perceived benefit from early CAG in OHCA.

2. Acute Crit Care. 2022 Oct 27. doi: 10.4266/acc.2022.00696. Online ahead of print.
Diet-related complications according to the timing of enteral nutrition support in patients who recovered from out-of-hospital cardiac arrest: a propensity score matched analysis.
Kim GW(1), Roh YI(1), Cha KC(1), Hwang SO(1), Han JH(2), Jung WJ(1).
ABSTRACT
BACKGROUND: A proper nutritional plan for resuscitated patients is important in intensive care; however, specific nutritional guidelines have not yet been established. This study aimed to determine the incidence of diet-related complications that were affected by the timing of enteral nutrition in resuscitated patients after cardiac arrest. METHODS. This retrospective and 1:1 propensity score matching study involved patients who recovered after nontraumatic, out-of-hospital cardiac arrest at a tertiary hospital. Patients were divided into an early enteral nutrition support (ENS) group and a delayed enteral nutrition support (DNS) group according to the nutritional support time within 48 hours after admission. The incidence of major clinical complications was compared between the groups. RESULTS. A total of 46 patients (ENS, 23; DNS, 23) were enrolled in the study. There were no differences in body mass index, comorbidity, and time of cardiopulmonary resuscitation between the two groups. There were 9 patients (ENS: 4, DNS: 5) with aspiration pneumonia; 4 patients (ENS: 2, DNS: 2) with regurgitation; one patient (ENS: 0, DNS: 1) with ileus; 21 patients (ENS: 10, DNS: 11) with fever; 13 patients (ENS: 8, DNS: 5) with hypoglycemia; and 20 patients (ENS: 11, DNS: 9) with hyperglycemia. The relative risk of each complication during post-resuscitation care was no different between groups. CONCLUSION. : There was a similar incidence of diet-related complications during post cardiac arrest care according to the timing of enteral nutrition.

3. Medicine (Baltimore). 2022 Oct 28;101(43):e31300. doi: 10.1097/MD.0000000000031300.
Correlation between the 72-hour fatality ratios and out-of-hospital cardiac arrest ratios in patients with extremely high outlier values of 57 laboratory test items: A single-center retrospective inception cohort study.
Watanabe T(1)(2), Sugawara H(1), Fukuchi T(1), Omoto K(2).
ABSTRACT
The association between extremely high outlier values (EHOV) of laboratory test items (LTIs) and short-term prognosis or out-of-hospital cardiac arrest (OHCA) remains unclear. This retrospective study investigated the correlation between 72-hour fatality ratios and OHCA ratios in patients with the top 100 EHOV of 57 LTIs without focusing on the disease group and which test items were predictors of 72-hour fatality. This single-center retrospective inception cohort study enrolled patients aged ≥ 18 years who underwent any combination of laboratory tests at the Saitama Medical Center, Japan between January 1, 2008, and December 31, 2013. The primary outcome was the correlation between the 72-hour fatality ratios and OHCA ratios in patients with the top 100 EHOV for 57 LTIs without focusing on the disease group. The LTIs included hematology, blood chemistry, erythrocyte sedimentation, blood coagulation, and arterial blood gas test results. The secondary outcome was which of the 57 LTIs with the top 100 EHOV were more likely to associate with the 72-hour fatality. We evaluated the correlation between the 72-hour fatality ratios and the OHCA ratios for each laboratory test item using the Passing-Bablok regression method. The 72-hour fatality ratios for the top 100 EHOV of 57 LTIs were significantly positively correlated with the OHCA ratios. The regression coefficient of the regression line was 0.394, and the correlation coefficient (95% confidence interval) was 0.644 (0.458-0.775, $P < .001$). These 72-hour fatality ratios tended to be lower than the OHCA ratios. The top 100 EHOV of 13 LTIs including total bilirubin, direct bilirubin, C-reactive protein, base excess, bicarbonate ion, creatine kinase, uric acid, partial pressure of oxygen, sodium, chloride, blood urea nitrogen, aspartate aminotransferase, and lactate dehydrogenase had 72-hour fatality ratios that were above the upper limit of the linear confidence region of the regression line, with higher 72-hour fatality ratios than the OHCA ratios. The 72-hour fatality ratios

for the top 100 EHOV of 57 LTIs tended to be lower than the OHCA ratios. The top 100 EHOV of these 13 LTIs were found to be more likely to associate with 72-hour fatality than OHCA.

4. PLoS One. 2022 Oct 31;17(10):e0277034. doi: 10.1371/journal.pone.0277034. eCollection 2022.
Implantable cardioverter-defibrillator therapy after resuscitation from cardiac arrest in vasospastic angina: A retrospective study.
Tateishi K(1), Kondo Y(1), Saito Y(1), Kitahara H(1), Fukushima K(2), Takahashi H(2), Yamashita D(1), Ohashi K(3), Suzuki K(3), Hashimoto O(4), Sakai Y(4), Kobayashi Y(1).
ABSTRACT
Patients with vasospastic angina (VSA) who are resuscitated from sudden cardiac arrest (SCA) are at a high risk of recurrent lethal arrhythmia and cardiovascular events. However, the benefit of the implantable cardioverter-defibrillator (ICD) therapy in this population has not been fully elucidated. The present study aimed to analyze the prognostic impact of ICD therapy on patients with VSA and SCA. A total of 280 patients who were resuscitated from SCA and received an ICD for secondary prophylaxis were included in the present multicenter registry. The patients were divided into two groups on the basis of the presence of VSA. The primary endpoint was a composite of all-cause death and appropriate ICD therapy (appropriate anti-tachycardia pacing and shock) for recurrent ventricular arrhythmias. Of 280 patients, 51 (18%) had VSA. Among those without VSA, ischemic cardiomyopathy was the main cause of SCA (38%), followed by non-ischemic cardiomyopathies (18%) and Brugada syndrome (7%). Twenty-three (8%) patients were dead and 72 (26%) received appropriate ICD therapy during a median follow-up period of 3.8 years. There was no significant difference in the incidence of the primary endpoint between patients with and without VSA (24% vs. 33%, p = 0.19). In a cohort of patients who received an ICD for secondary prophylaxis, long-term clinical outcomes were not different between those with VSA and those with other cardiac diseases after SCA, suggesting ICD therapy may be considered in patients with VSA and those with other etiologies who were resuscitated from SCA.

5. Prehosp Emerg Care. 2022 Nov-Dec;26(6):772-781. doi: 10.1080/10903127.2021.1965681. Epub 2021 Aug 24.
Variation in Post-Cardiac Arrest Care Within a Regional EMS System.
Bosson N(1), Tolles J(1), Shavelle D(1), Niemann JT(1), Thomas JL(1), French WJ(1), Gausche-Hill M(1).
ABSTRACT
Objective: Within Emergency Medical Systems (EMS) regional systems, there may be significant differences in the approach to patient care despite efforts to promote standardization. Identifying hospital-level factors that contribute to variations in care can provide opportunities to improve patient outcomes. The purpose of this analysis was to evaluate variation in post-cardiac arrest care within a large EMS system and explore the contribution of hospital-level factors. Methods: This was a retrospective analysis from a regional cardiac system serving over 10 million persons. Patients with out-of-hospital cardiac arrest (OHCA) with return of spontaneous circulation (ROSC) are transported to 36 cardiac arrest centers with 24/7 emergent coronary angiography (CAG) capabilities and targeted temperature management (TTM) policies based on regional guidelines. We included adult patients ≥18 years with non-traumatic OHCA from 2016-2018. Patients with a Do-Not-Resuscitate order and those who died in the emergency department (ED) were excluded. For the TTM analysis, we also excluded patients who were alert in the ED. The primary outcome was receiving CAG or TTM after cardiac arrest. The secondary outcome was neurologic recovery (dichotomized to define a "good" outcome as cerebral performance category (CPC) 1 or 2). We used generalized estimating equations including patient-level factors (age, sex, witnessed arrest, initial rhythm) and hospital-level factors (academic status, hospital size based on licensed beds, annual OHCA patient volume) to estimate the odds ratios associated with these variables. Results: There were 7831 patients with OHCA during the study period; 4694 were analyzed for CAG and 3903 for TTM. The median and

range for treatment with CAG and TTM after OHCA was 23% (12-49%) and 58% (17-92%) respectively. Hospital size was associated with increased likelihood of CAG, adjusted odds ratio 1.71, 95% CI 1.05-2.86, p = 0.03. Academic status approached significance in its association with TTM, adjusted odds ratio 1.69, 95% CI 0.98-2.91, p = 0.06. Overall, 28% of patients survived with good neurologic outcome, ranging from 17 to 43% across hospitals. Conclusion: Within this regional cardiac system, there was significant variation in use of CAG and TTM after OHCA, which was not fully explained by patient-level factors. Hospital size was associated with increased CAG.

TARGETED TEMPERATURE MANAGEMENT

No articles identified.

ELECTROPHYSIOLOGY AND DEFIBRILLATION

1. Eur J Health Econ. 2022 Oct 30. doi: 10.1007/s10198-022-01531-0. Online ahead of print.
Can drones save lives and money? An economic evaluation of airborne delivery of automated external defibrillators.
Röper JWA(1), Fischer K(2), Baumgarten MC(3), Thies KC(4), Hahnenkamp K(3), Fleßa S(2).
ABSTRACT
BACKGROUND: Out-of-hospital cardiac arrest is one of the most frequent causes of death in Europe. Emergency medical services often struggle to reach the patient in time, particularly in rural areas. To improve outcome, early defibrillation is required which significantly increases neurologically intact survival. Consequently, many countries place Automated External Defibrillators (AED) in accessible public locations. However, these stationary devices are frequently not available out of hours or too far away in emergencies. An innovative approach to mustering AED is the use of unmanned aerial systems (UAS), which deliver the device to the scene. METHODS: This paper evaluates the economic implications of stationary AED versus airborne delivery using scenario-based cost analysis. As an example, we focus on the rural district of Vorpommern-Greifswald in Germany. Formulae are developed to calculate the cost of stationary and airborne AED networks. Scenarios include different catchment areas, delivery times and unit costs. RESULTS: UAS-based delivery of AEDs is more cost-efficient than maintaining traditional stationary networks. The results show that equipping cardiac arrest hot spots in the district of Vorpommern-Greifswald with airborne AEDs with a response time < 4 min is an effective method to decrease the time to the first defibrillation The district of Vorpommern-Greifswald would require 45 airborne AEDs resulting in annual costs of at least 1,451,160 €. CONCLUSION: In rural areas, implementing an UAS-based AED system is both more effective and cost-efficient than the conventional stationary solution. When regarding urban areas and hot spots of OHCA, complementing the airborne network with stationary AEDs is advisable.

PEDIATRICS AND CHILDREN

1. Simul Healthc. 2022 Nov 4. doi: 10.1097/SIH.0000000000000695. Online ahead of print.
Using Simulation to Develop and Test a Modified Cardiopulmonary Resuscitation Technique for a Child With Severe Scoliosis: A System-Based Approach From Theory, to Simulation, to Practice.
Rex J(1), Banfer FA 3rd, Sukumar M, Zurca AD, Rodgers DL.
NO ABSTRACT AVAILABLE

2. Adv Simul (Lond). 2022 Nov 5;7(1):38. doi: 10.1186/s41077-022-00234-z.

Newborn resuscitation simulation training and changes in clinical performance and perinatal outcomes: a clinical observational study of 10,481 births.

Vadla MS(1), Moshiro R(2), Mdoe P(3), Eilevstjønn J(4), Kvaløy JT(5)(6), Hhoki BH(3), Ersdal H(7)(8).

ABSTRACT

BACKGROUND: Annually, 1.5 million intrapartum-related deaths occur; fresh stillbirths and early newborn deaths. Most of these deaths are preventable with skilled ventilation starting within the first minute of life. Helping Babies Breathe is an educational program shown to improve simulated skills in newborn resuscitation. However, translation into clinical practice remains a challenge. The aim was to describe changes in clinical resuscitation and perinatal outcomes (i.e., fresh stillbirths and 24-h newborn deaths) after introducing a novel simulator (phase 1) and then local champions (phase 2) to facilitate ongoing Helping Babies Breathe skill and scenario simulation training. METHODS: This is a 3-year prospective before/after (2 phases) clinical observational study in Tanzania. Research assistants observed all deliveries from September 2015 through August 2018 and recorded labor/newborn information and perinatal outcomes. A novel simulator with automatic feedback to stimulate self-guided skill training was introduced in September 2016. Local champions were introduced in October 2017 to motivate midwives for weekly training, also team simulations. RESULTS: The study included 10,481 births. Midwives had practiced self-guided skill training during the last week prior to a real newborn resuscitation in 34% of cases during baseline, 30% in phase 1, and 71% in phase 2. Most real resuscitations were provided by midwives, increasing from 66% in the baseline, to 77% in phase 1, and further to 83% in phase 2. The median time from birth to first ventilation decreased between baseline and phase 2 from 118 (85-165) to 101 (72-150) s, and time pauses during ventilation decreased from 28 to 16%. Ventilations initiated within the first minute did not change significantly (13-16%). The proportion of high-risk deliveries increased during the study period, while perinatal mortality remained unchanged. CONCLUSIONS: This study reports a gradual improvement in real newborn resuscitation skills after introducing a novel simulator and then local champions. The frequency of trainings increased first after the introduction of motivating champions. Time from birth to first ventilation decreased; still, merely 16% of newborns received ventilation within the first minute as recommended. This is a remaining challenge that may require more targeted team-scenario training and quality improvement efforts to improve.

EXTRACORPOREAL LIFE SUPPORT

1. Resuscitation. 2022 Oct 31:S0300-9572(22)00699-2. doi: 10.1016/j.resuscitation.2022.10.019. Online ahead of print.

"Was three too much?" An ethical dilemma in ECPR indications for repetitive refractory hypothermic out-of-hospital cardiac arrest.

Soumagnac T(1), Raphalen JH(2), Hutin A(3), Dagron C(2), Lamhaut L(4).

NO ABSTRACT AVAILABLE

2. Artif Organs. 2022 Nov 3. doi: 10.1111/aor.14452. Online ahead of print.

Outcome after veno-arterial extracorporeal membrane oxygenation in elderly patients: a 14-year single-center experience.

Provaznik Z(1), Philipp A(1), Müller T(2), Kozakov K(1), Lunz D(3), Schmid C(1), Floerchinger B(1).

ABSTRACT

BACKGROUND: Use of veno-arterial extracorporeal membrane oxygenation (VA-ECMO) in elderly patients is controversial because of presumed poor outcome. Our primary aim was to determine the influence of advanced age on short- and long-term outcome; secondary aim was to analyze risk factors for impaired outcome. METHODS: Between January 2006 and June 2020, 645 patients underwent VA-ECMO implantation in our department. The patients were categorized into four

groups:<50, 50-59.9,60-69.9 and ≥70 years old. Data were retrospectively analyzed for short- and long-term outcome. Risk factors for in-hospital mortality and mortality during follow-up were assessed using multivariate regression analysis. RESULTS: VA-ECMO support duration was comparable in all age groups (median 3 days). Weaning rates were 60.8%/n=104 (<50 years), 51.4%/n=90 (50-59.9 years), 58.8%/n=107 (60-69.9), and 67.5%/n=79 (≥70, p=0.048). Hospital mortality was highest in the patients aged 50-59.9 years (68%/n=119), but not in the elderly patients (60-69.9, ≥70:62.1%/n=113, 58,1%/n=68). At discharge, the cerebral performance category scores were superior in the patients <50 years. Multivariate logistic regression analysis revealed chronic kidney failure requiring hemodialysis, duration of cardiopulmonary resuscitation, elevated blood lactate levels before VA-ECMO, but not age as predictors of in-hospital mortality. Cox's regression disclosed age as relevant risk factor for death during follow-up. The patients' physical ability was comparable in all age groups. CONCLUSION: VA-ECMO support should not be declined in patients only because of advanced age. Mortality and neurological status at hospital discharge and during follow-up were comparable in all age groups.

EXPERIMENTAL RESEARCH

1. J Am Heart Assoc. 2022 Nov;11(21):e027685. doi: 10.1161/JAHA.122.027685. Epub 2022 Oct 31.
Inhaled Carbon Dioxide Improves Neurological Outcomes by Downregulating Hippocampal Autophagy and Apoptosis in an Asphyxia-Induced Cardiac Arrest and Resuscitation Rat Model.
Wang CH(1)(2), Huang CH(1)(2), Tsai MS(1)(2), Wang CC(1)(2), Chang WT(1)(2), Liu SH(3)(4)(5), Chen WJ(1)(2)(6)(7).

ABSTRACT
Background Protracted cerebral hypoperfusion following cardiac arrest (CA) may cause poor neurological recovery. We hypothesized that inhaled carbon dioxide (CO2) could augment cerebral blood flow (CBF) and improve post-CA neurological outcomes. Methods and Results After 6-minute asphyxia-induced CA and resuscitation, Wistar rats were randomly allocated to 4 groups (n=25/group) and administered with different inhaled CO2 concentrations, including control (0% CO2), 4% CO2, 8% CO2, and 12% CO2. Invasive monitoring was maintained for 120 minutes, and neurological outcomes were evaluated with neurological function score at 24 hours post-CA. After the 120-minute experiment, CBF was 242.3% (median; interquartile range, 221.1%-267.4%) of baseline in the 12% CO2 group while CBF fell to 45.8% (interquartile range, 41.2%-58.1%) of baseline in the control group (P<0.001). CBF increased along with increasing inhaled CO2 concentrations with significant linear trends (P<0.001). At 24 hours post-CA, compared with the control group (neurological function score, 9 [interquartile range, 8-9]), neurological recovery was significantly better in the 12% CO2 group (neurological function score, 10 [interquartile range, 9.8-10]) (P<0.001) while no survival difference was observed. Brain tissue malondialdehyde (P=0.02) and serum neuron-specific enolase (P=0.002) and S100β levels (P=0.002) were significantly lower in the 12% CO2 group. TUNEL (terminal deoxynucleotidyl transferase-mediated biotin-deoxyuridine triphosphate nick-end labeling)-positive cell densities in hippocampal CA1 (P<0.001) and CA3 (P<0.001) regions were also significantly reduced in the 12% CO2 group. Western blotting showed that beclin-1 (P=0.02), p62 (P=0.02), and LAMP2 (lysosome-associated membrane protein 2) (P=0.01) expression levels, and the LC3B-II:LC3B-I ratio (P=0.02) were significantly lower in the 12% CO2 group. Conclusions Administering inhaled CO2 augmented post-CA CBF, mitigated oxidative brain

injuries, ameliorated neuronal injury, and downregulated apoptosis and autophagy, thereby improving neurological outcomes.

CASE REPORTS

1. Forensic Sci Med Pathol. 2022 Nov 5. doi: 10.1007/s12024-022-00552-8. Online ahead of print.
Fatal hydrofluoric acid poisoning: histologic findings and review of the literature.
Cheong H(1), Kim J(2).

ABSTRACT
Hydrofluoric acid (HF), the inorganic acid of elemental fluorine, is a highly dangerous substance and death can result from a very small exposure. In addition to local toxicity, HF can trigger fatal systemic reactions by its high affinity for calcium and magnesium. The authors report the autopsy case of a male worker who was exposed to 50% HF while repairing the leakage from an HF tank valve in a semi-conductor washing factory. His colleagues found blisters on his neck after 6 h of work and he was sent to the hospital. However, he expired from cardiac arrest despite an immediate calcium gluconate injection. At autopsy, burns with eschar covering less than 5% of the total body surface were identified on the neck and around both ears, and microscopic examination of the affected skin revealed extensive necrosis of the epidermis and dermis with pustule formation. In chemical analysis, no fluoride ions were detected in blood, vitreous humor, urine, pleural fluid, bile, or skin tissue from the neck. Considering the chemical burns on the neck and the circumstantial information, the cause of death was determined to be HF poisoning. This article presents the clinical manifestations of local and systemic toxicity after the accidental exposure to a high concentration of HF, with histologic demonstrations of chemical burns.

2. J Korean Med Sci. 2022 Oct 31;37(42):e306. doi: 10.3346/jkms.2022.37.e306.
COVID-19 Vaccination-Induced Ventricular Fibrillation in an Afebrile Patient With Brugada Syndrome.
Lim KH(1), Park JS(2).

ABSTRACT
A 43-year-old man presented with cardiac arrest 2 days after the second coronavirus disease 2019 (COVID-19) vaccination with an mRNA vaccine. Electrocardiograms showed ventricular fibrillation and type 1 Brugada pattern ST segment elevation. The patient reported having no symptoms, including febrile sensation. There were no known underlying cardiac diseases to explain such electrocardiographic abnormalities. ST segment elevation completely disappeared in two weeks. Although there were no genetic mutations or personal or family history typical of Brugada syndrome, flecainide administration induced type 1 Brugada pattern ST segment elevation. This case suggests that COVID-19 vaccination may induce cardiac ion channel dysfunction and cause life threatening ventricular arrhythmias in specific patients with Brugada syndrome.

3. J Acute Med. 2022 Sep 1;12(3):126-130. doi: 10.6705/j.jacme.202209_12(3).0006.
Resuscitative Endovascular Balloon Occlusion of the Aorta for Traumatic Cardiopulmonary Arrest in the Emergency Department: The First Case With Successful Return of Spontaneous Circulation in Taiwan.
Hsu ST(1), Fu YK(1), Lin HY(2), Chiang WC(2), Chiu YC(1), Sun JT(1)(3), Ma MH(2).

ABSTRACT
Exsanguinating torso hemorrhage is a leading cause of death in trauma patients. Bleeding leads to hypothermia, acidosis, and coagulopathy, the so-called "lethal triad," and creates a vicious cycle. Therefore, bleeding control tops the priority list in the management of trauma patients. Placement

of resuscitative endovascular balloon occlusion of the aorta (REBOA) in patients with traumatic non-compressible torso hemorrhage is a developing technique in the emergency departments (EDs) in Taiwan, and it is a possible solution for abdominal and pelvic trauma patients with hemodynamic instability. It not only temporarily controls bleeding below the inflation site but also increases cerebral and coronary circulation. It can create a bridge for definitive care such as an operation or an embolization, possibly preventing death. Compared to thoracotomy followed by an aortic cross clamp, REBOA is a less invasive and possibly, a more efficient way to control the hemorrhage and may lead to better overall survival. The use of REBOA has been proven to be associated with improved survival-to-discharge in severely injured trauma patients. We report a case of out-of-hospital cardiac arrest caused by penetrating injury wherein return of spontaneous circulation was successfully achieved after 39-minute cardiopulmonary resuscitation and REBOA placement in the ED. The REBOA balloon was deflated after bleeding was stopped during the laparotomy operation. The patient was then transferred to the intensive care unit for postoperative care. Unfortunately, the patient passed away approximately 12 hours after the surgery.

4. Autops Case Rep. 2022 Oct 19;12:e2021404. doi: 10.4322/acr.2021.404. eCollection 2022.
Oblivion: autopsy findings of a 31-year-old man with sudden cardiac arrest, a case report of a sequalae of Kawasaki disease.
Gallego DF(1), Ruiz MEZ(2), Marshall DA(3).
ABSTRACT
A 31-year-old man presented to the hospital after suffering a sudden cardiac arrest. Despite optimal therapy, the patient passed away. His medical history included febrile rash at age 2. At autopsy, there was aneurysmal dilation and severe coronary artery stenosis by atherosclerotic plaques and myocardial fibrosis. These findings were presumed to be due to complications of Kawasaki disease, given the remote history of severe febrile rash as a toddler and the presence of chronic coronary artery injury, recanalization, and thrombosis with ischemic heart disease leading to sudden cardiac collapse and death.

5. Arch Argent Pediatr. 2022 Nov 3:e202202593. doi: 10.5546/aap.2022-02593.eng. Online ahead of print.
Commotio cordis (cardiac concussion) in a child. A case report.
[Article in English, Spanish; Abstract available in Spanish from the publisher]
Bruera MJ(1), Pierola Guardia DA(2), Sotelo Ledezma E(1), Blanco AC(1).
ABSTRACT
Commotio cordis or cardiac concussion is a rare and fatal mechano-electric arrhythmogenic syndrome. It is the second most common cause of sudden cardiac death in young athletes. It is most commonly associated with a sports-related injury, wherein, there is a high-velocity impact between a projectile and the precordium, causing arrhythmia that leads to the immediate death of the individual without cardiac resuscitation. On autopsy, the heart is structurally normal. With increasing awareness of this condition and community training in cardiopulmonary resuscitation, survival rates have been improving. The objective of this study is to describe the case of a patient who arrived at our hospital with commotio cordis and his course, emphasizing the importance of prevention and training of the population in cardiopulmonary resuscitation techniques and the use of the automated external defibrillator for the survival of patients suffering from commotio cordis.

6. J Palliat Med. 2022 Nov;25(11):1747-1750. doi: 10.1089/jpm.2021.0617. Epub 2022 Apr 18.
Specialty Palliative Care in a Code Blue: An Unexpected Role.
McWhirter M(1)(2), Heikkinen P(1)(3), Dérissé G(4), Mehta AK(1)(5).

ABSTRACT

Resuscitation codes in the hospital are intensely stressful events that impact the goals and outcomes of patients. Regardless of the outcome of the code, the event itself can be traumatic for the patient, surrogate decision makers, and health care team. The unique skills of each interdisciplinary specialty palliative care team member can assist with each step of the code to improve support and minimize suffering. We discuss a case of a hospitalized patient for whom a code blue was called and the roles of each specialty palliative care team member before, during, and after the event.