Coronary Care Update #13

July 2022

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1. **Nurse-guided incentive spirometry use and postoperative pulmonary complications among cardiac surgery patients: A randomized controlled trial**

Item Type: Journal Article

Authors: Alwekhyan, Saja Ahmad;Alshraideh, Jafar Alasad;Yousef, Khalil Moh'd and Hayajneh, Ferial

Publication Date: 2022

Journal: International Journal of Nursing Practice (John Wiley & Sons, Inc.) 28(2), pp. 1-10

Abstract: Aims: To assess the effect of nurse-guided use of incentive spirometer on postoperative oxygenation and pulmonary complications after coronary artery bypass graft surgery. **Background:** Deep breathing exercises have been shown to improve postoperative lung expansion and reduce pulmonary complications. An incentive spirometer is a deep breathing exercises device that imitates continuous sigh-like maximal inspiration. Design Randomized control trial, two groups nonblinded parallel design. **Methods:** A total of n = 89 eligible patients were randomized to either control or intervention group. Patients in the intervention group received bihourly nurse-guided incentive spirometry for 48-h postextubation. The endpoints were: the number and duration of hypoxic events during the first 24-hr postsurgery, pneumonia and pulmonary function parameters. Data were collected May to September 2019. **Results:** Patients in the intervention group had a significantly lower mean number of hypoxic events with shorter duration and shorter length of stay in the hospital and the ICU. Patients in the intervention group also had greater postoperative forced expiratory volume in 1 second. **Conclusion:** Nurse-guided use of the incentive spirometer reduces the risk of pulmonary complications and hospital length of stay after cardiac surgery. Summary statement: What is already known about the topic? There are controversies regarding the effectiveness of incentive spirometers in the prevention of pulmonary complications post-cardiac and thoracic surgeries. Reports of patients' compliance with use of an incentive spirometer are scarce and inconsistent. Breathing and coughing exercises are considered key to prevent postoperative pulmonary complications. What this paper adds? The use of nurse-guided incentive spirometry reduces the number and duration of postoperative hypoxic events, shortens intensive care unit and hospital length of stay and improves postoperative forced expiratory volume in 1 second. The use of nurse-guided incentive spirometry improves consistency of use and enhances patients' compliance. Implications of this research Use of incentive spirometry after cardiac surgery improves patient outcomes. Use of nurse-guided incentive spirometry is better than routine care as it reduces postoperative pulmonary complications and shortens hospital length of stay.

DOI: https://libkey.io/10.1111/ijn.13023

2. **Deaths from cardiovascular disease involving anticoagulants: a systematic synthesis of coroners' case reports**

Item Type: Journal Article

Authors: Anis, Ali;Heneghan, Carl;Aronson, Jeffrey K.;DeVito, Nicholas J. and Richards, Georgia C.

Publication Date: 2022

Journal: BJGP Open 6(1), pp. 1-12

Abstract: Background: The global burden of cardiovascular disease (CVD) is forecast to increase, and anticoagulants will remain important medicines for its management. Coroners' Prevention of Future Death reports (PFDs) provide valuable insights that may enable safer and more effective use of these agents. Aim: To identify CVD-related PFDs involving anticoagulants. **Design & setting:** Case series of coronial reports in England and Wales between 2013 and 2019. **Method:** A total of 3037 PFDs were screened for eligibility. PFDs were included where CVD and an anticoagulant caused or contributed to the death. Included cases were descriptively analysed and content analysis was used to assess concerns raised by coroners and who had responded to them. **Results:** The study identified 113 CVD-related PFDs involving anticoagulants. Warfarin (36%, n = 41), enoxaparin (11%, n = 12), and rivaroxaban (11%, n = 12) were the most common anticoagulants reported. Concerns most frequently raised by coroners included poor systems (31%), poor communication (25%), and failures to keep accurate medical records (25%). These concerns were most often directed to NHS trusts (29%), hospitals (10%), and general practices (8%). Nearly two-thirds (60%) of PFDs had not received responses from such organisations, which are mandatory under regulation 28 of the Coroners' (Investigations) Regulations 2013. A publicly available tool has been created by the authors (https://prev enta bled eath stracker. net), which displays coroners' reports in England and Wales to streamline access, and identify important lessons to prevent future deaths. **Conclusion**: National organisations, healthcare professionals, and prescribers should take actions to address the concerns of coroners in PFDs to improve the safe use of anticoagulants in patients with CVD.

DOI: https://libkey.io/10.3399/BJGPO.2021.0150

3. **Implementation of the Mental Capacity Act: a national observational study comparing resultant trends in place of death for older heart failure decedents with or without comorbid dementia**

Item Type: Journal Article

Authors: Beattie, James M.;Higginson, Irene J.;McDonagh, Theresa A. and Gao, Wei

Publication Date: 2022

Journal: BMC Medicine 20(1), pp. 1-13

Abstract: Background: Heart failure (HF) is increasingly prevalent in the growing elderly population and commonly associated with cognitive impairment. We compared trends in place of death (PoD) of HF patients with/without comorbid dementia around the implementation period of the Mental Capacity Act (MCA) in October 2007, this legislation supporting patient-centred decision making for those with reduced agency. **Methods:** Analyses of death certification data for England between January 2001 and December 2018, describing the PoD and sociodemographic characteristics of all people ≥ 65 years registered with HF as the underlying cause of death, with/without a mention of comorbid dementia. We used modified Poisson regression with robust error variance to determine the prevalence ratio (PR) of the outcome in dying at home, in care homes or hospices compared to dying in hospital. Covariates included year of death, age, gender, marital status, comorbidity burden, index of multiple deprivation and urban/rural settings. **Results:** One hundred twenty thousand sixty-eight HF-related death records were included of which 8199 mentioned dementia as a contributory cause. The overall prevalence proportion of dementia was 6.8%, the trend significantly increasing from 5.6 to 8.0% pre- and post-MCA (Cochran-Armitage trend test $p < 0.0001$). Dementia was coded as unspecified (78.2%), Alzheimer's disease (13.5%) and vascular (8.3%). Demented decedents were commonly older, female, and with more comorbidities. Pre-MCA, PoD for non-demented HF patients was hospital 68.2%, care homes 20.2% and 10.7% dying at home. Corresponding figures for those with comorbid

dementia were 47.6%, 48.0% and 4.2%, respectively. Following MCA enforcement, PoD for those without dementia shifted from hospital to home, 62.5% and 17.2%, respectively; PR: 1.026 95%CI: 1.024-1.029]. While home deaths also rose to 10.0% for those with dementia, with hospital deaths increasing to 50.4%, this trend was insignificant, PR: 1.001 0.988-1.015]. Care home deaths reduced for all, with/without dementia, PR: 0.959 0.949-0.969] and PR: 0.996 0.993-0.998], respectively. Hospice as PoD was rare for both groups with no appreciable change over the study period. **Conclusions:** Our analyses suggest the MCA did not materially affect the PoD of HF decedents with comorbid dementia, likely reflecting difficulties implementing this legislation in real-life clinical practice.

DOI: https://libkey.io/10.1186/s12916-021-02210-2

4. **Effects of Exergaming in Patients with Cardiovascular Disease Compared to Conventional Cardiac Rehabilitation: A Systematic Review and Meta-Analysis.**

Item Type: Journal Article

Authors: BlascoPeris, C.;FuertesKenneally, L.;Vetrovsky, T.;Sarabia, J. M.;ClimentPaya, V. and ManresaRocamora, A.

Publication Date: 2022

Journal: International Journal of Environmental Research and Public Health 19(6) (pagination)

Abstract: Background: Exercise-based cardiac rehabilitation (CR) programs are used for improving prognosis and quality of life in patients with cardiovascular disease (CVD). Nonetheless, adherence to these programs is low, and exercise-based CR programs based on virtual reality (i.e., exergaming) have been proposed as an alternative to conventional CR programs. However, whether exergaming programs are superior to conventional CR programs in patients with CVD is not known. **Objective(s):** This systematic review with meta-analysis was conducted to explore whether exergaming enhances exercise capacity, quality of life, mental health, motivation, and exercise adherence to a greater extent than conventional CR programs in patients with CVD. **Method(s):** Electronic searches were carried out in PubMed, Embase, Web of Science, and Cumulative Index to Nursing and Allied Health Lit-erature databases up to June 2021. Meta-analyses were performed using robust variance estimation with small-sample corrections. The effect sizes were calculated as the mean differences (MD) or standardized mean differences (SMD) as appropriate. The SMD magnitude was classified as trivial (=0.80). Heterogeneity was interpreted based on the I2 statistics as low (25%), moderate (50%), or high (75%). **Result(s):** Pooled analyses showed no differences between exergaming and conventional CR programs for enhancing exercise capacity (i.e., distance covered in the six-minute walk test) (MD+ = 14.07 m (95% confidence interval (CI) -38.18 to 66.32 m); p = 0.426) and mental health (SMD+ = 0.17 (95% CI -0.36 to 0.70); p = 0.358). The results showed a small, statistically nonsignificant improvement in quality of life in favor of exergaming (SMD+ = 0.22 (95% CI = -0.37 to 0.81); p = 0.294). Moderate heterogeneity was found for exercise capacity (I2 = 53.7%), while no heterogeneity was found for quality of life (I2 = 3.3%) and mental health (I2 = 0.0%). **Conclusion(s):** Exergaming seems not to be superior to conventional CR programs for improving exercise capacity, quality of life, or mental health in patients with CVD.

DOI: https://libkey.io/10.3390/ijerph19063492

5. **Exergaming in cardiac rehabilitation: a systematic review and meta-analysis**

Item Type: Conference Proceeding

Authors: BlascoPeris, C., FuertesKenneally, L., Vetrovsky, T., SarabiaMarin, J.M., ClimentPaya, V. and ManresaRocamora, A.

Publication Date: 2022

Publication Details: European Journal of Preventive Cardiology. Conference: ESC Preventive Cardiology 2022. Online. 29(SUPPL 1) (pp i234-i235); SAGE Publications Inc.,

Abstract: Background/Introduction: Cardiovascular disease (CVD) is the leading cause of death in Europe. The lack of physical activity is related to the onset of CVD. Despite the evidence of the effects of exercise-based cardiac rehabilitation (CR) on mortality risk in patients with CVD, the benefit of adding exergaming is unclear. **Purpose(s):** The aim of this systematic review and meta-analysis was to (a) summarize the characteristics of previous studies regarding exercise-based CR programmes based on exergaming and (b) determine the effects of exergaming on functional capacity (i.e., distance covered in the 6-min walk test [6MWT]) and other outcomes (i.e., quality of life and motivation). **Method(s):** We carried out a systematic search in PubMed, Embase, Web of Science, and Cumulative Index to Nursing and Allied Health Literature (without language restrictions) up to June 2021. Our search strategy included terms related to patients (e.g., chronic heart failure, cardiovascular disease, and coronary artery disease) and the interventions (e.g., exergaming and cardiac rehabilitation). We included controlled and uncontrolled studies and extracted data regarding the characteristics of the study, patients, and intervention. In regards to the quantitative analysis, we used the standardised mean difference (SMD) or mean difference (MD) to measure the effect size and random-effects models to perform a pooled analysis of outcomes reported in at least three studies. **Result(s):** Eight studies fulfilled our inclusion criteria, of which seven were randomised controlled trials and all of them had an active control group. The studies included were published from 2006 to 2021. Three studies recruited patients with diverse diagnoses, four articles included patients diagnosed with coronary artery disease, and one study with heart failure. Five studies performed supervised training sessions. The type of VR varied between studies: four of them used Oculus glasses or 3D constructed reality in screens, three used a game console, and one combined several devices. The mean intervention length was 17 weeks and six studies performed less than four training sessions a week. There was a non-significant increase in the distance covered in the 6MWT in favour of the experimental groups compared to the control groups (MD = 13,89 m [95% confidence interval -18,01 to 45,79]). Moreover, there was no intervention effect on symptoms of depression (SMD = -0,21 [95% confidence interval = -0,56 - 0,13]). **Conclusion(s):** Exergaming is feasible in patients with cardiovascular disease. However, the effects of adding VR to improve functional capacity and symptoms of depression are questionable . Future research is needed to clarify the role of exergaming in CR. (Figure Presented).

DOI: https://libkey.io/10.1093/eurjpc/zwac056.163

6. **Pediatric cardiac arrest: A story of hypothermia, transport, and 300 minutes of cpr**

Item Type: Conference Proceeding

Authors: Brigham, E., Grindy, A., Levin, A., Stockwell, D. and Noje, C.

Publication Date: 2022

Publication Details: Critical Care Medicine. Conference: 51st Society of Critical Care Medicine Critical Care Congress, SCCM 2022. San Juan Puerto Rico. 50(1 SUPPL) (pp 698); Lippincott Williams and Wilkins,

Abstract: INTRODUCTION: Less than 10% of children survive out-ofhospital cardiac arrest (OHCA), often with poor neurologic outcomes. Neurologically favorable survival has been reported after hypothermic OHCA from cold water submersion and environmental exposures. Prolonged resuscitations are rarely successful outside of this setting and transport options are poorly described. DESCRIPTION: A 40 kg 14 year-old male was found cold and unresponsive by his father, who initiated cardiopulmonary resuscitation (CPR). EMS continued CPR en route to the nearest hospital where he was found to be 23degreeC. No environmental exposure explained his hypothermia. The underlying rhythm was ventricular fibrillation. He remained in cardiac arrest despite multiple defibrillations, but with CPR had intermittent movements, so transfer was requested to a pediatric center 75 miles away. CPR was continued with a LUCAS device during ground and air transport. On arrival, CPR had been ongoing 3 hours, his temperature was 31degreeC, and rhythm was asystole. Lack of explanation for his hypothermia raised concern for a prolonged downtime and poor prognosis. However, he demonstrated intermittent eye opening and upper extremity movements, prompting extracorporeal life support initiation. In total, he received nearly 5 hours of continuous CPR. He was rewarmed slowly and decannulated on hospital day 3 after recovery of cardiac function. He was extubated on day 6 and renal replacement therapy was discontinued on day 9. His mental status returned to pre-arrest baseline with new lower extremity paralysis. MRI revealed a T10 spinal infarct. Despite extensive work-up, no etiology was found for his profound hypothermia. After prophylactic placement of a LifeVest defibrillator, he was discharged to inpatient rehabilitation where he has recovered some lower extremity movement. DISCUSSION: Pediatric hypothermic OHCA has the potential for favorable neurologic outcomes with delivery of high-quality CPR and access to extracorporeal support. The feasibility of prolonged, high-quality manual CPR in transport has not been established; while mechanical CPR devices are not approved for children, this case supports their use in adult-size patients thought to benefit from lengthy transports.

DOI: https://libkey.io/10.1097/01.ccm.0000811896.56794.19

7. **Heart failure decompensation alerts in a patient's home using an automated, AI-driven, point-ofcare device**

Item Type: Journal Article

Authors: Chausiaux, Oriane Elisabeth;Keyser, Melanie;Williams, Gareth Paul;Nieznański, Michał;Downer, Philip James;Garnett, Rebecca Ellen;Berry, Rhiannon and Godfrey Husheer, Shamus Louis

Publication Date: 2022

Journal: BMJ Case Reports 15(4), pp. 1-5

Abstract: Heart failure (HF) is a major challenge worldwide and needs continuous monitoring of patients even after hospital discharge. This case report summarises the data collected and experience gained from the first usage of an automated, point-of-care device (Heartfelt device) in a patient's home in the UK. The device monitors the onset of peripheral oedema and alerts clinicians if an increase in volume outside an expected normal range for the patient is detected. This may provide a reliable method of remotely and automatically monitoring HF patients in the home for those who do not reliably use weighing scales. The device successfully provided data for about 15 months and generated alerts in advance, which supported decisions for the patient's care. The rate of data acquisition was very high and consistent throughout this period. The patient was satisfied with the device and agreed that it helped in her decision to seek medical attention.

DOI: https://libkey.io/10.1136/bcr-2021-248682

8. **Impact of a sleep promotion protocol on off-pump coronary artery bypass graft patients**

Item Type: Journal Article

Authors: Chen, Lin;Zheng, Jing;Lv, Shanshan;Li, Baobao and Yang, Lijuan

Publication Date: 2022

Journal: Nursing in Critical Care 27(2), pp. 214-222

Abstract: Background: Sleep abnormalities frequently occur in intensive care unit (ICU) patients, and the consequences of sleep abnormalities in patients who undergo off-pump coronary artery bypass graft (OPCABG) surgery are particularly significant. Although many interventions have been reported to improve sleep, few sleep promotion protocols have been designed specifically for patients in cardiac ICUs. **Aims and objectives:** This study aimed to explore the effects of an evidence-based sleep promotion protocol on patients who underwent OPCABG in a cardiac ICU. Design: A quasi-experimental study was conducted in a comprehensive hospital in Shandong province of China. **Methods**: Overall, 67 participants were recruited (37 in the control group and 30 in the intervention group). An evidence-based sleep promotion protocol was developed by a 10-member interprofessional collaborative team and then applied. Sound levels, light intensity, and the number of nocturnal interventions were compared between groups. The Chinese version of the Richards−Campbell Sleep Questionnaire (RCSQ) was used to compare intergroup sleep status on two consecutive postoperative nights. **Results:** No significant differences were found for demographics or disease severity between the groups. In the intervention group, sound levels and light intensity were significantly lower at various times, and nocturnal interventions were significantly less frequent over the two consecutive nights. RCSQ scores were significantly higher in the intervention group for both nights. **Conclusions:** The sleep promotion protocol reduced sound levels, night-time light intensity, the number of nocturnal interventions, and improved sleep among OPCABG patients in a cardiac ICU. Relevance to clinical practice: Evidence-based practice can help to promote good quality of care, improve patient outcomes, and advance nursing in clinical settings.

DOI: https://libkey.io/10.1111/nicc.12637

9. **Economic Outcomes of Rehabilitation Therapy in Older Patients with Acute Heart Failure in the REHAB-HF Trial: A Secondary Analysis of a Randomized Clinical Trial.**

Item Type: Journal Article

Authors: Chew, D. S.;Li, Y.;Zeitouni, M.;Whellan, D. J.;Kitzman, D.;Mentz, R. J.;Duncan, P.;Pastva, A. M.;Reeves, G. R.;Nelson, M. B.;Chen, H. and Reed, S. D.

Publication Date: 2022

Journal: JAMA Cardiology 7(2), pp. 140-148

Abstract: Importance: In the Rehabilitation Therapy in Older Acute Heart Failure Patients (REHAB-HF) trial, a novel 12-week rehabilitation intervention demonstrated significant improvements in validated measures of physical function, quality of life, and depression, but no significant reductions in rehospitalizations or mortality compared with a control condition during the 6-month follow up. The economic implications of these results

are important given the increasing pressures for cost containment in health care. **Objective(s):** To report the economic outcomes of the REHAB-HF trial and estimate the potential cost-effectiveness of the intervention. **Design, Setting, Participants:** The multicenter REHAB-HF trial randomized 349 patients 60 years or older who were hospitalized for acute decompensated heart failure to rehabilitation intervention or a control group; patients were enrolled from September 17, 2014, through September 19, 2019. For this preplanned secondary analysis of the economic outcomes, data on medical resource use and quality of life (via the 5-level EuroQol 5-Dimension scores converted to health utilities) were collected. Medical resource use and medication costs were estimated using 2019 US Medicare payments and the Federal Supply Schedule, respectively. Cost-effectiveness was estimated using the validated Tools for Economic Analysis of Patient Management Interventions in Heart Failure Cost-Effectiveness Model, which uses an individual-patient simulation model informed by the prospectively collected trial data. Data were analyzed from March 24, 2019, to December 1, 2020. **Intervention(s):** Rehabilitation intervention or control. **Main Outcomes and Measures:** Costs, quality-adjusted life-years (QALYs), and the lifetime estimated cost per QALY gained (incremental cost-effectiveness ratio). **Result(s):** Among the 349 patients included in the analysis (183 women [52.4%]; mean [SD] age, 72.7 [8.1] years; 176 non-White [50.4%] and 173 White [49.6%]), mean (SD) cumulative costs per patient were $26421 ($38955) in the intervention group (excluding intervention costs) and $27650 ($30712) in the control group (difference,-$1229; 95% CI,-$8159 to $6394; P =.80). The mean (SD) cost of the intervention was $4204 ($2059). Quality of life gains were significantly greater in the intervention vs control group during 6 months (mean utility difference, 0.074; P =.001) and sustained beyond the 12-week intervention. Incremental cost-effectiveness ratios were estimated at $58409 and $35600 per QALY gained for the full cohort and in patients with preserved ejection fraction, respectively. **Conclusions and Relevance:** These analyses suggest that longer-term benefits of this novel rehabilitation intervention, particularly in the subgroup of patients with preserved ejection fraction, may yield good value to the health care system. However, long-term cost-effectiveness is currently uncertain and dependent on the assumption that benefits are sustained beyond study follow-up, which needs to be corroborated in future trials in this patient population.

DOI: https://libkey.io/10.1001/jamacardio.2021.4836

10. **Perioperative risk factors for new-onset postoperative atrial fibrillation among patients after isolated coronary artery bypass grafting: A retrospective study**

Item Type: Journal Article

Authors: Choi, Hong-Jae;Seo, Eun Ji;Choi, Jae-Sung;Oh, Se Jin and Son, Youn-Jung

Publication Date: 2022

Journal: Journal of Advanced Nursing (John Wiley & Sons, Inc.) 78(5), pp. 1317-1326

Abstract: Aims: Incidence of atrial fibrillation is considerably high after open heart surgery, which may prolong hospitalization and increase mortality. The aim of the present study is to investigate the perioperative risk factors for the occurrence of new-onset atrial fibrillation following isolated coronary artery bypass grafting. **Design:** A retrospective study. **Methods:** A total of 327 Korean patients recorded to have undergone first-time isolated coronary artery bypass grafting and no preoperative history of atrial fibrillation were included. The data were obtained from electronic health record from January 2010 to December 2019 at a tertiary care hospital. Predictors of new-onset atrial fibrillation after the surgery were identified by multivariate logistic regression analysis. **Results:** The incidence rate of new-onset atrial fibrillation after coronary artery bypass grafting was approximately 28.4%, and the highest occurrence rate was 44.1% on postoperative day 2. Our

main finding showed that advanced age was the strongest predictor of atrial fibrillation after coronary artery bypass grafting. In addition, history of stroke and depression, chronic obstructive pulmonary disease and intraoperative use of intra-aortic balloon pump were shown to be the risk factors. **Conclusion**: Our findings showed that approximately 28% patients had new-onset atrial fibrillation after the surgery. Healthcare professionals should proactively assess risk factors for postoperative atrial fibrillation and focus more on older adults with pre-existing comorbidities, such as stroke, depression and chronic obstructive pulmonary disease. Impact: Older adults with history of stroke, depression and comorbid chronic obstructive pulmonary disease should be carefully monitored closely during perioperative period. The study highlights that early assessment of new-onset postoperative atrial fibrillation can contribute to promote the quality of nursing care and frontline nurses may be a vital role in timely detection of atrial fibrillation after surgery. Prospective studies are required to identify the mechanisms connecting perioperative risk factors for atrial fibrillation after cardiac surgery.

DOI: https://libkey.io/10.1111/jan.15045

11. **Prevalence and Outcomes of Patients without Standard Modifiable Risk Factors Following Acute Coronary Syndrome: a Systematic Review and Meta-Analysis**

Item Type: Conference Proceeding

Authors: Chong, B., Goh, R., Kong, G., Ng, C.H., Foo, R.S.Y., Low, A., Lee, C.H., Chan, M.Y.Y., Tan, H.C., Loh, P.H. and Chew, N.

Publication Date: 2022

Publication Details: Journal of the American College of Cardiology. Conference: ACC 22. Washington, DC United States. 79(9 Supplement) (pp 1092); Elsevier Inc.,

Abstract: Background: In cardiovascular disease, prevention strategies have been useful in treating patients with standard modifiable risk factors (SMuRFs), defined as the presence of diabetes mellitus, hypercholesterolemia, hypertension and smoking. SMuRF-less patients are often underrepresented in clinical trials and the outcomes and management of these patients are not well known. **Methods:** A search was conducted on Embase and Medline for studies comparing prevalence or outcomes of SMuRF-less and SMuRFs patients. Prevalence data was analysed based on the type of ACS (ST-segment elevation myocardial infarction [STEMI] or non-STEMI [NSTEMI]), geographical location, and the country's income level. Primary endpoints include all-cause mortality, in-hospital mortality, and cardiovascular mortality. Secondary endpoints include cardiac arrest, cardiogenic shock, heart failure, major bleeding, myocardial infarction, and stroke. **Results:** A total of 9 studies involving 289,723 ACS patients were included, of which 42,246 (14.6%) were SMuRF-less. The prevalence of SMuRF-less patients with ACS differs across geographical regions, with Australia having the highest prevalence at 21.54% (95%-CI: 19.33-23.93) and Asia with the lowest prevalence at 8.59% (95%-CI: 8.02-9.20). No significant difference in prevalence was found between high income and upper middle-income countries. SMuRF-less patients had higher risk of all-cause mortality (RR 1.46, 95% CI: 1.33-1.60), in-hospital mortality (RR 1.56, 95% CI: 1.29-1.88), cardiovascular mortality (RR 1.76, 95% CI: 1.40-2.20), and cardiac arrest (RR 1.51, 95% CI: 1.02-2.23). Conversely, SMuRF-less patients had a lower risk of heart failure (RR 0.85, 95% CI: 0.76-0.96). **Conclusion:** Seemingly low-risk SMuRF-less patients could paradoxically have an increased risk of mortality and poorer prognosis after an ACS event. This highlights the need for evidence-based treatment post ACS regardless of perceived low risk. Additionally, future research could also explore new markers and mechanisms for early identification of SMuRF-less patients at increased risk of ACS or to develop new targeted management options to improve post-ACS outcomes.Copyright © 2022 American College of Cardiology Foundation

DOI: https://libkey.io/10.1016/S0735-1097%2822%2902083-6

12. **Effect of a backboard on chest compression quality during in-hospital adult cardiopulmonary resuscitation: A randomised, single-blind, controlled trial using a manikin model**

Item Type: Journal Article

Authors: Cuvelier, Zara;Houthoofdt, Ruben;Serraes, Brecht;Haentjens, Carl;Blot, Stijn and Mpotos, Nicolas

Publication Date: 2022

Journal: Intensive & Critical Care Nursing 69, pp. N.PAG

Abstract: Chest compression quality during in-hospital resuscitation is often suboptimal on a soft surface. Scientific evidence regarding the effectiveness of a backboard is scarce. This single-blinded manikin study evaluated the effect of a backboard on compression depth, rate and chest recoil performed by nurses. Sex, BMI, age and clinical department were considered as potential predictors. Using self-learning, nurses were retrained to achieve a minimal combined compression score at baseline. This combined score consisted of ≥70% compressions with depth 50–60 mm, ≥70% compressions with complete release (≤5mm) and a mean compression rate of 100–120 bpm. Subsequently, nurses were allocated to a backboard or control group and performed a two-minute cardiopulmonary resuscitation test. The main outcome measure was the difference in proportion of participants achieving a combined compression score of ≥70%. In total 278 nurses were retrained, 158 nurses dropped out and 120 were allocated to the backboard (n = 61) or control group (n = 59). The proportion of participants achieving a combined compression score of ≥70% was not significantly different (p = 0.475) and suboptimal in both groups: backboard group 47.5% (backboard) versus 41.0% (control). Older age (≥51 years) was associated with a lower probability of achieving a combined compression score >70% OR = 0.133; 95% confidence interval (CI), 0.037–0.479; p = 0.002]. Using a backboard did not significantly improve compression quality in our study. Important decay of compression skills was observed in both groups, highlighting the importance of frequent retraining, particularly in some age groups.

DOI: https://libkey.io/10.1016/j.iccn.2021.103164

13. **A randomized controlled clinical trial of cardiac telerehabilitation with a prolonged mobile care monitoring strategy after an acute coronary syndrome.**

Item Type: Journal Article

Authors: Dalli Peydro, E.;Sanz Sevilla, N.;Tuzon Segarra, M. T.;Miro Palau, V.;Sanchez Torrijos, J. and Cosin Sales, J.

Publication Date: 2022

Journal: Clinical Cardiology 45(1), pp. 31-41

Abstract: Background: Center-based cardiac rehabilitation (CBCR) improves health outcomes but has some limitations. We designed and validated a telerehabilitation system to overcome these barriers. **Method(s):** We included 67 low-risk acute coronary syndrome patients in a randomized controlled trial allocated 1:1 to a 10-month cardiac telerehabilitation (CTR) program or an 8-week CBCR program. Patients underwent

ergospirometry, blood tests, anthropometric measurements, IPAQ, PREDIMED, HADS, and EQ-5D questionnaires at baseline and 10 months. Data collectors were blinded to the treatment groups. **Result(s):** The intention-to-treat analysis included 31 patients in the CTR group and 28 patients in the CBCR group. The primary outcome showed increased physical activity according to the IPAQ survey in the CTR group compared to the CBCR group (median increase 1726 METS-min/week vs. 636, p =.045). Mean VO2max increased 1.62 ml/(kg min) (95% confidence interval [CI]: 0.56-2.69, p **Result(s):** The intention-to-treat analysis included 31 patients in the CTR group and 28 patients in the CBCR group. The primary outcome showed increased physical activity according to the IPAQ survey in the CTR group compared to the CBCR group (median increase 1726 METS-min/week vs. 636, p =.045). Mean VO2max increased 1.62 ml/(kg min) (95% confidence interval [CI]: 0.56-2.69, p **Conclusion(s):** This system allows minimal in-hospital training and prolonged follow-up. This strategy showed better results than CBCR.

DOI: https://libkey.io/10.1002/clc.23757

14. **The evolution of cardiopulmonary resuscitation: Global productivity and publication trends**

Item Type: Journal Article

Authors: Danış, Faruk and Kudu, Emre

Publication Date: 2022

Journal: American Journal of Emergency Medicine 54, pp. 151-164

Abstract: Background/objective: There is still no comprehensive bibliometric study in the literature on cardiopulmonary resuscitation (CPR), an important topic in emergency medicine, the number of global studies on which is increasing day by day. In this study, it was aimed to analyze the scientific articles on CPR published between 1980 and 2020 by statistical methods and to evaluate the subject holistically. **Methods:** Articles on CPR published between 1980 and 2020 were downloaded from the Web of Science (WoS) database and analyzed using statistical methods. Network visualization maps were used to identify trending topics. Nonlinear regression analysis (exponential model) was used to estimate the number of articles in the coming years. Correlation studies were conducted using the Spearman correlation coefficient. **Results:** A total of 21,623 publications were found. Of these publications, 14,818 (68.5%) were articles. The top 3 contributing countries to the literature were the United States (5281, 35.6%), Germany (1458, 9.8%), and the United Kingdom (1152, 7.7%). The 3 most active institutions were the University of Washington (417), University of Pittsburgh (361), and University of Arizona (240). The 3 journals with the most publications were Resuscitation (2822), Critical Care Medicine (522), and the American Journal of Emergency Medicine (421). **Conclusion:** In this comprehensive study, a summary of 14,818 articles was presented. The trending topics in CPR research in recent years are out-of-hospital cardiac arrest, extracorporeal membrane oxygenation, cardio, simulation, in-hospital cardiac arrest, extracorporeal life support, extracorporeal cardiopulmonary resuscitation, targeted management temperature, and outcome. This article may be a useful resource on CPR global outcomes for clinicians and scientists.

DOI: https://libkey.io/10.1016/j.ajem.2022.01.071

15. **The effects of early rehabilitation on functional exercise tolerance in decompensated heart failure patients: Results of a multicenter randomized controlled trial (ERIC-HF study).**

Item Type: Journal Article

Authors: Delgado, B.;Novo, A.;Lopes, I.;Rebelo, C.;Almeida, C.;Pestana, S.;Gomes, B.;Froelicher, E. and Klompstra, L.

Publication Date: 2022

Journal: Clinical Rehabilitation 36(6), pp. 813-821

Abstract: OBJECTIVE: To analyze (1) the effect of an aerobic training program on functional exercise tolerance in decompensated heart failure (DHF) patients; (2) to assess the effects of an aerobic training program on functional independence; and (3) dyspnea during activities of daily living. DESIGN: A randomized controlled clinical trial with follow-up at discharge. SETTINGS: Eight hospitals. Recruitment took place between 9/ 2017 and 3/2019. GROUP ASSIGNMENTS: Patients with DHF who were admitted to the hospital, were randomly assigned to usual rehabilitation care guideline recommended (control group) or aerobic training program (exercise group). MAIN OUTCOME: Functional exercise tolerance was measured with a 6-min walking test at discharge. RESULT(S): In total 257 patients with DHF were included, with a mean age of 67+/-11 years, 84% (n=205) had a reduced ejection fraction and the hospital stay was 16+/-10 days. At discharge, patients in the intervention group walked further compared to the control group (278+/-117m vs 219+/-115m, pRESULT(S): In total 257 patients with DHF were included, with a mean age of 67+/-11 years, 84% (n=205) had a reduced ejection fraction and the hospital stay was 16+/-10 days. At discharge, patients in the intervention group walked further compared to the control group (278+/-117m vs 219+/-115m, pRESULT(S): In total 257 patients with DHF were included, with a mean age of 67+/-11 years, 84% (n=205) had a reduced ejection fraction and the hospital stay was 16+/-10 days. At discharge, patients in the intervention group walked further compared to the control group (278+/-117m vs 219+/-115m, pRESULT(S): In total 257 patients with DHF were included, with a mean age of 67+/-11 years, 84% (n=205) had a reduced ejection fraction and the hospital stay was 16+/-10 days. At discharge, patients in the intervention group walked further compared to the control group (278+/-117m vs 219+/-115m, pRESULT(S): In total 257 patients with DHF were included, with a mean age of 67+/-11 years, 84% (n=205) had a reduced ejection fraction and the hospital stay was 16+/-10 days. At discharge, patients in the intervention group walked further compared to the control group (278+/-117m vs 219+/-115m, pCONCLUSION(S): The ERIC-HF program is safe, feasible, and effective in increasing functional exercise tolerance and functional independence in hospitalized patients admitted due to DHF.

DOI: https://libkey.io/10.1177/02692155221088684

16. **Anticoagulants for thrombosis prophylaxis in acutely ill patients admitted to hospital: systematic review and network meta-analysis.**

Item Type: Journal Article

Authors: Eck, R. J.;Elling, T.;Sutton, A. J.;Wetterslev, J.;Gluud, C.;van der Horst, I. C. C.;Gans, R. O. B.;Meijer, K. and Keus, F.

Publication Date: 2022

Journal: BMJ (Clinical Research Ed.) 378, pp. e070022

Abstract: OBJECTIVE: To assess the benefits and harms of different types and doses of anticoagulant drugs for the prevention of venous thromboembolism in patients who are acutely ill and admitted to hospital. DESIGN: Systematic review and network meta-analysis. DATA SOURCES: Cochrane CENTRAL, PubMed/Medline, Embase, Web of Science, clinical trial registries, and national health authority databases. The search was last updated on 16 November 2021. ELIGIBILITY CRITERIA FOR SELECTING STUDIES: Published and unpublished randomised controlled trials that evaluated low or intermediate dose low-molecular-weight heparin, low or intermediate dose unfractionated heparin, direct oral anticoagulants, pentasaccharides, placebo, or no intervention for the prevention of venous thromboembolism in acutely ill adult patients in hospital. MAIN OUTCOME MEASURES: Random effects, bayesian network meta-analyses used four co-primary outcomes: all cause mortality, symptomatic venous thromboembolism, major bleeding, and serious adverse events at or closest timing to 90 days. Risk of bias was also assessed using the Cochrane risk-of-bias 2.0 tool. The quality of evidence was graded using the Confidence in Network Meta-Analysis framework. RESULT(S): 44 randomised controlled trials that randomly assigned 90095 participants were included in the main analysis. Evidence of low to moderate quality suggested none of the interventions reduced all cause mortality compared with placebo. Pentasaccharides (odds ratio 0.32, 95% credible interval 0.08 to 1.07), intermediate dose low-molecular-weight heparin (0.66, 0.46 to 0.93), direct oral anticoagulants (0.68, 0.33 to 1.34), and intermediate dose unfractionated heparin (0.71, 0.43 to 1.19) were most likely to reduce symptomatic venous thromboembolism (very low to low quality evidence). Intermediate dose unfractionated heparin (2.63, 1.00 to 6.21) and direct oral anticoagulants (2.31, 0.82 to 6.47) were most likely to increase major bleeding (low to moderate quality evidence). No conclusive differences were noted between interventions regarding serious adverse events (very low to low quality evidence). When compared with no intervention instead of placebo, all active interventions did more favourably with regard to risk of venous thromboembolism and mortality, and less favourably with regard to risk of major bleeding. The results were robust in prespecified sensitivity and subgroup analyses. CONCLUSION(S): Low-molecular-weight heparin in an intermediate dose appears to confer the best balance of benefits and harms for prevention of venous thromboembolism. Unfractionated heparin, in particular the intermediate dose, and direct oral anticoagulants had the least favourable profile. A systematic discrepancy was noted in intervention effects that depended on whether placebo or no intervention was the reference treatment. Main limitations of this study include the quality of the evidence, which was generally low to moderate due to imprecision and within-study bias, and statistical inconsistency, which was addressed post hoc. SYSTEMATIC REVIEW REGISTRATION: PROSPERO CRD42020173088.

DOI: https://libkey.io/10.1136/bmj-2022-070022

17. **Promoting nurse-led behaviour change interventions to prevent cardiovascular disease in disadvantaged communities: A scoping review.**

Item Type: Journal Article

Authors: Freeley, S.;Broughan, J.;McCombe, G.;Casey, M.;Fitzpatrick, P.;Frawley, T.;Morrisey, J.;Treanor, J. T.;Collins, T. and Cullen, W.

Publication Date: 2022

Journal: Health & Social Care in the Community (pagination), pp. ate of Pubaton: 13 Jun 2022

Abstract: Cardiovascular diseases (CVD) are the leading cause of death worldwide and they disproportionally affect people living in disadvantaged communities. Nurse-led behaviour change interventions have shown great promise in preventing CVD. However, knowledge regarding the impact and nature of such interventions in

disadvantaged communities is limited. This review aimed to address this knowledge gap. A six-stage scoping review framework developed by Arksey and O'Malley, with revisions by Levac et al., was used. The search process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses-Extension for Scoping Reviews (PRISMA-ScR). Three electronic databases were searched (PUBMED/MEDLINE, CINAHL Plus, and Cochrane CENTRAL), and included studies were analysed using Braun and Clarke's 'Thematic Analysis' approach. Initial searches yielded 952 papers and 30 studies were included in the review following duplicate, title/abstract, and full-text screening. The included studies indicate that nurse-led behaviour change primary prevention interventions in disadvantaged areas are largely effective; albeit the considerable variety of intervention approaches, study populations and outcome measures used to date make it difficult to ascertain this. Other identified key areas in the promotion of nurse-led behaviour change included tailoring interventions to specific populations, providing adequate training for nurses, overcoming patient access difficulties and encouraging patient engagement. Overall, the findings indicate that nurse-led behaviour change interventions for high-risk CVD patients in disadvantaged areas show much promise, although there is considerable variety in the interventions employed and studied to date. Further research is needed to examine the unique barriers and facilitators of interventions for specific disadvantaged groups.

DOI: https://libkey.io/10.1111/hsc.13867

18. **Distress among hospitalized patients with acute coronary syndrome**

Item Type: Journal Article

Authors: Ganz, Freda DeKeyser;Raanan, Ofra;Shafir, Gennady;Levy, Dassy;Klempfner, Robert;Beigel, Roy and Iakobishvili, Zaza

Publication Date: 2022

Journal: Nursing in Critical Care 27(2), pp. 165-171

Abstract: Background: Previous studies have demonstrated that those suffering from acute coronary syndrome (ACS) experience various physical and psychological symptoms. Few studies have investigated the multi-factorial, holistic, unpleasant experience of distress that includes physical, psychological, social, and spiritual factors among this patient population while still hospitalized. **Aim:** To describe the level of distress among patients hospitalized with ACS and its association with demographic and clinical factors and mortality. Study Design: The study conducted a descriptive, cross-sectional survey. **Methods:** The Acute Coronary Syndrome Israel Study is a national, biennial registry, enrolling all patients with ACS admitted to cardiac intensive care or cardiology wards in Israel within a 2-month period. Demographic and clinical data were retrieved from an electronic database. Distress was measured by the Distress Thermometer. Nurses collected distress data directly from patients before discharge. **Results:** Nine hundred ninety participants (50.6% response rate) were surveyed. Mean age was 62.8 (SD = 12.5). Mean distress level was 4.8 (SD = 3.45) out of 10. The most frequently reported area of distress was physical, followed by emotional. Practical and family problems were less frequent. Emotional distress was found to differ based on educational level, marital status, smoking history, and previous medical history. Distress did not predict 7- or 30-day mortality. **Conclusions:** Respondents with ACS were in moderate distress. It is recommended that those at increased risk receive increased monitoring of emotional distress while still in hospital. Further studies should investigate this holistic view of distress among the ACS population using a variety of methods and methodologies.

DOI: https://libkey.io/10.1111/nicc.12730

19. **Convince: Colchicine for the Prevention of Vascular Inflammation**

Item Type: Conference Proceeding

Authors: Gorey, S., Price, C., Lemmens, R., Weimar, C., Purroy, F., Aziz, A., Czlonkowska, A., Devroye, A., Fischer, U., Forshaw, D., Fonseca, A.C., Hill, M.D., Horgan, G., Jatuzis, D., Korv, J., Kruuse, C., Lynch, C., Mikulik, R., Murphy, S., Nederkoorn, P.J., Schroder, B., Tobin, K. and Kelly, P.J.
Non-Cardioembolic Stroke - a Randomised Controlled Trial

Publication Date: 2022

Publication Details: European Stroke Journal. Conference: 8th European Stroke Organisation Conference. Lyon France. 7(1 SUPPL) (pp 161); SAGE Publications Ltd,

Abstract: Background and aims: Stroke is a leading cause of death, disability, and dementia. Recurrent stroke and vascular events occur in about 30% of patients at 5 years, despite advances in medical therapies. Inflammation is an important contributor to residual risk, and randomised trials have shown benefit of anti-inflammatory agents in coronary disease. CONVINCE is investigating if the pleiotropic anti-inflammatory agent colchicine prevents recurrent vascular events after stroke. **Method(s):** CONVINCE is a prospective open-label blinded endpointassessed randomised clinical trial, randomising patients with non-severe non-cardioembolic stroke or high-risk TIA to guideline-based usual care or colchicine 0.5mcg once-daily in addition to usual care. Participants are followed for a median of 36 months. The primary outcome is a composite of non-fatal recurrent ischaemic stroke, myocardial infarction, non-fatal cardiac arrest, hospitalisation for unstable angina or vascular death. **Result(s):** CONVINCE began recruiting in December 2016 and 2,575 participants have been recruited across 152 sites in 14 countries in Europe and Canada. The target sample size is 3,154, based on a 26% effect size, corresponding to an absolute event rate reduction from 13.5% to 9.99% (80% power, alpha 0.05). Recruitment will complete in mid-2022 and follow-up in December 2023. No excess Serious Adverse Events attributable to colchicine has been observed. Interim clinical characteristics of trial participants, pooled by treatment allocation, will be presented. **Conclusion(s):** CONVINCE will provide high-quality randomised evidence about the benefit and safety of addition of low-dose colchicine to guideline-based usual care to prevent recurrent stroke and major vascular events after non-severe, non-cardioembolic ischaemic stroke.

DOI: https://libkey.io/10.1177/23969873221087559

20. **Objective risk assessment vs standard care for acute coronary syndromes-The Australian GRACE Risk tool Implementation Study (AGRIS): a process evaluation**

Item Type: Journal Article

Authors: Gullick, Janice;Wu, John;Chew, Derek;Gale, Chris;Yan, Andrew T.;Goodman, Shaun G.;Waters, Donna;Hyun, Karice and Brieger, David

Publication Date: 2022

Journal: BMC Health Services Research 22(1), pp. 1-13

Abstract: Background: Structured risk-stratification to guide clinician assessment and engagement with

evidence-based therapies may reduce care variance and improve patient outcomes for Acute Coronary Syndrome (ACS). The Australian Grace Risk score Intervention Study (AGRIS) explored the impact of the GRACE Risk Tool for stratification of ischaemic and bleeding risk in ACS. While hospitals in the active arm had a higher overall rate of invasive ACS management, there was neutral impact on important secondary prevention prescriptions/referrals, hospital performance measures, myocardial infarction and 12-month mortality leading to early trial cessation. Given the Grace Risk Tool is under investigation internationally, this process evaluation study provides important insights into the possible contribution of implementation fidelity on the AGRIS study findings. **Methods:** Using maximum variation sampling, five hospitals were selected from the 12 centres enrolled in the active arm of AGRIS. From these facilities, 16 local implementation stakeholders (Cardiology advanced practice nurses, junior and senior doctors, study coordinators) consented to a semi-structured interview guided by the Theoretical Domains Framework. Directed Content Analysis of qualitative data was structured using the Capability/Opportunity/Motivation-Behaviour (COM-B) model. **Results:** Physical capability was enhanced by tool usability. While local stakeholders supported educating frontline clinicians, non-cardiology clinicians struggled with specialist terminology. Physical opportunity was enhanced by the paper-based format but was hampered when busy clinicians viewed risk-stratification as one more thing to do, or when form visibility was neglected. Social opportunity was supported by a culture of research/evidence yet challenged by clinical workflow and rotating medical officers. Automatic motivation was strengthened by positive reinforcement. Reflective motivation revealed the GRACE Risk Tool as supporting but potentially overriding clinical judgment. Divergent professional roles and identity were a major barrier to integration of risk-stratification into routine Emergency Department practice. The cumulative result revealed poor form completion behaviors and a failure to embed risk-stratification into routine patient assessment, communication, documentation, and clinical practice behaviors. **Conclusions:** Numerous factors negatively influenced AGRIS implementation fidelity. Given the prominence of risk assessment recommendations in United States, European and Australian guidelines, strategies that strengthen collaboration with Emergency Departments and integrate automated processes for risk-stratification may improve future translation internationally.

DOI: https://libkey.io/10.1186/s12913-022-07750-8

21. **Optimal effectiveness of heart failure management - an umbrella review of meta-analyses examining the effectiveness of interventions to reduce (re)hospitalizations in heart failure.**

Item Type: Journal Article

Authors: Hafkamp, F. J.;Tio, R. A.;Otterspoor, L. C.;de Greef, T.;van Steenbergen, G. J.;van de Ven, A. R. T.;Smits, G.;Post, H. and van Veghel, D.

Publication Date: 2022

Journal: Heart Failure Reviews (pagination), pp. ate of Pubaton: 2022

Abstract: Heart failure (HF) is a major health concern, which accounts for 1-2% of all hospital admissions. Nevertheless, there remains a knowledge gap concerning which interventions contribute to effective prevention of HF (re)hospitalization. Therefore, this umbrella review aims to systematically review meta-analyses that examined the effectiveness of interventions in reducing HF-related (re)hospitalization in HFrEF patients. An electronic literature search was performed in PubMed, Web of Science, PsycInfo, Cochrane Reviews, CINAHL, and Medline to identify eligible studies published in the English language in the past 10 years. Primarily, to synthesize the meta-analyzed data, a best-evidence synthesis was used in which meta-analyses were classified based on level of validity. Secondarily, all unique RCTS were extracted from the meta-analyses

and examined. A total of 44 meta-analyses were included which encompassed 186 unique RCTs. Strong or moderate evidence suggested that catheter ablation, cardiac resynchronization therapy, cardiac rehabilitation, telemonitoring, and RAAS inhibitors could reduce (re)hospitalization. Additionally, limited evidence suggested that multidisciplinary clinic or self-management promotion programs, beta-blockers, statins, and mitral valve therapy could reduce HF hospitalization. No, or conflicting evidence was found for the effects of cell therapy or anticoagulation. This umbrella review highlights different levels of evidence regarding the effectiveness of several interventions in reducing HF-related (re)hospitalization in HFrEF patients. It could guide future guideline development in optimizing care pathways for heart failure patients.

DOI: https://libkey.io/10.1007/s10741-021-10212-8

22. **Implementation of a Nurse-Driven Spontaneous Awakening Trial Protocol in a Cardiac Intensive Care Unit**

Item Type: Journal Article

Authors: Ketcham, Scott W.;Adie, Sarah K.;Brummel, Kent;Walker, Emily;Prescott, Hallie C. and Thomas, Michael P.

Publication Date: 2022

Journal: Critical Care Nurse 42(2), pp. 56-61

Abstract: Background: In patients receiving mechanical ventilation, spontaneous awakening trials reduce morbidity and mortality when paired with spontaneous breathing trials. However, spontaneous awakening trials are not performed every day they are indicated and little is known about spontaneous awakening trial protocol use in cardiac intensive care units. **Local Problem:** Spontaneous awakening trial completion rate at the study institution was low and no trial protocol was regularly used. **Methods:** A preintervention-postintervention retrospective cohort study was performed in adult patients with at least 24 hours of invasive mechanical ventilation in Michigan Medicine's cardiac intensive care unit. Patients with SARS-CoV-2 infection were excluded. Data included demographics, sedation, mechanical ventilation duration, and in-hospital mortality. A nurse-driven spontaneous awakening trial protocol modified for the cardiac intensive care unit was implemented in October 2020. **Results:** Compared with the preintervention cohort (n = 29, May through July 2020), the postintervention cohort (n = 27, October 2020 through February 2021) had a higher ratio of number of trials performed to number of days eligible for trial (0.91 vs 0.52; P <.01). Median continuous sedative infusion duration was shorter after intervention (2.3 vs 3.6 days; P =.02). Median mechanical ventilation duration (3.8 vs 4.7 days; P =.18) and mortality (41% vs 41%; P =.95) were similar between groups. **Conclusions:** Spontaneous awakening trial protocol implementation led to a higher trial completion rate and a shorter duration of continuous sedative infusion. Larger studies are needed to assess the impact of protocolized spontaneous awakening trials on cardiac intensive care unit patient outcomes.

DOI: https://libkey.io/10.4037/ccn2022114

23. **Cardiovascular risk factors early in the course of treatment in people with type 2 diabetes without established cardiovascular disease: A population-based observational retrospective cohort study**

Item Type: Journal Article

Authors: Khunti, Kamlesh;Hertz, Christin L.;Husemoen, Lise Lotte N.;Mocevic, Emina;Nordsborg, Rikke B.;Piltoft,

Johanne S. and Bain, Stephen C.

Publication Date: 2022

Journal: Diabetic Medicine 39(3), pp. 1-12

Abstract: Aims: To characterise the cardiovascular risk of people with type 2 diabetes without established cardiovascular disease but with risk factors, relative to those with established cardiovascular disease, to provide information on which patients could benefit from early use of glucose-lowering therapies that also reduce cardiovascular risk. **Methods:** Data from people with type 2 diabetes initiating second-line glucose-lowering medication were retrieved from the UK Clinical Practice Research Datalink GOLD database and linked with Hospital Episode Statistics and Office for National Statistics (2001-2016). Cox proportional hazards models were used to estimate relative risks of major adverse cardiovascular events within groups defined by the presence of selected risk factors in people without versus with established cardiovascular disease. **Results:** Of 53,182 individuals, 19.4% had established cardiovascular disease (i.e. a prior cardiovascular event). Over 5-7 years' follow-up, the rate of major adverse cardiovascular events was 14.0 and 49.6 events/1000 person-years without and with established cardiovascular disease, respectively (hazard ratio HR] 0.28, 95% confidence interval CI] 0.26, 0.29). Compared with a reference HR 1.0 for participants with established cardiovascular disease, estimated glomerular filtration rate <60 mL/min was the single factor associated with the highest risk of major adverse cardiovascular events (HR 0.75, 95% CI 0.70, 0.81) and mortality (HR 1.12, 95% CI 1.07, 1.18) in people with type 2 diabetes without established cardiovascular disease. The combination of chronic kidney disease with older age, smoking and/or dyslipidaemia was associated with a similarly high risk of cardiovascular events in people with type 2 diabetes and without cardiovascular disease compared with those having established cardiovascular disease. **Conclusions:** These analyses provide important information to identify people who may benefit from primary prevention of cardiovascular disease. Modifiable cardiovascular risk factors should be controlled early in all individuals with type 2 diabetes (as well as in all individuals with cardiovascular disease).

DOI: https://libkey.io/10.1111/dme.14697

24. **Rehabilitation using virtual gaming for Hospital and hOMe-Based training for the Upper limb post Stroke (RHOMBUS II): protocol of a feasibility randomised controlled trial.**

Item Type: Journal Article

Authors: Kilbride, C.;Warland, A.;Stewart, V.;Aweid, B.;Samiyappan, A.;Ryan, J.;Butcher, T.;Athanasiou, D. A.;Baker, K.;SinglaBuxarrais, G.;Anokye, N.;Pound, C.;Gowing, F. and Norris, M.

Publication Date: 2022

Journal: BMJ Open 12(6) (pagination), pp. Arte Number: e058905. ate of Pubaton: 07 Jun 2022

Abstract: Introduction Upper limb (UL) rehabilitation is most effective early after stroke, with higher doses leading to improved outcomes. For the stroke survivor, the repetition may be monotonous. For clinicians, providing a clinically meaningful level of input can be challenging. As such, time spent engaged in UL activity among subacute stroke survivors remains inadequate. Opportunities for the stroke survivor to engage with UL rehabilitation in a safe, accessible and engaging way are essential to improving UL outcomes following stroke. The NeuroBall is a non-immersive virtual reality (VR) digital system designed for stroke rehabilitation, specifically for the arm and hand. The aim of the Rehabilitation using virtual gaming for Hospital and hOMe-

Based training for the Upper limb post Stroke study is to determine the safety, feasibility and acceptability of the NeuroBall as a rehabilitation intervention for the UL in subacute stroke. Methods and analysis A feasibility randomised controlled trial (RCT) will compare the NeuroBall plus usual care with usual care only, in supporting UL rehabilitation over 7 weeks. Twenty-four participants in the subacute poststroke phase will be recruited while on the inpatient or early supported discharge (ESD) stroke pathway. Sixteen participants will be randomised to the intervention group and eight to the control group. Outcomes assessed at baseline and 7 weeks include gross level of disability, arm function, spasticity, pain, fatigue and quality of life (QoL). Safety will be assessed by recording adverse events and using pain, spasticity and fatigue scores. A parallel process evaluation will assess feasibility and acceptability of the intervention. Feasibility will also be determined by assessing fidelity to the intervention. Postintervention, semistructured interviews will be used to explore acceptability with 12 participants from the intervention group, four from the usual care group and with up to nine staff involved in delivering the intervention. Ethics and dissemination This trial has ethical approval from Brunel University London's Research Ethics Committee 25257-NHS-Oct/2020-28121-2 and the Wales Research Ethics Committee 5 Bangor (Health and Care Research Wales) REC ref: 20/WA/0347. The study is sponsored by Brunel University London. Contact: Dr Derek Healy, Chair, University Research Ethics committee (Derek.healy@brunel.ac.uk). Trial results will be submitted for publication in peer-reviewed journals, presented at national and international conferences and distributed to people with stroke. Trial registration number ISRCTN11440079; Pre-results.

DOI: https://libkey.io/10.1136/bmjopen-2021-058905

25. **Effects of an outpatient intervention comprising nurse-led non-invasive assessments, telemedicine support and remote cardiologists' decisions in patients with heart failure (AMULET study): a randomised controlled trial.**

Item Type: Journal Article

Authors: Krzesinski, P.;Jankowska, E. A.;Siebert, J.;Galas, A.;Piotrowicz, K.;Stanczyk, A.;Siwolowski, P.;Gutknecht, P.;Chrom, P.;Murawski, P.;Walczak, A.;Szalewska, D.;Banasiak, W.;Ponikowski, P. and Gielerak, G.

Publication Date: 2022

Journal: European Journal of Heart Failure 24(3), pp. 565-577

Abstract: Aim: Prevention of heart failure (HF) hospitalisations and deaths constitutes a major therapeutic aim in patients with HF. The role of telemedicine in this context remains equivocal. We investigated whether an outpatient telecare based on nurse-led non-invasive assessments supporting remote therapeutic decisions (AMULET telecare) could improve clinical outcomes in patients after an episode of acute HF during 12-month follow-up. **Methods and Results:** In this prospective randomised controlled trial, patients with HF and left ventricular ejection fraction (LVEF) Methods and Results: In this prospective randomised controlled trial, patients with HF and left ventricular ejection fraction (LVEF) **Conclusion(s):** AMULET telecare as compared to standard care significantly reduced the risk of HF hospitalisation or cardiovascular death during 12-month follow-up among patients with HF and LVEF Conclusion(s): AMULET telecare as compared to standard care significantly reduced the risk of HF hospitalisation or cardiovascular death during 12-month follow-up among patients with HF and LVEF Copyright © 2021 The Authors. European Journal of Heart Failure published by John Wiley & Sons Ltd on behalf of European Society of Cardiology.

DOI: https://libkey.io/10.1002/ejhf.2358

26. **Effect of 15-mg Edoxaban on Clinical Outcomes in 3 Age Strata in Older Patients With Atrial Fibrillation: A Prespecified Subanalysis of the ELDERCARE-AF Randomized Clinical Trial.**

Item Type: Journal Article

Authors: Kuroda, M.;Tamiya, E.;Nose, T.;Ogimoto, A.;Taura, J.;Imamura, Y.;Fukuzawa, M.;Hayashi, T.;Akao, M.;Yamashita, T.;Lip, G. Y. H. and Okumura, K.

Publication Date: 2022

Journal: JAMA Cardiology 7(6), pp. 583-590

Abstract: Importance: Long-term use of oral anticoagulants (OACs) is necessary for stroke prevention in patients with atrial fibrillation (AF). The effectiveness and safety of OACs in extremely older patients (ie, aged 80 years or older) with AF and at high risk of bleeding needs to be elucidated. Objective(s): To examine the effects of very low-dose edoxaban (15 mg) vs placebo across 3 age strata (80-84 years, 85-89 years, and >=90 years) among patients with AF who were a part of the Edoxaban Low-Dose for Elder Care Atrial Fibrillation Patients (ELDERCARE-AF) trial. Design, Setting, and Participant(s): This prespecified subanalysis of a phase 3, randomized, double-blind, placebo-controlled trial was conducted from August 5, 2016, to December 27, 2019. Patients with AF aged 80 years or older who were not considered candidates for standard-dose OACs were included in the study; reasons these patients could not take standard-dose OACs included low creatinine clearance (Design, Setting, and Participant(s): This prespecified subanalysis of a phase 3, randomized, double-blind, placebo-controlled trial was conducted from August 5, 2016, to December 27, 2019. Patients with AF aged 80 years or older who were not considered candidates for standard-dose OACs were included in the study; reasons these patients could not take standard-dose OACs included low creatinine clearance (Design, Setting, and Participant(s): This prespecified subanalysis of a phase 3, randomized, double-blind, placebo-controlled trial was conducted from August 5, 2016, to December 27, 2019. Patients with AF aged 80 years or older who were not considered candidates for standard-dose OACs were included in the study; reasons these patients could not take standard-dose OACs included low creatinine clearance (Intervention(s): Edoxaban (15 mg once daily) or placebo. Main Outcomes and Measures: The primary efficacy end point was the composite of stroke or systemic embolism. The primary safety end point was International Society on Thrombosis and Hemostasis-defined major bleeding. Result(s): A total of 984 patients (mean [SD] age: age group 80-84 years, 82.2 [1.4] years; age group 85-89 years, 86.8 [1.4] years; age group >=90 years, 92.3 [2.1] years; 565 women [57.4%]) were included in this study. In the placebo group, estimated (SE) event rates for stroke or systemic embolism increased with age and were 3.9% (1.2%) per patient-year in the group aged 80 to 84 years (n = 181), 7.3% (1.7%) per patient-year in the group aged 85 to 89 years (n = 184), and 10.1% (2.5%) per patient-year in the group aged 90 years or older (n = 127). A 15-mg dose of edoxaban consistently decreased the event rates for stroke or systemic embolism with no interaction with age (80-84 years, hazard ratio [HR], 0.41; 95% CI, 0.13-1.31; P =.13; 85-89 years, HR, 0.42; 95% CI, 0.17-0.99; P =.05; >=90 years, HR, 0.23; 95% CI, 0.08-0.68; P =.008; interaction P =.65). Major bleeding and major or clinically relevant nonmajor bleeding events were numerically higher with edoxaban, but the differences did not reach statistical significance, and there was no interaction with age. There was no difference in the event rate for all-cause death between the edoxaban and placebo groups in all age strata. Conclusions and Relevance: Results of this subanalysis of the ELDERCARE-AF randomized clinical trial revealed that among Japanese patients aged 80 years or older with AF who were not considered candidates for standard OACs, a once-daily 15-mg dose of edoxaban was superior to placebo in preventing stroke or systemic embolism consistently across all 3 age strata, including those aged 90 years or older, albeit with a higher but nonstatistically significant incidence of bleeding. Trial Registration: ClinicalTrials.gov Identifier: NCT02801669.

DOI: https://libkey.io/10.1001/jamacardio.2022.0480

27. **Promoting cardiovascular nursing practice and research: A model for a university joint appointment**

Item Type: Journal Article

Authors: Lauck, Sandra,B.;Thorne, Sally,E.;Saewyc, Elizabeth,M.;Heppell, Leanne;Black, Agnes T. and Virani, Sean,A.

Publication Date: 2022

Journal: Journal of Clinical Nursing (John Wiley & Sons, Inc.) 31(3), pp. 311-317

Abstract: Background: University joint appointments promote continuity of academic leadership and the acceleration of nurses' impact on improved outcomes and health service delivery. The role of university-appointed and hospital-located nurse scientists is of growing interest in the academic and clinical settings, and within the nursing profession. There is a pressing need to describe and study models of appointments, responsibilities and contributions to strengthen the integration of this boundary-crossing role across the continuum of the nursing profession. **Aims and Objectives:** We report on the implementation of the inaugural St. Paul's Hospital and Heart & Stroke Professorship in Cardiovascular Nursing at the University of British Columbia, Vancouver Canada. Discussion: This model was based on recommendations provided by nursing to provincial government policy-makers, co-created and co-funded by academic and practice partners. Appointed by the university, the role is primarily located in the hospital, with the target of contributing 75% of time and focus on clinical research and leadership. The position is facilitated by its academic affiliation and the provision of university research and teaching infrastructure. In clinical practice, the role benefits from integration and visibility in the cardiac programme and leadership team, collaboration with advanced practice and multidisciplinary research groups, and access to office and human resources located on the clinical unit. Deliverables centre on achieving adjusted indicators of university performance to support academic promotion, and delivery of a practice-close research programme that prioritises improved patient outcomes, multidisciplinary practice and improved outcomes. **Relevance to Clinical Practice:** The dual appointment aims to provide tangible benefits to both the university and the hospital that match each organisation's needs; this requires sustained senior leadership engagement and support, and modification of conventional indicators of impact and success. Its ongoing evaluation will elucidate required modifications and future strategies required to strengthen nurses' academic and clinical leadership.

DOI: https://libkey.io/10.1111/jocn.15588

28. **Evidence of early autonomic dysfunction may predict worse outcomes after cardiac arrest**

Item Type: Conference Proceeding

Authors: Laws, L., Cho, S.M., Munjuluru, A., Geocadin, R. and Swedien, D.

Publication Date: 2022

Publication Details: Critical Care Medicine. Conference: 51st Society of Critical Care Medicine Critical Care Congress, SCCM 2022. San Juan Puerto Rico. 50(1 SUPPL) (pp 364); Lippincott Williams and Wilkins,

Abstract: INTRODUCTION: Cardiac arrest is devastating and neurologic injury is a strong predictor of functional outcome. However, early neurologic assessment does not reliably predict outcome. Evidence of early autonomic nervous system (ANS) dysfunction due to central neurologic injury has not been robustly investigated as a prognostication tool. We hypothesize that early ANS dysregulation in the emergency department (ED) after resuscitation from cardiac arrest, manifest by hypothermia and labile heart rate, corresponds with worse outcomes. METHOD(S): We performed a retrospective analysis of an institutional database of patients with cardiac arrest from 2016 to 2020. Patients with out-of-hospital medical arrests who had return of spontaneous circulation (ROSC) and vital signs recorded in the ED were included. Traumatic arrests were excluded. We evaluated initial temperature, and heart rate standard deviation (HRSD) in the ED after ROSC, as an indicator of heart rate lability. We compared patients with a favorable outcome, defined by hospital discharge to home or a rehabilitation facility, to those with a poor outcome, who discharged to a skilled nursing facility, acute care facility, or who died. RESULT(S): One hundred fifty-one patients were included. Of those, 137 had temperature recordings, 140 had HR recordings, and 130 had both. Median age was 58 (IQR 46.5-67) and 63% were male. Patients with favorable outcomes (10%) had higher temperatures at initial presentation than patients with poor outcomes (35.9degreeC vs. 35.4degreeC, p=0.03). HRSD was lower in patients with favorable outcomes (12bpm vs. 17bpm, p=0.04). In patients with initial temperatures 35.5degreeC (14bpm vs. 17bpm, p=0.4). No patients who discharged to home or rehab had a temperature in the lowest quartile (22.8degreeC-35.4degreeC) and HRSD in the highest quartile (21bmp-82bpm) whereas 9% of patients who died did. CONCLUSION(S): In patients resuscitated from cardiac arrest, low initial temperature and heart rate instability in the ED correlate with worse outcomes. The combination of hypothermia and high HRSD may provide early objective neurologic assessment by indicating central ANS injury and portend a worse prognosis.

DOI: https://libkey.io/10.1097/01.ccm.0000809284.22763.cc

29. **Efficacy and safety of vitamin-K antagonists and direct oral anticoagulants for stroke prevention in patients with heart failure and sinus rhythm: an updated systematic review and meta-analysis of randomized clinical trials.**

Item Type: Journal Article

Authors: Li, W.;Seo, J.;Kokkinidis, D. G.;Palaiodimos, L.;Nagraj, S.;Korompoki, E.;Milionis, H. J.;Doehner, W.;Lip, G. Y. H. and Ntaios, G.

Publication Date: 2022

Journal: International Journal of Stroke : Official Journal of the International Stroke Society , pp. 17474930221109149

Abstract: INTRODUCTION: Heart failure is a major public health issue associated with significantly increased risk of stroke. It remains uncertain whether oral anticoagulation (OAC) in patients with heart failure and sinus rhythm (HF-SR) could improve prognosis. METHOD(S): We performed a systematic search of PubMed and Embase databases for randomized controlled clinical trials assessing oral anticoagulants versus antiplatelets or placebo in patients with heart failure or ventricular dysfunction/cardiomyopathy without clinical heart failure, and sinus rhythm. The outcomes assessed were stroke/systemic embolism, major bleeding, myocardial infarction, all-cause mortality, and heart failure hospitalization. RESULT(S): Seven trials of 15,794 patients were eligible for our analyses. The overall follow-up duration was 32,367 patient-years corresponding to a mean

follow-up of 2.05 years per patient. Four trials included patients treated with warfarin and three included patients treated with rivaroxaban. Oral anticoagulation was associated with reduced rate of stroke or systemic embolism compared to control (OR:0.57, 95% CI: 0.39, 0.82, NNT: 65.1) but higher rate of major bleeding (OR: 1.86, 95% CI: 1.32, 2.63, NNH: 58.1). In the subgroup analysis according to the type of OAC, rivaroxaban was associated with significantly reduced rate of stroke or systemic embolism (1.24 vs. 1.97 events per 100 patient-years, respectively, OR:0.63, 95% CI: 0.45, 0.88, NNT: 82) without excess risk of major bleeding (OR: 1.66, 95% CI: 0.26, 10.59) compared to antiplatelets or placebo. There was no significant differences between groups for the outcomes of myocardial infarction, all-cause mortality, and heart failure hospitalization. CONCLUSION(S): This analysis shows that a non-VKA strategy of oral anticoagulation may be both efficacious and safe for stroke prevention in HF-SR patients. A well-designed randomized controlled trial of newer safer OACs is needed in this population.

DOI: https://libkey.io/10.1177/17474930221109149

30. **Regional cerebral oxygen saturation as an outcome-predicting marker for ECPR recipients: A meta-analysis**

Item Type: Conference Proceeding

Authors: Marabotti, A., Guarracino, F. and Bertini, P.

Publication Date: 2022

Publication Details: Perfusion. Conference: 10th EuroELSO Congress. London United Kingdom. 37(1 SUPPL) (pp 8); SAGE Publications Inc.,

Abstract: Objectives: Extracorporeal cardiopulmonary resuscitation (ECPR) is increasingly used despite no change in risk-adjusted survival over time and in neurological outcome. In last years studies and meta-analysis highlighted some prognostic markers for ECPR, despite not high-quality evidence. Regional cerebral oxygen saturation (rSO2) measured through NIRS showed promising results in predicting neurological outcome and return of spontaneous circulation during conventional CPR. This good predictive power could play a role even in ECPR recipients to prevent futile cannulations, reducing the risk of patients with poor neurological outcome and avoiding unnecessary costs. **Method(s):**Weperformed a comprehensive search of relevant databases (Pubmed/Medline, Embase and Cochrane Library). We searched for studies comparing the precannulation rSO2 in patients treated with ECPR. We focused on the following outcomes:mortality and neurological outcome. We did not find any RCT addressing our scope. We finally meta-analyzed two retrospective studies. We chose a pre-cannulation rSO2 cut-off of 16%, dividing patients into two groups (rSO22>16%) to analyze the outcomes proposed, then performing analysis for the subpopulation of out of hospital cardiac arrest (OHCA). **Result(s):** A pre-cannulation rSO2>16% is associated with a reduced risk of mortality in ECPR recipients (odds ratio (OR) 0.23; 95% confidence interval (CI) [0.09 - 0.59], fig.1), even in the sub-group of OHCA (OR 0.24; 95% CI [0.09 - 0.63]). A pre-cannulation rSO2> 16% is also associated with a statistically significant increase in the probability of a good neurological outcome (OR 9.32; 95% CI [2.33 - 37.23], fig.1), also for the OHCA sub-population (OR 8.32; 95% CI [2.07 - 33.41]). We considered good neurological outcome a Cerebral Performance Category (CPC) of 1 or 2. **Conclusion(s):** rSO2 >16% seems to have an outcomepredicting value for ECPR recipients. Our analysis accounts for several limitations, first of all, the small number of studies taken into consideration. Nevertheless, we found a low heterogeneity of the study population, powering our results. According to these data, a specific RCT seems mandatory to confirm the power of rSO2 as a criterion to avoid unnecessary cannulation. (Figure Presented).

DOI: https://libkey.io/10.1177/02676591221089240

31. **An mHealth Intervention to Improve Medication Adherence and Health Outcomes Among Patients With Coronary Heart Disease: Randomized Controlled Trial.**

Item Type: Journal Article

Authors: Ni, Z.;Wu, B.;Yang, Q.;Yan, L. L.;Liu, C. and Shaw, R. J.

Publication Date: 2022

Journal: Journal of Medical Internet Research 24(3) (pagination)

Abstract: Background: The treatment of many chronic illnesses involves long-term pharmaceutical therapy, but it is an ongoing challenge to find effective ways to improve medication adherence to promote good health outcomes. Cardioprotective medications can prevent the enlargement of harmful clots, cardiovascular symptoms, and poor therapeutic outcomes, such as uncontrolled high blood pressure and hyperlipidemia, for patients with coronary heart disease. Poor adherence to cardioprotective medications, however, has been reported as a global health concern among patients with coronary heart disease, and it is particularly a concern in China. Objective(s): This study aimed to evaluate the efficacy of a mobile health (mHealth) intervention using 2 mobile apps to improve medication adherence and health outcomes. **Method(s):** A randomized, placebo-controlled, 2-arm parallel study was conducted in a major university-affiliated medical center located in Chengdu, China. Participants were recruited by flyers and health care provider referrals. Each participant was observed for 90 days, including a 60-day period of mHealth intervention and a 30-day period of nonintervention follow-up. The study coordinator used WeChat and Message Express to send educational materials and reminders to take medication, respectively. Participants used WeChat to receive both the educational materials and reminders. Participants in the control group only received educational materials. This study received ethics approval from the Duke Health Institutional Review Board (Pro00073395) on May 5, 2018, and was approved by West China Hospital (20170331180037). Recruitment began on May 20, 2018. The pilot phase of this study was registered on June 8, 2016, and the current, larger-scale study was retrospectively registered on January 11, 2021 (ClinicalTrials.gov). Result(s): We recruited 230 patients with coronary heart disease. Of these patients, 196 completed the baseline survey and received the intervention. The majority of participants were married (181/196, 92.4%), male (157/196, 80.1%), and lived in urban China (161/196, 82.1%). Participants' average age was 61 years, and half were retired (103/191, 53.9%). More than half the participants (121/196, 61.7%) were prescribed at least 5 medications. The mean decrease in medication nonadherence score was statistically significant at both 60 days (t179=2.04, P=.04) and 90 days (t155=3.48, **Result(s):** We recruited 230 patients with coronary heart disease. Of these patients, 196 completed the baseline survey and received the intervention. The majority of participants were married (181/196, 92.4%), male (157/196, 80.1%), and lived in urban China (161/196, 82.1%). Participants' average age was 61 years, and half were retired (103/191, 53.9%). More than half the participants (121/196, 61.7%) were prescribed at least 5 medications. The mean decrease in medication nonadherence score was statistically significant at both 60 days (t179=2.04, P=.04) and 90 days (t155=3.48, **Conclusion(s):** The proposed mHealth intervention can improve medication adherence and health outcomes, including systolic blood pressure and diastolic blood pressure.

DOI: https://libkey.io/10.2196/27202

32. **A pilot study on development and feasibility of the 'MyEducation: CABG application' for patients undergoing coronary artery bypass graft (CABG) surgery**

Item Type: Journal Article

Authors: Noor Hanita, Z.;Khatijah, L. A.;Kamaruzzaman, S.;Karuthan, C. and Raja Mokhtar, R. A.

Publication Date: 2022

Journal: BMC Nursing 21(1), pp. 1-11

Abstract: Background: Patients scheduled for coronary artery bypass graft (CABG) surgery tend to have persistent symptoms of anxiety and depression. Course of hospital stay post-CABG procedure has become increasingly shorter over the last few decades. This pilot study was conducted to develop and test feasibility of MyEducation: CABG application as a learning tool to reduce anxiety and depression levels among patients undergoing CABG Surgery. **Methods:** This study was quasi-experimental in design. Forty-five patients scheduled for CABG surgery were recruited via consecutive sampling from a Tertiary Referral Centre at Kuala Lumpur, Malaysia. MyEducation:CABG application (Web-based education application) was administered among the intervention group (N = 23); while the control group (N = 22) underwent standard care. Web-based education application were implemented by nurses at admission and prior to discharge. Patients were assisted in terms of queries and concerns, upon which corresponding information and support was provided. Sociodemographic data were obtained from patients, prior to administration of Hospital Anxiety and Depression Scale which was used to measure levels of anxiety and depression. The educational application was used to obtain satisfaction rating among intervention group. These measures were administered upon admission, on discharge and one-month post-discharge. **Results:** Mean anxiety and depression scores among the intervention group were lower compared to the control. This was significant for anxiety upon admission, on discharge and one-month post-discharge ($p < 0.05$). Reduced mean depression scores was only significant at one month post-discharge ($p < 0.05$). Intervention group were generally satisfied with design, content and usability of the application. **Conclusions:** Utilisation of MyEducation: CABG application as an educational platform were associated with reduced anxiety and depression among CABG patients, which probably explains positive user satisfaction levels reported. Hence, the study recommends implementation of this application among larger sample as a way to support patient scheduled for CABG aside, with further possibility of preventing complications.

DOI: https://libkey.io/10.1186/s12912-022-00814-4

33. **Association between hypertensive disorders of pregnancy and later risk of cardiovascular outcomes**

Item Type: Journal Article

Authors: Oliver-Williams, Clare;Stevens, David;Payne, Rupert A.;Wilkinson, Ian B.;Smith, Gordon C. S. and Wood, Angela

Publication Date: 2022

Journal: BMC Medicine 20(1), pp. 1-11

Abstract: Background: Hypertensive disorders of pregnancy are common pregnancy complications that are associated with greater cardiovascular disease risk for mothers. However, risk of cardiovascular disease subtypes associated with gestational hypertension or pre-eclampsia is unclear. The present study aims to

compare the risk of cardiovascular disease outcomes for women with and without a history of gestational hypertension and pre-eclampsia using national hospital admissions data. **Methods**: This was a retrospective cohort study of national medical records from all National Health Service hospitals in England. Women who had one or more singleton live births in England between 1997 and 2015 were included in the analysis. Risk of total cardiovascular disease and 19 pre-specified cardiovascular disease subtypes, including stroke, coronary heart disease, cardiomyopathy and peripheral arterial disease, was calculated separately for women with a history of gestational hypertension and pre-eclampsia compared to normotensive pregnancies. **Results:** Amongst 2,359,386 first live births, there were 85,277 and 74,542 hospital admissions with a diagnosis of gestational hypertension and pre-eclampsia, respectively. During 18 years (16,309,386 person-years) of follow-up, the number and incidence of total CVD for normotensive women, women with prior gestational hypertension and women with prior pre-eclampsia were n = 8668, 57.1 (95% CI: 55.9-58.3) per 100,000 person-years; n = 521, 85.8 (78.6-93.5) per 100,000 person-years; and n = 518, 99.3 (90.9-108.2) per 100,000 person-years, respectively. Adjusted HRs (aHR) for total CVD were aHR (95% CI) = 1.45 (1.33-1.59) for women with prior gestational hypertension and aHR = 1.62 (1.48-1.78) for women with prior pre-eclampsia. Gestational hypertension was strongly associated with dilated cardiomyopathy, aHR = 2.85 (1.67-4.86), and unstable angina, aHR = 1.92 (1.33-2.77). Pre-eclampsia was strongly associated with hypertrophic cardiomyopathy, aHR = 3.27 (1.49-7.19), and acute myocardial infarction, aHR = 2.46 (1.72-3.53). Associations were broadly homogenous across cardiovascular disease subtypes and increased with a greater number of affected pregnancies. **Conclusions:** Women with either previous gestational hypertension or pre-eclampsia are at greater risk of a range of cardiovascular outcomes. These women may benefit from clinical risk assessment or early interventions to mitigate their greater risk of various cardiovascular outcomes.

DOI: https://libkey.io/10.1186/s12916-021-02218-8

34. **Time Course for Benefit and Risk with Ticagrelor and Aspirin in Individuals with Acute Ischemic Stroke or Transient Ischemic Attack Who Carry CYP2C19 Loss-of-Function Alleles: A Secondary Analysis of the CHANCE-2 Randomized Clinical Trial.**

Item Type: Journal Article

Authors: Pan, Y.;Meng, X.;Jin, A.;Johnston, S. C.;Li, H.;Bath, P. M.;Xie, X.;Jing, J.;Lin, J.;Zhao, X.;Li, Z.;Jiang, Y.;Liu, L.;Yang, H.;Cheng, J.;Wang, Z. and Wang, Y.

Publication Date: 2022

Journal: JAMA Neurology (pagination), pp. ate of Pubaton: 2022

Abstract: Importance: Dual antiplatelet therapy (DAPT) with ticagrelor and aspirin has been found to be effective for secondary prevention after minor ischemic stroke or transient ischemic attack (TIA) in individuals who carry CYP2C19 loss-of-function (LOF) alleles; however, uncertainties remain about the time course of benefit and risk with ticagrelor and aspirin in these patients. **Objective(s):** To obtain time-course estimates of efficacy and risk with ticagrelor and aspirin after minor stroke or TIA in individuals with CYP2C19 LOF alleles. **Design, Setting, and Participant(s):** The Ticagrelor or Clopidogrel With Aspirin in High-risk Patients With Acute Nondisabling Cerebrovascular Events II (CHANCE-2) randomized clinical trial enrolled patients 40 years and older from 202 hospitals in China with acute minor stroke or TIA who carried CYP2C19 LOF alleles between September 23, 2019, and March 22, 2021, and were followed up for 90 days. All 6412 patients enrolled in the CHANCE-2 trial were included in this secondary analysis. Data were analyzed in October 2021. **Intervention(s):** Ticagrelor (180 mg on day 1 followed by 90 mg twice daily on days 2-90) or clopidogrel (300 mg on day 1 followed by 75 mg daily on days 2-90). All patients received aspirin (75-300 mg on day 1 followed by 75 mg daily

for 21 days). **Main Outcomes and Measures:** The efficacy outcome was major ischemic event, defined as the composite of ischemic stroke or nonhemorrhagic death. Safety outcomes included moderate to severe bleeding and any bleeding. **Result(s):** A total of 6412 patients were included (3205 in the ticagrelor and aspirin group and 3207 in the clopidogrel and aspirin group). The median (IQR) age was 65 (57-71) years, and 4242 patients (66%) were men. The reduction of major ischemic events with ticagrelor and aspirin predominately occurred in the first week (absolute risk reduction, 1.34%; 95% CI, 0.29 to 2.39) and attenuated but remained in the next 3 weeks (absolute risk reduction in the second week, 0.11%; 95% CI, -0.24 to 0.45; absolute risk reduction in the third week, 0.14%; 95% CI, -0.11 to 0.38; absolute risk reduction in the fourth week, 0.04%; 95% CI, -0.18 to 0.25). The risk of moderate to severe bleeding was consistently low in the ticagrelor and aspirin group. The absolute increase in any bleeding seen in the first week (0.87%; 95% CI, 0.25 to 1.50) remained in the next 3 weeks (absolute increase in the second week, 1.21%; 95% CI, 0.75 to 1.68; absolute increase in the third week, 0.33%; 95% CI, -0.05 to 0.72; absolute increase in the fourth week, 0.23%; 95% CI, -0.03 to 0.49). **Conclusion and Relevance:** Among patients with minor stroke or TIA who carried CYP2C19 LOF alleles, benefit with ticagrelor and aspirin was present predominately in the first week, with additional small benefit accruing in the next 2 weeks..

DOI: https://libkey.io/10.1001/jamaneurol.2022.1457

35. **Nurses have the key to your heart: Educating nurses in disease management and symptom recognition for heart failure**

Item Type: Journal Article

Authors: Pellegrino, Kristin and Breda, Karen Lucas

Publication Date: Jul ,2022

Journal: Nursing made Incredibly Easy! 20(4), pp. 39-42

Abstract: Independent congestive heart failure management begins with nurse and patient education and can reduce hospital readmission. Independent congestive heart failure management can reduce hospital readmission.

DOI: https://libkey.io/10.1097/01.NME.0000831784.52932.03

36. **Modifiable Risk Factors Associated With Heart Failure Readmissions: 1-Year Follow-up**

Item Type: Journal Article

Authors: Petitte, Trisha M.;Li, Jing;Fang, Wei;Shafique, Saima and Piamjariyakul, Ubolrat

Publication Date: 2022

Journal: Journal for Nurse Practitioners 18(2), pp. 205-211

Abstract: This study examined the association of sociodemographic factors, modifiable risk factors, patients' well-being, and clinical events in patients with heart failure (HF). A convenience sample of 115 patients with HF

from inpatient, outpatient, and long-term care settings was used. Poor functional class, obesity, and being less physically active were predictors of clinical events during the 1-year follow-up. Low levels of exercise postdischarge were predictive of rehospitalization within 6 months among elderly HF patients. Nurse practitioners are in the ideal position to offer patients with HF individualized education to improve self-care, including a referral to cardiac rehabilitation to potentially slow HF progression and prevent rehospitalization. • Obesity and exercise level are predictors of clinical events within 1 year of initial hospitalizations among patients with heart failure (HF). • Low levels of exercise after discharge are predictive of rehospitalizations within 6 months. • Nurse practitioners can offer patients with HF individualized education to improve self-care to potentially slow HF progression and prevent rehospitalization.

DOI: https://libkey.io/10.1016/j.nurpra.2021.09.018

37. **Effect of Mailing Educational Material to Patients With Atrial Fibrillation and Their Clinicians on Use of Oral Anticoagulants: A Randomized Clinical Trial.**

Item Type: Journal Article

Authors: Pokorney, S. D.;Cocoros, N.;AlKhalidi, H. R.;Haynes, K.;Li, S.;AlKhatib, S. M.;CorriganCuray, J.;Driscoll, M. R.;Garcia, C.;Calvert, S. B.;Harkins, T.;Jin, R.;Knecht, D.;Levenson, M.;Lin, N. D.;Martin, D.;McCall, D.;McMahillWalraven, C.;Nair, V.;Parlett, L., et al

Publication Date: 2022

Journal: JAMA Network Open , pp. E2214321

Abstract: Importance: Only about half of patients with atrial fibrillation (AF) who are at increased risk for stroke are treated with an oral anticoagulant (OAC), despite guideline recommendations for their use. Educating patients with AF about prevention of stroke with OACs may enable them as agents of change to initiate OAC treatment. **Objective(s):** To determine whether an educational intervention directed to patients and their clinicians stimulates the use of OACs in patients with AF who are not receiving OACs. **Design, Setting, and Participant(s):** The Implementation of a Randomized Controlled Trial to Improve Treatment With Oral Anticoagulants in Patients With Atrial Fibrillation (IMPACT-AFib) trial was a prospective, multicenter, open-label, pragmatic randomized clinical trial conducted from September 25, 2017, to May 1, 2019, embedded in health plans that participate in the US Food and Drug Administration's Sentinel System. It used the distributed database comprising health plan members to identify eligible patients, their clinicians, and outcomes. IMPACT-AFib enrolled patients with AF, a CHA2DS2-VASc (cardiac failure or dysfunction, hypertension, age 65-74 [1 point] or >=75 years [2 points], diabetes, and stroke, transient ischemic attack or thromboembolism [2 points]-vascular disease, and sex category [female]) score of 2 or more, no evidence of OAC prescription dispensing in the preceding 12 months, and no hospitalization-related bleeding event within the prior 6 months. Intervention(s): Randomization to a single mailing of patient and/or clinician educational materials vs control. **Main Outcomes and Measures:** Analysis was performed on a modified intention-to-treat basis. The primary end point was the proportion of patients with at least 1 OAC prescription dispensed or at least 4 international normalized ratio test results within 1 year of the intervention. Result(s): Among 47333 patients, there were 24909 men (52.6%), the mean (SD) age was 77.9 (9.7) years, mean (SD) CHA2DS2-VASc score was 4.5 (1.7), 22404 patients (47.3%) had an ATRIA (Anticoagulation and Risk Factors in Atrial Fibrillation) bleeding risk score of 5 or more, and 8890 patients (18.8%) had a history of hospitalization for bleeding. There were 2328 of 23546 patients (9.9%) in the intervention group with initiation of OAC at 1 year compared with 2330 of 23787 patients (9.8%) in the control group (adjusted OR, 1.01 [95% CI, 0.95-1.07]; P =.79). **Conclusions and Relevance:** Among a large population with AF with a guideline indication for OACs for stroke prevention who were randomized to a

mailed educational intervention or to usual care, there was no clinically meaningful, numerical, or statistically significant difference in rates of OAC initiation. More-intensive interventions are needed to try and address the public health issue of underuse of anticoagulation for stroke prevention among patients with AF. Trial Registration: ClinicalTrials.gov Identifier: NCT03259373.

DOI: https://libkey.io/10.1001/jamanetworkopen.2022.14321

38. **Antibiotic prophylaxis in cardiac arrest patients receiving targeted temperature management**

Item Type: Conference Proceeding

Authors: Poquiz, H., Ehrenfeld, H., Duong, H. and Blackburn, L.

Publication Date: 2022

Publication Details: Critical Care Medicine. Conference: 51st Society of Critical Care Medicine Critical Care Congress, SCCM 2022. San Juan Puerto Rico. 50(1 SUPPL) (pp 343); Lippincott Williams and Wilkins,

Abstract: INTRODUCTION: A study was conducted to evaluate the efficacy of antibiotic prophylaxis for early onset pneumonia in cardiac arrest patients who achieve return of spontaneous circulation (ROSC) and receive targeted temperature management (TTM). METHOD(S): A single-center, retrospective review was conducted using data collected from electronic medical records and pharmacy surveillance system at a 532-bed community medical center in adult cardiac arrest patients admitted to a critical care unit after ROSC and initiated on TTM between January 1, 2018 to July 31, 2020. The primary outcome was the incidence of early onset pneumonia defined as pneumonia occurring within the first seven days after cardiac arrest. Secondary outcomes include length of ICU stay, length of hospital stay, ventilator days, mortality at day 28, and incidence of subsequent C. difficile and other infections. RESULT(S): A total of 155 patients were evaluated and included for statistical analysis. Of the patients included in the study, 136 patients (88%) received antibiotic prophylaxis. No statistical significance was seen between the study groups for the primary outcome (46 vs. 71%, P=0.2538). For secondary outcomes, median days for ICU stay, hospital stay and ventilator days were lower in patients who received antibiotic prophylaxis but did not reach statistical significance. Incidence of subsequent C. difficile and other infections occurred more frequently in the antibiotic prophylaxis group but did not reach statistical significance. Mortality at day 7 and day 28 were lower in the antibiotic prophylaxis group when compared to the no prophylaxis group but did not reach statistical significance. CONCLUSION(S): In cardiac arrest patients receiving TTM, antibiotic prophylaxis did not have a statistically significant impact on the prevention of early onset pneumonia or other clinically relevant outcomes supporting suggestions from the 2020 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. Further study and highquality randomized control trials is warranted to assess risk versus benefit of prophylactic antibiotic therapy in this patient population.

DOI: https://libkey.io/10.1097/01.ccm.0000809116.44750.c4

39. **The Impact of Intracoronary Imaging on PCI Outcomes in Cases Utilising Rotational Atherectomy: An Analysis of 8,417 Rotational Atherectomy Cases from the British Cardiovascular Intervention Society Database**

Item Type: Journal Article

Authors: Protty, Majd B.;Gallagher, Sean;Sharp, Andrew S. P.;Farooq, Vasim;Egred, Mohaned;O'Kane, Peter;Ludman, Peter;Mamas, Mamas A. and Kinnaird, Tim

Publication Date: 2022

Journal: Journal of Interventional Cardiology , pp. 1-9

Abstract: Introduction: There is increasing evidence supporting the use of intracoronary imaging to optimize the outcomes of percutaneous coronary intervention (PCI). However, there are no studies examining the impact of imaging on PCI outcomes in cases utilising rotational atherectomy (RA-PCI). Our study examines the determinants and outcomes of using intracoronary imaging in RA-PCI cases including 12-month mortality. **Methods:** Using the British Cardiac Intervention Society database, data were analysed on all RA-PCI procedures in the UK between 2007 and 2014. Descriptive statistics and multivariate logistic regressions were used to examine baseline, procedural, and outcome associations with intravascular imaging. **Results:** Intracoronary imaging was used in 1,279 out of 8,417 RA-PCI cases (15.2%). Baseline covariates associated with significantly more imaging use were number of stents used, smoking history, previous CABG, pressure wire use, proximal LAD disease, laser use, glycoprotein inhibitor use, cutting balloons, number of restenosis attempted, off-site surgery, and unprotected left main stem (uLMS) PCI. Adjusted rates of in-hospital major adverse cardiac/cerebrovascular events (IH-MACCE), its individual components (death, peri-procedural MI, stroke, and major bleed), or 12-month mortality were not significantly altered by the use of imaging in RA-PCI. However, subgroup analysis demonstrated a signal towards reduction in 12-month mortality in uLMS RA-PCI cases utilising intracoronary imaging (OR 0.67, 95% CI 0.44-1.03). **Conclusions:** Intracoronary imaging use during RA-PCI is associated with higher risk of baseline and procedural characteristics. There were no differences observed in IH-MACCE or 12-month mortality with intracoronary imaging in RA-PCI.

DOI: https://libkey.io/10.1155/2022/5879187

40. **Use of Sodium-Glucose Cotransporter-2 Inhibitors in Clinical Practice for Heart Failure Prevention and Treatment: Beyond Type 2 Diabetes. A Narrative Review.**

Item Type: Journal Article

Authors: Rao, S.

Publication Date: 2022

Journal: Advances in Therapy 39(2), pp. 845-861

Abstract: Despite the availability of established treatments, heart failure (HF) is associated with a poor prognosis and its management is suboptimal, highlighting the need for new options for treatment and prevention. Patients with type 2 diabetes (T2D) often experience cardiovascular (CV) complications, with HF being one of the most frequent. Consequently, several CV outcome trials have focused on glucose-lowering therapies and their impact on CV outcomes. An established treatment for T2D, sodium-glucose cotransporter-2 inhibitors (SGLT-2is; canagliflozin, dapagliflozin, empagliflozin, and ertugliflozin) have demonstrated beneficial effects on CV outcomes in long-term studies of patients with T2D with established CV disease and/or a broad range of CV risk factors. Recent studies have extended these findings to patients with HF, with and without T2D, finding that SGLT-2is (particularly dapagliflozin and empagliflozin) are effective therapeutic interventions for the treatment and prevention of HF. This narrative review article discusses the use of SGLT-2is in the treatment and prevention of HF in patients with and without T2D. Dapagliflozin was the first SGLT-2i to receive US Food and

Drug Administration (FDA) approval for treatment of HF, to reduce the risk of CV death and hospitalization for HF in adults with HF with reduced ejection fraction (HFrEF) with and without T2D. Recently, the FDA also approved empagliflozin for this indication. Given the new HFrEF indications for dapagliflozin and empagliflozin, and the likelihood of similar approvals for other SGLT-2is, cardiology guidelines are beginning to integrate SGLT-2is into a standard-of-care treatment regimen for patients with HFrEF. The utility of SGLT-2is in HF with preserved EF (HFpEF) shows promise based on data from the EMPEROR-Preserved study of empagliflozin in patients with HFpEF. Further clinical trial evidence may lead to more widespread use and further integration of SGLT-2is into standard-of-care regimens for the treatment and management of HF in patients with and without T2D.

DOI: https://libkey.io/10.1007/s12325-021-01989-z

41. **Effect of Fluid Bolus Administration on Cardiovascular Collapse among Critically Ill Patients Undergoing Tracheal Intubation: A Randomized Clinical Trial.**

Item Type: Journal Article

Authors: Russell, D. W.;Casey, J. D.;Gibbs, K. W.;Ghamande, S.;Dargin, J. M.;Vonderhaar, D. J.;Joffe, A. M.;Khan, A.;Prekker, M. E.;Brewer, J. M.;Dutta, S.;Landsperger, J. S.;White, H. D.;Robison, S. W.;Wozniak, J. M.;Stempek, S.;Barnes, C. R.;Krol, O. F.;Arroliga, A. C.;Lat, T., et al

Publication Date: 2022

Journal: JAMA - Journal of the American Medical Association (pagination), pp. ate of Pubaton: 2022

Abstract: Importance: Hypotension is common during tracheal intubation of critically ill adults and increases the risk of cardiac arrest and death. Whether administering an intravenous fluid bolus to critically ill adults undergoing tracheal intubation prevents severe hypotension, cardiac arrest, or death remains uncertain. **Objective(s):** To determine the effect of fluid bolus administration on the incidence of severe hypotension, cardiac arrest, and death. **Design, Setting, and Participant(s):** This randomized clinical trial enrolled 1067 critically ill adults undergoing tracheal intubation with sedation and positive pressure ventilation at 11 intensive care units in the US between February 1, 2019, and May 24, 2021. The date of final follow-up was June 21, 2021. **Intervention(s):** Patients were randomly assigned to receive either a 500-mL intravenous fluid bolus (n = 538) or no fluid bolus (n = 527). **Main Outcomes and Measures:** The primary outcome was cardiovascular collapse (defined as new or increased receipt of vasopressors or a systolic blood pressure Main Outcomes and Measures: The primary outcome was cardiovascular collapse (defined as new or increased receipt of vasopressors or a systolic blood pressure **Result(s):** Among 1067 patients randomized, 1065 (99.8%) completed the trial and were included in the primary analysis (median age, 62 years [IQR, 51-70 years]; 42.1% were women). Cardiovascular collapse occurred in 113 patients (21.0%) in the fluid bolus group and in 96 patients (18.2%) in the no fluid bolus group (absolute difference, 2.8% [95% CI, -2.2% to 7.7%]; P =.25). New or increased receipt of vasopressors occurred in 20.6% of patients in the fluid bolus group compared with 17.6% of patients in the no fluid bolus group, a systolic blood pressure of less than 65 mm Hg occurred in 3.9% vs 4.2%, respectively, cardiac arrest occurred in 1.7% vs 1.5%, and death occurred in 0.7% vs 0.6%. Death prior to day 28 (censored at hospital discharge) occurred in 218 patients (40.5%) in the fluid bolus group compared with 223 patients (42.3%) in the no fluid bolus group (absolute difference, -1.8% [95% CI, -7.9% to 4.3%]; P =.55). **Conclusions and Relevance:** Among critically ill adults undergoing tracheal intubation, administration of an intravenous fluid bolus compared with no fluid bolus did not significantly decrease the incidence of cardiovascular collapse. Trial Registration: ClinicalTrials.gov Identifier: NCT03787732.

DOI: https://libkey.io/10.1001/jama.2022.9792

42. **Self-care Management Intervention in Heart Failure (SMART-HF): A Multicenter Randomized Controlled Trial.**

Item Type: Journal Article

Authors: Sahlin, D.;REZANEZAD B.;EDVINSSON M.L.;BACHUS E.;MELANDER O.L.L.E. and GERWARD, S.

Publication Date: 2022

Journal: Journal of Cardiac Failure 28(1), pp. 3-12

Abstract: Background: Self-care behavior is important in avoiding hospitalization for patients with heart failure (HF) and refers to those activities performed with the intention of improving or restoring health and well-being, as well as treating or preventing disease. The purpose was to study the effects of a home-based mobile device on self-care behavior and hospitalizations in a representative HF-population. **Methods and Results:** SMART-HF is a randomized controlled multicenter clinical trial, where patients were randomized 1:1 to receive standard care (control group [CG]) or intervention with a home-based tool designed to enhance self-care behavior (intervention group [IG]) and followed for 240 days. The tool educates the patient about HF, monitors objective and subjective symptoms and adjusts loop diuretics. The primary outcome is self-care as measured by the European Heart Failure Self-care behavior scale and the secondary outcome is HF related in-hospital days.A total of 124 patients were recruited and 118 were included in the analyses (CG: n = 60, IG: n = 58). The mean age was 79 years, 39% were female, and 45% had an ejection fraction of less than 40%. Self-care was significantly improved in the IG compared to the CG (median (interquartile range) (21.5 [13.25; 28] vs 26 [18; 29.75], p = 0.014). Patients in the IG spent significantly less time in the hospital admitted for HF (2.2 days less, relative risk 0.48, 95% confidence interval 0.32-0.74, P = .001). **Conclusion(s):** The device significantly improved self-care behavior and reduced in-hospital days in a relevant HF population.Copyright © 2021 The Authors

DOI: https://libkey.io/10.1016/j.cardfail.2021.06.009

43. **Prognostic Significance of Ventricular Arrhythmias in 13 444 Patients With Acute Coronary Syndrome: A Retrospective Cohort Study Based on Routine Clinical Data (NIHR Health Informatics Collaborative VA-ACS Study)**

Item Type: Journal Article

Authors: Sau, Arunashis;Kaura, Amit;Ahmed, Amar;Patel, Kiran H. K.;Li, Xinyang;Mulla, Abdulrahim;Glampson, Benjamin;Panoulas, Vasileios;Davies, Jim;Woods, Kerrie;Gautama, Sanjay;Shah, Anoop D.;Elliott, Paul;Hemingway, Harry;Williams, Bryan;Asselbergs, Folkert W.;Melikian, Narbeh;Peters, Nicholas S.;Shah, Ajay M. and Perera, Divaka

Publication Date: 2022

Journal: Journal of the American Heart Association 11(6), pp. 1-12

Abstract: Background: A minority of acute coronary syndrome (ACS) cases are associated with ventricular

arrhythmias (VA) and/or cardiac arrest (CA). We investigated the effect of VA/CA at the time of ACS on long-term outcomes. **Methods and Results**: We analyzed routine clinical data from 5 National Health Service trusts in the United Kingdom, collected between 2010 and 2017 by the National Institute for Health Research Health Informatics Collaborative. A total of 13 444 patients with ACS, 376 (2.8%) of whom had concurrent VA, survived to hospital discharge and were followed up for a median of 3.42 years. Patients with VA or CA at index presentation had significantly increased risks of subsequent VA during follow-up (VA group: adjusted hazard ratio HR], 4.15 95% CI, 2.42-7.09]; CA group: adjusted HR, 2.60 95% CI, 1.23-5.48]). Patients who suffered a CA in the context of ACS and survived to discharge also had a 36% increase in long-term mortality (adjusted HR, 1.36 95% CI, 1.04-1.78]), although the concurrent diagnosis of VA alone during ACS did not affect all-cause mortality (adjusted HR, 1.03 95% CI, 0.80-1.33]). **Conclusions:** Patients who develop VA or CA during ACS who survive to discharge have increased risks of subsequent VA, whereas those who have CA during ACS also have an increase in long-term mortality. These individuals may represent a subgroup at greater risk of subsequent arrhythmic events as a result of intrinsically lower thresholds for developing VA.

DOI: https://libkey.io/10.1161/JAHA.121.024260

44. **Obesity-adjusted unfractionated heparin versus enoxaparin for venous thromboembolism prophylaxis**

Item Type: Conference Proceeding

Authors: Seals, A., Bowers, E., Shaw, E. and Johnson, A.

Publication Date: 2022

Publication Details: Critical Care Medicine. Conference: 51st Society of Critical Care Medicine Critical Care Congress, SCCM 2022. San Juan Puerto Rico. 50(1 SUPPL) (pp 314); Lippincott Williams and Wilkins,

Abstract: INTRODUCTION: Hospitalized patients are at an increased risk of venous thromboembolism (VTE) with obesity being an additional substantial risk factor. The risk of VTE is also higher in patients admitted to intensive care units (ICUs) due to risk factors such as sepsis, vasopressor use, mechanical ventilation, and cardiac or renal failure. Unfractionated heparin (UFH) and enoxaparin are both used for VTE prophylaxis in critically ill obese patients. UFH 7,500 units subcutaneous every 8 hours or enoxaparin 0.5 mg/kg/day are suggested regimens in obese patients for VTE prophylaxis. There is limited evidence for a preferred regimen or optimal dose adjustments in obese patients. The objective of this study is to determine the efficacy of VTE prevention between highdose UFH and weight-adjusted enoxaparin in these patients. To our knowledge, this study will be the first to look at the clinical outcome of VTE incidence when comparing high-dose UFH and weight-adjusted enoxaparin in critically ill obese patients. METHOD(S): This was a single-center, retrospective, IRBapproved study conducted from July 30, 2015 to January 24, 2021. Adult obese patients who received high-dose UFH (7,500 units every 8 hours) or weight-adjusted enoxaparin (0.5 mg/kg/day) for VTE prophylaxis were eligible for study inclusion. Exclusion criteria included pregnant patients, incarcerated persons, patients with clotting disorders, trauma and orthopedic patients, and CoVID-19 positive patients. The primary outcome was incidence of VTE during hospital stay. Secondary outcomes were hospital length of stay, hospital mortality, and bleeding. Subgroups included admitting ICUs (medical ICU, surgical ICU, or cardiovascular ICU) and patients with a BMI > 50. RESULT(S): A total of 47 patients were included in each group. No significant difference in the incidence of VTE was noted: 2 (4%) patients in the high-dose UFH group versus 1 (2%) in the weight-adjusted enoxaparin group (p=1). There was no significant difference in the length of stay, hospital mortality, and bleeding between groups. The incidence of VTE did not differ between ICU subgroups or in patients with a BMI > 50. CONCLUSION(S): There was not a significant difference in the incidence of VTE between high-dose UFH and weightadjusted enoxaparin in this obese critically ill population.

DOI: https://libkey.io/10.1097/01.ccm.0000808900.08171.1f

45. **Benefits and harms of sodium-glucose co-transporter-2 inhibitors (SGLT2-I) and renin-angiotensin-aldosterone system inhibitors (RAAS-I) versus SGLT2-Is alone in patients with type 2 diabetes: A systematic review and meta-analysis of randomized controlled trials.**

Item Type: Journal Article

Authors: Seidu, S.;Kunutsor, S. K.;Topsever, P. and Khunti, K.

Publication Date: 2022

Journal: Endocrinology, Diabetes and Metabolism 5(1) (pagination), pp. Arte Number: e00303. ate of Pubaton: January 2022

Abstract: Introduction: It is uncertain if the combination of sodium-glucose co-transporter 2 inhibitors (SGLT2-Is) and renin-angiotensin-aldosterone system inhibitors (RAAS-Is) provides better cardio-renal clinical outcomes in people with type 2 diabetes mellitus (T2DM) compared with SGLT2-Is alone. Using a systematic review and meta-analysis of randomized controlled trials (RCTs), we evaluated the efficacy and safety with respect to cardio-renal outcomes of the combination of SGLT2 and RAAS inhibitors vs SGLT2-Is in patients with T2DM. **Method(s):** Studies were identified from MEDLINE, Embase, the Cochrane Library and search of bibliographies to May 2021. The Cochrane risk of bias tool was used to assess the risk of bias of each study. Study-specific risk ratios (RRs) with 95% confidence intervals (CIs) were pooled. Quality of the evidence was assessed using GRADE. Result(s): Nine articles comprising 8 RCT evaluations (n = 34,551 participants) that compared SGLT2-Is with placebo in patients with T2DM against a background of standard care and reported subgroup results for those treated with or without RAAS-Is at baseline were included. No RCT specifically investigated the combination of SGLT2 and RAAS inhibitors compared with SGLT2-Is alone. The RRs (95% CIs) for composite cardiovascular outcome and composite CVD death/heart failure hospitalization comparing SGLT2-Is vs placebo in patients on RAAS-Is were 0.93 (0.85-1.01) and 0.88 (0.76-1.02), respectively. The corresponding estimates for patients not on RAAS-Is were 0.78 (0.65-0.93) and 0.73 (0.65-0.82), respectively. There was no evidence of interactions between RAAS-I status and the effects of SGLT2-Is for both outcomes. Single study results showed that SGLT2-Is vs placebo reduced the risk of composite kidney outcome and cardiovascular death in patients with RAAS inhibition. The effect of SGLT2 inhibition vs placebo on kidney parameters, genital infections, volume depletion, hyperkalaemia, hypokalaemia, hypoglycaemia and other adverse events was similar in patients with or without RAAS inhibition. The quality of the evidence ranged from very low to moderate. **Conclusion(s):** Aggregate published data suggest that the combination of SGLT2 and RAAS inhibitors in the treatment of patients with T2DM may be similar in efficacy and safety if not superior to SGLT2-Is alone. Head-to-head comparisons of the two interventions are warranted to inform T2DM management. The use of SGLT2 inhibition as a first-line therapy in T2DM or its early use in the prevention of renal deterioration and cardiovascular complications in addition to its glycaemic control deserves further study.Copyright © 2021 The Authors. Endocrinology, Diabetes & Metabolism published by John Wiley & Sons Ltd.

DOI: https://libkey.io/10.1002/edm2.303

46. **Risk of Subsequent Stroke among Patients Receiving Outpatient vs Inpatient Care for Transient Ischemic Attack: A Systematic Review and Meta-analysis.**

Item Type: Journal Article

Authors: Shahjouei, S.;Li, J.;Koza, E.;Abedi, V.;Sadr, A. V.;Chen, Q.;Mowla, A.;Griffin, P.;Ranta, A. and Zand, R.

Publication Date: 2022

Journal: JAMA Network Open 5(1) (pagination), pp. Arte Number: 100193. ate of Pubaton: 05 Jan 2022

Abstract: Importance: Transient ischemic attack (TIA) often indicates a high risk of subsequent cerebral ischemic events. Timely preventive measures improve the outcome. **Objective(s):** To estimate and compare the risk of subsequent ischemic stroke among patients with TIA or minor ischemic stroke (mIS) by care setting. Data Sources: MEDLINE, Web of Science, Scopus, Embase, International Clinical Trials Registry Platform, ClinicalTrials.gov, Trip Medical Database, CINAHL, and all Evidence-Based Medicine review series were searched from the inception of each database until October 1, 2020. Study Selection: Studies evaluating the occurrence of ischemic stroke after TIA or mIS were included. Cohorts without data on evaluation time for reporting subsequent stroke, with retrospective diagnosis of the index event after stroke occurrence, and with a report of outcomes that were not limited to patients with TIA or mIS were excluded. Two authors independently screened the titles and abstracts and provided the list of candidate studies for full-text review; discrepancies and disagreements in all steps of the review were addressed by input from a third reviewer. **Data Extraction and Synthesis:** The study was prepared and reported following the Preferred Reporting Items for Systematic Reviews and Meta-analyses, Meta-analysis of Observational Studies in Epidemiology, Methodological Expectations of Cochrane Intervention Reviews, and Enhancing the Quality and Transparency of Health Research guidelines. The Risk of Bias in Nonrandomized Studies - of Exposures (ROBINS-E) tool was used for critical appraisal of cohorts, and funnel plots, Begg-Mazumdar rank correlation, Kendall tau2, and the Egger bias test were used for evaluating the publication bias. All meta-analyses were conducted under random-effects models. **Main Outcomes and Measures:** Risk of subsequent ischemic stroke among patients with TIA or mIS who received care at rapid-access TIA or neurology clinics, inpatient units, emergency departments (EDs), and unspecified or multiple settings within 4 evaluation intervals (ie, 2, 7, 30, and 90 days). Result(s): The analysis included 226683 patients from 71 articles recruited between 1981 and 2018; 5636 patients received care at TIA clinics (mean [SD] age, 65.7 [3.9] years; 2291 of 4513 [50.8%] men), 130139 as inpatients (mean [SD] age, 78.3 [4.0] years; 49458 of 128745 [38.4%] men), 3605 at EDs (mean [SD] age, 68.9 [3.9] years; 1596 of 3046 [52.4%] men), and 87303 patients received care in an unspecified setting (mean [SD] age, 70.8 [3.8] years, 43495 of 87303 [49.8%] men). Among the patients who were treated at a TIA clinic, the risk of subsequent stroke following a TIA or mIS was 0.3% (95% CI, 0.0%-1.2%) within 2 days, 1.0% (95% CI, 0.3%-2.0%) within 7 days, 1.3% (95% CI, 0.4%-2.6%) within 30 days, and 2.1% (95% CI, 1.4%-2.8%) within 90 days. Among the patients who were treated as inpatients, the risk of subsequent stroke was to 0.5% (95% CI, 0.1%-1.1%) within 2 days, 1.2% (95% CI, 0.4%-2.2%) within 7 days, 1.6% (95% CI, 0.6%-3.1%) within 30 days, and 2.8% (95% CI, 2.1%-3.5%) within 90 days. The risk of stroke among patients treated at TIA clinics was not significantly different from those hospitalized. Compared with the inpatient cohort, TIA clinic patients were younger and had had lower ABCD2(age, blood pressure, clinical features, duration of TIA, diabetes) scores (inpatients with ABCD2score >3, 1101 of 1806 [61.0%]; TIA clinic patients with ABCD2score >3, 1933 of 3703 [52.2%]). **Conclusions and Relevance:** In this systematic review and meta-analysis, the risk of subsequent stroke among patients who were evaluated in a TIA clinic was not higher than those hospitalized. Patients who received treatment in EDs without further follow-up had a higher risk of subsequent stroke. These findings suggest that TIA clinics can be an effective component of the TIA care component pathway..

DOI: https://libkey.io/10.1001/jamanetworkopen.2021.36644

47. **Sex Differences in Cardiac Rehabilitation Outcomes.**

Item Type: Journal Article

Authors: Smith, J. R.;Thomas, R. J.;Bonikowske, A. R.;Hammer, S. M. and Olson, T. P.

Publication Date: 2022

Journal: Circulation Research 130(4), pp. 552-565

Abstract: Cardiovascular disease is a leading cause of morbidity and mortality in males and females in the United States and globally. Cardiac rehabilitation (CR) is recommended by the American Heart Association/American College of Cardiology for secondary prevention for patients with cardiovascular disease. CR participation is associated with improved cardiovascular disease risk factor management, quality of life, and exercise capacity as well as reductions in hospital admissions and mortality. Despite these advantageous clinical outcomes, significant sex disparities exist in outpatient phase II CR programming. This article reviews sex differences that are present in the spectrum of care provided by outpatient phase II CR programming (ie, from referral to clinical management). We first review CR participation by detailing the sex disparities in the rates of CR referral, enrollment, and completion. In doing so, we discuss patient, health care provider, and social/environmental level barriers to CR participation with a particular emphasis on those barriers that majorly impact females. We also evaluate sex differences in the core components incorporated into CR programming (eg, patient assessment, exercise training, hypertension management). Next, we review strategies to mitigate these sex differences in CR participation with a focus on automatic CR referral, female-only CR programming, and hybrid CR. Finally, we outline knowledge gaps and areas of future research to minimize and prevent sex differences in CR programming.

DOI: https://libkey.io/10.1161/CIRCRESAHA.121.319894

48. **Safety of home-based cardiac rehabilitation: A systematic review.**

Item Type: Journal Article

Authors: Stefanakis, M.;Batalik, L.;Antoniou, V. and Pepera, G.

Publication Date: 2022

Journal: Heart and Lung 55, pp. 117-126

Abstract: Background: Cardiac rehabilitation is an evidence-based intervention that aims to improve health outcomes in cardiovascular disease patients, but it is largely underutilized. One strategy for improving utilization is home-based cardiac rehabilitation (HBCR). Previous research has shown that HBCR programs are feasible and effective. However, there is a lack of evidence on safety issues in different cardiac populations. This systematic review aimed to provide an evidence-based overview of the safety of HBCR. **Objective(s):** To examine the incidence and severity of adverse events of HBCR. Method(s): The following databases were searched: CINAHL, The Cochrane Library, Embase, MEDLINE, PubMed, Web of Science, Global Health, and Chinese BioMedical Literature Database for randomized controlled trials. The included trials were written in English and analyzed the incidence of adverse events (AEs) as a primary or secondary intervention outcome. **Result(s):** Five studies showed AEs incidence, of which only one study reported severe AE associated with HBCR exercise. The incidence rate of severe AEs from the sample (n = 808) was estimated as 1 per 23,823 patient-

hour of HBCR exercise. More than half patients included were stratified into a high-risk group. In the studies were found no deaths or hospitalizations related to HBCR exercise. **Conclusion(s):** The risk of AEs during HBCR seems very low. Our results concerning the safety of HBCR should induce cardiac patients to be more active in their environment and practice physical exercise regularly.Copyright © 2022 The Author(s)

DOI: https://libkey.io/10.1016/j.hrtlng.2022.04.016

49. **Social Determinants of Health and 30-Day Readmissions among Adults Hospitalized for Heart Failure in the REGARDS Study.**

Item Type: Journal Article

Authors: Sterling, M. R.;Ringel, J. B.;Pinheiro, L. C.;Safford, M. M.;Levitan, E. B.;Phillips, E.;Brown, T. M.;Nguyen, O. K. and Goyal, P.

Publication Date: 2022

Journal: Circulation: Heart Failure 15(1), pp. 12-19

Abstract: Background: It is not known which social determinants of health (SDOH) impact 30-day readmission after a heart failure (HF) hospitalization among older adults. We examined the association of 9 individual SDOH with 30-day readmission after an HF hospitalization. **Methods and Results:** Using the REGARDS study (Reasons for Geographic and Racial Differences in Stroke), we included Medicare beneficiaries who were discharged alive after an HF hospitalization between 2003 and 2014. We assessed 9 SDOH based on the Healthy People 2030 Framework: race, education, income, social isolation, social network, residential poverty, Health Professional Shortage Area, rural residence, and state public health infrastructure. The primary outcome was 30-day all-cause readmission. For each SDOH, we calculated incidence per 1000 person-years and multivariable-adjusted hazard ratios of readmission. Among 690 participants, the median age was 76 years at hospitalization (interquartile range, 71-82), 44.3% were women, 35.5% were Black, 23.5% had low educational attainment, 63.0% had low income, 21.0% had zip code-level poverty, 43.5% resided in Health Professional Shortage Areas, 39.3% lived in states with poor public health infrastructure, 13.1% were socially isolated, 13.3% had poor social networks, and 10.2% lived in rural areas. The 30-day readmission rate was 22.4%. In an unadjusted analysis, only Health Professional Shortage Area was significantly associated with 30-day readmission; in a fully adjusted analysis, none of the 9 SDOH were individually associated with 30-day readmission. **Conclusion(s):** In this modestly sized national cohort, although prevalent, none of the SDOH were associated with 30-day readmission after an HF hospitalization. Policies or interventions that only target individual SDOH to reduce readmissions after HF hospitalizations may not be sufficient to prevent readmission among older adults.

DOI: https://libkey.io/10.1161/CIRCHEARTFAILURE.121.008409

50. **Effects of exercise-based cardiac rehabilitation delivery modes on exercise capacity and health-related quality of life in heart failure: a systematic review and network meta-analysis.**

Item Type: Journal Article

Authors: Tegegne, T. K.;Rawstorn, J. C.;Nourse, R. A.;Kibret, K. T.;Ahmed, K. Y. and Maddison, R.

Publication Date: 2022

Journal: Open Heart 9(1) (pagination), pp. Arte Number: e001949. ate of Pubaton: 09 Jun 2022

Abstract: Background: This review aimed to compare the relative effectiveness of different exercise-based cardiac rehabilitation (ExCR) delivery modes (centre-based, home-based, hybrid and technology-enabled ExCR) on key heart failure (HF) outcomes: exercise capacity, health-related quality of life (HRQoL), HF-related hospitalisation and HF-related mortality. **Methods and results** Randomised controlled trials (RCTs) published through 20 June 2021 were identified from six databases, and reference lists of included studies. Risk of bias and certainty of evidence were evaluated using the Cochrane tool and Grading of Recommendations Assessment, Development and Evaluation, respectively. Bayesian network meta-analysis was performed using R. Continuous and binary outcomes are reported as mean differences (MD) and ORs, respectively, with 95% credible intervals (95% CrI). One-hundred and thirty-nine RCTs (n=18 670) were included in the analysis. Network meta-analysis demonstrated improvements in VO 2 peak following centre-based (MD (95% CrI)=3.10 (2.56 to 3.65) mL/kg/min), home-based (MD=2.69 (1.67 to 3.70) mL/kg/min) and technology-enabled ExCR (MD=1.76 (0.27 to 3.26) mL/kg/min). Similarly, 6 min walk distance was improved following hybrid (MD=84.78 (31.64 to 138.32) m), centre-based (MD=50.35 (30.15 to 70.56) m) and home-based ExCR (MD=36.77 (12.47 to 61.29) m). Incremental shuttle walk distance did not improve following any ExCR delivery modes. Minnesota living with HF questionnaire improved after centre-based (MD=-10.38 (-14.15 to-6.46)) and home-based ExCR (MD=-8.80 (-13.62 to-4.07)). Kansas City Cardiomyopathy Questionnaire was improved following home-based ExCR (MD=20.61 (4.61 to 36.47)), and Short Form Survey 36 mental component after centre-based ExCR (MD=3.64 (0.30 to 6.14)). HF-related hospitalisation and mortality risks reduced only after centre-based ExCR (OR=0.41 (0.17 to 0.76) and OR=0.42 (0.16 to 0.90), respectively). Mean age of study participants was only associated with changes in VO 2 peak. **Conclusion** ExCR programmes have broader benefits for people with HF and since different delivery modes were comparably effective for improving exercise capacity and HRQoL, the selection of delivery modes should be tailored to individuals' preferences.

DOI: https://libkey.io/10.1136/openhrt-2021-001949

51. **Pericardial Decompression Syndrome: A Case Series and Literature Review.**

Item Type: Journal Article

Authors: Thabet, C.;MacDonald, Z.;Johnson, C.;Niznick, J.;Garuba, H. A. and Law, A.

Publication Date: 2022

Journal: CJC Open 4(4), pp. 420-423

Abstract: Cardiac tamponade is a medical emergency requiring prompt recognition and intervention to avoid potentially fatal consequences. We present a case series of ventricular dysfunction and cardiogenic shock following pericardiocentesis in 3 patients with pericardial effusions at The Ottawa Hospital between 2014 and 2020. This report highlights the need for monitoring post-pericardiocentesis and raises awareness of this phenomenon, particularly in patients with malignancy. We propose a novel pressure-monitoring protocol to guide drainage and prevent development of pericardial decompression syndrome. The novel teaching points include limiting drainage to prevent development of pericardial decompression syndrome and a protocol for intra-pericardial pressure monitoring.

DOI: https://libkey.io/10.1016/j.cjco.2021.11.011

52. **Effect of a dynamic mattress on chest compression quality during cardiopulmonary resuscitation**

Item Type: Journal Article

Authors: Torsy, Tim;Deswarte, Wim;Karlberg Traav, Malin and Beeckman, Dimitri

Publication Date: 2022

Journal: Nursing in Critical Care 27(2), pp. 275-281

Abstract: Background: In-hospital cardiac arrest is a medical emergency that occurs on a regular basis. As patients most at risk for an in-hospital cardiac arrest are usually positioned on a dynamic mattress, it is important to measure the effect of mattress compressibility on chest compression quality during cardiopulmonary resuscitation (CPR). High-quality CPR is essential for patient survival and good neurological outcome. **Aims and objectives:** To examine the effect of an inflated dynamic overlay mattress on chest compression quality during CPR and to explore the predictive effect of health care providers' anthropometric factors, hand positioning and mattress type on chest compression frequency and depth. Design: Manikin-based single-blinded randomised controlled trial. **Methods:** Nursing students (N = 70) were randomised to a control (viscoelastic foam mattress) or intervention group (inflated dynamic overlay mattress on top of a viscoelastic foam mattress) and had to perform chest compressions over a 2-minute period. Compression rate, depth and hand positioning were registered. The 2015 European Resuscitation Council (ERC) guidelines were used as a reference. **Results:** The mean difference in chest compression depth between control and intervention groups was 2.86 mm (P =.043). Both groups met the guidelines for adequate chest compression quality, as recommended by the ERC. A predictive effect of health care providers' body height and weight, mattress type and hand positioning on compression depth could be demonstrated (P =.004). **Conclusions:** CPR in bedridden patients on a dynamic overlay mattress has a negative effect on the quality of chest compressions. Mean chest compression depth decreases significantly. However, clinical significance of the results may be debatable. Mattress type, body weight and hand positioning appear to be significant predictors for adequate chest compression depth. Relevance to clinical practice: A firm surface under the patient is needed during CPR. Special attention must be paid to correct hand positioning during CPR.

DOI: https://libkey.io/10.1111/nicc.12631

53. **Regional differences in precipitating factors of hospitalization for acute heart failure: insights from the REPORT-HF registry.**

Item Type: Journal Article

Authors: Tromp, J.;Beusekamp, J. C.;Ouwerkerk, W.;van der Meer, P.;Cleland, J. G. F.;Angermann, C. E.;Dahlstrom, U.;Ertl, G.;Hassanein, M.;Perrone, S. V.;Ghadanfar, M.;Schweizer, A.;Obergfell, A.;Filippatos, G.;Dickstein, K.;Collins, S. P. and Lam, C. S. P.

Publication Date: 2022

Journal: European Journal of Heart Failure 24(4), pp. 645-652

Abstract: Aims: Few prior studies have investigated differences in precipitants leading to hospitalizations for acute heart failure (AHF) in a cohort with global representation. **Methods and Results:** We analysed the prevalence of precipitants and their association with outcomes in 18 553 patients hospitalized for AHF in REPORT-HF (prospective international REgistry to assess medical Practice with lOngitudinal obseRvation for Treatment of Heart Failure) according to left ventricular ejection fraction subtype (reduced [HFrEF] and preserved ejection fraction [HFpEF]) and presentation (new-onset vs. decompensated chronic heart failure [DCHF]). Patients were enrolled from 358 centres in 44 countries stratified according to Latin America, North America, Western Europe, Eastern Europe, Eastern Mediterranean and Africa, Southeast Asia, and Western Pacific. Precipitants were pre-with mutually exclusive categories and selected according to the local investigator's discretion. Outcomes included in-hospital and 1-year mortality. The median age was 67 (interquartile range 57-77) years, and 39% were women. Acute coronary syndrome (ACS) was the most common precipitant in patients with new-onset heart failure in all regions except for North America and Western Europe, where uncontrolled hypertension and arrhythmia, respectively, were the most common precipitants, independent of confounders. In patients with DCHF, non-adherence to diet/medication was the most common precipitant regardless of region. Uncontrolled hypertension was a more likely precipitant in HFpEF, non-adherence to diet/medication, and ACS were more likely precipitants in HFrEF. Patients admitted due to worsening renal function had the worst in-hospital (5%) and 1-year post-discharge (30%) mortality rates, regardless of region, heart failure subtype and admission type (pinteraction >0.05 for all). **Conclusion(s):** Data on global differences in precipitants for AHF highlight potential regional differences in targets for preventing hospitalization for AHF and identifying those at highest risk for early mortality.Copyright © 2022 European Society of Cardiology.

DOI: https://libkey.io/10.1002/ejhf.2431

54. **Out-of-hospital cardiac arrest due to hanging: a retrospective analysis**

Item Type: Journal Article

Authors: Turner, Jake;Brown, Aidan;Boldy, Rhiannon;Lumley-Holmes, Jenny;Rosser, Andy and James, Alex

Publication Date: 2022

Journal: Emergency Medicine Journal 39(2), pp. 106-110

Abstract: Background: There has been little research into the prehospital management of cardiac arrest following hanging despite it being among the most prevalent methods of suicide worldwide. The aim of this study was to report the characteristics, resuscitative treatment and outcomes of patients managed in the prehospital environment for cardiac arrest secondary to hanging and compare these with all-cause out-of-hospital cardiac arrest (OHCA). **Methods**: Data from a UK ambulance service cardiac arrest registry were extracted for all cases in which treatment was provided for OHCA due to hanging between 1 January 2013 and 30 June 2018. Cases were linked to outcome data obtained from the Trauma Audit and Research Network. Comparison of the cohort was made to previously published data from a UK study of all-cause OHCA with 95% CIs calculated for the proportional difference between the studies in selected presentation and outcome variables. **Results:** 189 cases were identified. 95 patients were conveyed to hospital and four of these survived to discharge. 40 patients were conveyed despite absence of a spontaneous circulation and none of these patients survived. While only three patients were initially in a shockable rhythm, DC shocks were administered in 20 cases. There was one case of failed ventilation prompting front-of-neck access for oxygenation. By

comparison with all-cause OHCA the proportion of patients with a spontaneous circulation at hospital handover was similar (27.0% vs 27.5%; 0.5% difference, 95% CI -5.9% to 6.8%, p=0.882) but survival to hospital discharge was significantly lower (2.2% vs 8.4%; 6.2% difference, 95% CI 4.1% to 8.3%, p=0.002). **Conclusion:** Clinical outcomes following OHCA due to hanging are poor, particularly when patients are transported while in cardiac arrest. Failure to ventilate was uncommon, and clinicians should be alert to the possibility of shockable rhythms developing during resuscitation.

DOI: https://libkey.io/10.1136/emermed-2020-210839

55. **Sedentary Behaviour Intervention as a Personalised Secondary Prevention Strategy (SIT LESS) for patients with coronary artery disease participating in cardiac rehabilitation: Rationale and design of the SIT LESS randomised clinical trial.**

Item Type: Journal Article

Authors: Van Bakel, B. M. A.;Kroesen, S. H.;Gunal, A.;Scheepmaker, A.;Aengevaeren, W. R. M.;Willems, F. F.;Wondergem, R.;Pisters, M. F.;Dam, J.;Janssen, A. M.;De Bruin, M.;Hopman, M. T. E.;Thijssen, D. H. J. and Eijsvogels, T. M. H.

Publication Date: 2022

Journal: BMJ Open Sport and Exercise Medicine 8(2) (pagination), pp. Arte Number: e001364. ate of Pubaton: 25 May 2022

Abstract: Patients with coronary artery disease (CAD) are more sedentary compared with the general population, but contemporary cardiac rehabilitation (CR) programmes do not specifically target sedentary behaviour (SB). We developed a 12-week, hybrid (centre-based+home-based) Sedentary behaviour IntervenTion as a personaLisEd Secondary prevention Strategy (SIT LESS). The SIT LESS programme is tailored to the needs of patients with CAD, using evidence-based behavioural change methods and an activity tracker connected to an online dashboard to enable self-monitoring and remote coaching. Following the intervention mapping principles, we first identified determinants of SB from literature to adapt theory-based methods and practical applications to target SB and then evaluated the intervention in advisory board meetings with patients and nurse specialists. This resulted in four core components of SIT LESS: (1) patient education, (2) goal setting, (3) motivational interviewing with coping planning, and (4) (tele)monitoring using a pocket-worn activity tracker connected to a smartphone application and providing vibrotactile feedback after prolonged sedentary bouts. We hypothesise that adding SIT LESS to contemporary CR will reduce SB in patients with CAD to a greater extent compared with usual care. Therefore, 212 patients with CAD will be recruited from two Dutch hospitals and randomised to CR (control) or CR+SIT LESS (intervention). Patients will be assessed prior to, immediately after and 3 months after CR. The primary comparison relates to the pre-CR versus post-CR difference in SB (objectively assessed in min/day) between the control and intervention groups. Secondary outcomes include between-group differences in SB characteristics (eg, number of sedentary bouts); change in SB 3 months after CR; changes in light-intensity and moderate-To-vigorous-intensity physical activity; quality of life; and patients' competencies for self-management. Outcomes of the SIT LESS randomised clinical trial will provide novel insight into the effectiveness of a structured, hybrid and personalised behaviour change intervention to attenuate SB in patients with CAD participating in CR. Trial registration number NL9263.Copyright ©

DOI: https://libkey.io/10.1136/bmjsem-2022-001364

56. **The Cardiac Care Bridge transitional care program for the management of older highrisk cardiac patients: An economic evaluation alongside a randomized controlled trial.**

Item Type: Journal Article

Authors: Verweij, L.;Petri, A. C. M.;MacNeilVroomen, J. L.;Jepma, P.;Latour, C. H. M.;Peters, R. J. G.;op Reimer, W. J. M. S.;Buurman, B. M. and Bosmans, J. E.

Publication Date: 2022

Journal: PLoS ONE 17(1 January) (pagination), pp. Arte Number: e0263130. ate of Pubaton: January 2022

Abstract: Objective: To evaluate the cost-effectiveness of the Cardiac Care Bridge (CCB) nurse-led transitional care program in older (>=70 years) cardiac patients compared to usual care. **Methods:** The intervention group (n = 153) received the CCB program consisting of case management, disease management and home-based cardiac rehabilitation in the transition from hospital to home on top of usual care and was compared with the usual care group (n = 153). Outcomes included a composite measure of first all-cause unplanned hospital readmission or mortality, Quality Adjusted Life Years (QALYs) and societal costs within six months follow-up. Missing data were imputed using multiple imputation. Statistical uncertainty surrounding Incremental Cost-Effectiveness Ratios (ICERs) was estimated by using bootstrapped seemingly unrelated regression. **Results**: No significant between group differences in the composite outcome of readmission or mortality nor in societal costs were observed. QALYs were statistically significantly lower in the intervention group, mean difference -0.03 (95% CI: -0.07; -0.02). Cost-effectiveness acceptability curves showed that the maximum probability of the intervention being cost-effective was 0.31 at a Willingness To Pay (WTP) of 0,00 and 0.14 at a WTP of 50,000 per composite outcome prevented and 0.32 and 0.21, respectively per QALY gained. **Conclusion:** The CCB program was on average more expensive and less effective compared to usual care, indicating that the CCB program is dominated by usual care. Therefore, the CCB program cannot be considered cost-effective compared to usual care.

DOI: https://libkey.io/10.1371/journal.pone.0263130

57. **Extracorporeal membrane oxygenation for ventricular tachycardia after hemicraniectomy**

Item Type: Conference Proceeding

Authors: Wang, W., Moas, D., Mahadevaiah, S., Maciel, C., Chang, P., Blatt, J., Peek, G. and Machado, D.

Publication Date: 2022

Publication Details: Critical Care Medicine. Conference: 51st Society of Critical Care Medicine Critical Care Congress, SCCM 2022. San Juan Puerto Rico. 50(1 SUPPL) (pp 185); Lippincott Williams and Wilkins,

Abstract: INTRODUCTION: Arrhythmias post neurological injury have been attributed to sympathetic surge in subarachnoid hemorrhage and traumatic brain injury. Extracorporeal membrane oxygenation (ECMO) in the

postoperative neurosurgical patient can be controversial due to high bleeding risk with systemic anticoagulation. ECMO for neurogenically induced arrhythmias in the setting of neuroinfectious disease has not been well described. DESCRIPTION: A 13-year-old male with sinusitis was admitted post craniotomy for left subdural empyema (SDE) evacuation. Left decompressive hemicraniectomy (DHC) was performed on postoperative day (POD) 3 for refractory intracranial hypertension. On POD1 after DHC, he developed repeated episodes of pulseless ventricular tachycardia (VT) refractory to electrolyte replacements with limited antiarrhythmic options due to QT prolongation, though lidocaine and amiodarone were used with no efficacy. His echocardiogram revealed a structurally normal heart with normal biventricular systolic function. There was no family history suggestive of inheritable arrhythmia conditions. The patient progressed to cardiac arrest requiring veno-arterial ECMO cannulation with a 25Fr venous, a 17Fr arterial and a 12Fr distal perfusion cannula on his left femoral site. Bivalirudin was used for anticoagulation to a goal aPTT of 60-80. He was maintained on neuroprotective measures and broad-spectrum antibiotics. Intravenous diltiazem was incorporated for VT suppression with resolution of arrhythmias the next day. He was decannulated after four days on ECMO without significant bleeding events. There were no significant differences between pre- and post- ECMO brain MRI scans. His post-ECMO course involved protracted ventilation with tracheostomy (TT), rhabdomyolysis, renal replacement therapy, deconditioning, and gastrostomy (GT)-associated nutritional support. He was transferred to a rehabilitation facility after 55 hospital days with recovery of physical and cognitive abilities, with TT and GT removed and cranial bone flap reinserted after two months. DISCUSSION: To our knowledge, this is the first report of successful ECMO support of a child with neuro-infection induced arrhythmias. ECMO following neurosurgical procedures is challenging but can be life saving with careful patient selection and anticoagulation management.

DOI: https://libkey.io/10.1097/01.ccm.0000807900.47384.a1

58. **Study on the Effects of Optimized Emergency Nursing Combined with Mild Hypothermia Nursing on Neurological Prognosis, Hemodynamics, and Cytokines in Patients with Cardiac Arrest**

Item Type: Journal Article

Authors: Wang, Xiaoxia and Wu, Chengxia

Publication Date: 2022

Journal: Evidence-Based Complementary & Alternative Medicine (eCAM) , pp. 1-7

Abstract: Purpose. To study the effects of optimized emergency nursing combined with mild hypothermia nursing on neurological prognosis, hemodynamics, and cytokines in patients with cardiac arrest (CA). **Methods.** The medical records of 147 patients who were successfully rescued by cardiopulmonary resuscitation (CPR) after CA in our hospital were retrospectively analyzed. The 56 patients admitted in 2020 who received optimized emergency nursing were recorded as the control group; and the 91 patients admitted in 2021 who received optimized emergency nursing combined with mild hypothermia nursing were recorded as the study group. The brain function of the two groups at 72 h after return of spontaneous circulation (ROSC) was analyzed: cerebral performance category (CPC) assessment method. The neurological function of the two groups before nursing and 7, 30, and 90 d after nursing was analyzed: National Institutes of Health Stroke Scale (NISHH) score. The vital signs of the two groups after 24 h of nursing were analyzed: heart rate, spontaneous breathing rate, and blood oxygen saturation. The hemodynamic indexes of the two groups at 24 hours after nursing were analyzed: mean arterial pressure (MAP), central venous pressure (CVP), systolic blood pressure (SBP), and diastolic blood pressure (DBP). The levels of cytokines of the two groups before nursing and 7 days after nursing were analyzed: tumor necrosis factor-α (TNF-α), interleukin-6 (IL-6), and interleukin-8 (IL-8). The incidence of complications and the incidence of postresuscitation syndrome (PRS) during the nursing period

were compared between the two groups. **Results.** 72 h after ROSC, the CPC results in the study group were slightly better than those in the control group, but there was no significant difference in the number of cases of CPC Grade 1, CPC Grade 2, CPC Grade 3, CPC Grade 4, and CPC Grade 5 between the two groups P > 0.05 . Before nursing, there was no statistical difference in the NISHH total score between the two groups P > 0.05 . 7, 30, and 90 d after nursing, the NISHH total score between the two groups were lower than those before nursing, and the study group's score was lower than the control group's P 0.05 . 24 h after nursing, there was no significant difference in MAP, CVP, SBP, and DBP between the two groups P > 0.05 . Before nursing, there was no significant difference in the levels of TNF-α, IL-6, and IL-8 between the two groups P > 0.05 . 7 d after nursing, the levels of TNF-α, IL-6, and IL-8 between the two groups were lower than those before nursing, and the levels of the study group were lower than those of the control group P < 0.05 . During the nursing period, the total complication rates of the control group and the study group were 55.36% and 34.07%, respectively, with statistical difference P < 0.05 . During the nursing period, the incidences of PRS in the control group and the study group were 12.50% and 3.30%, respectively, with significant difference P < 0.05 . **Conclusion.** The application of optimized emergency nursing combined with mild hypothermia nursing in CA can effectively improve the neurological prognosis and inflammatory levels of patients and reduce the incidence of body complications and PRS.

DOI: https://libkey.io/10.1155/2022/1787312

59. **Heart Attack Gender Gap**

Item Type: Journal Article

Authors: Wilson, Helen

Publication Date: Mar ,2022

Journal: Community Practitioner 95(2), pp. 48-49

Abstract: The author encourages women to look after their heart health. Topics discussed include number of women that are living with coronary heart disease (CHD) and number of women who are admitted to hospital following a heart attack each year, findings of a survey by Heart Research UK, conducted among over 4000 women about their understanding of their heart health, and lifestyle factors that impact negatively on heart health.

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=cin20&AN=156041598&custid=ns023446

60. **The Effectiveness of Case-management Rehabilitation Intervention in Facilitating Return to Work and Maintenance of Employment After Myocardial Infarction: Results of a Randomized Controlled Trial.**

Item Type: Journal Article

Authors: Zack, O.;Melamed, S.;Silber, H.;Cinamon, T.;Levy, D. and Moshe, S.

Publication Date: 2022

Journal: Clinical Rehabilitation 36(6), pp. 753-766

Abstract: OBJECTIVE: To study the long-term effectiveness of case-management rehabilitation intervention on vocational reintegration of patients after myocardial infarction (MI). DESIGN: Blinded simple randomization was used to construct an intervention and control groups that were followed up for two years. SUBJECTS AND SETTING: 151 patients, aged 50.3+/- 5.9 years, who experienced uncomplicated MI and were enrolled in a cardiac rehabilitation program were recruited. INTERVENTIONS: included an early referral to an occupational physician, tailoring an occupational rehabilitation program, based on individual patient needs, coordination with relevant parties, psychosocial intervention, intensive follow-up sessions during a two-year follow-up. MAIN MEASURES: Return to work within six months of hospitalization and maintenance of employment at one and two years of follow-up. RESULT(S): Return-to-work (RTW) rate in the intervention group was 89% and nearly all maintained employment at one year of follow-up (92%) and two years of follow-up (87%). Moreover, almost all of them returned to and maintained their previous jobs. The corresponding figures were: 98%, 94% and 98%, respectively. The figures for the RTW and employment maintenance for the control group were: 74%, 75%, and 72%, respectively. Only about 75%, in this group kept their previous job. The case-management intervention was associated with increased odds of maintaining employment at follow-up of one year (OR=5.89, 95% CI 1.42-24.30) and two years (OR=3.12, 95% CI 1.01-10.03). CONCLUSION(S): The extended case-management rehabilitation intervention had a substantial positive impact on both the RTW of MI patients and their maintenance of employment at one and two years of follow-up. TRIAL REGISTRATION: This trial is registered at US National Institutes of Health #NCT04934735.

DOI: https://libkey.io/10.1177/02692155221076826