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Cardiology
Current Awareness Bulletin

February 2017

Respecting everyone
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Lunchtime Drop-in Sessions

All sessions last one hour

March (13.00)	
Thurs 2nd	**Critical Appraisal**
Fri 10th	**Statistics**
Mon 13th	**Literature Searching**
Tues 21st	**Critical Appraisal**
Weds 29th	**Statistics**
April (12.00)	
Thurs 6th	**Literature Searching**
Mon 10th	**Critical Appraisal**
Tues 18th	**Interpreting Statistics**
Thurs 27th	**Literature Searching**

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Contents

Cardiology Journals: Tables of Contents

Please click on the hyperlinked titles (+ Ctrl) to access current journal contents. If you require the full text of any of the articles included, please email: library@uhbristol.nhs.uk

Journal of the American College of Cardiology

February 28 2017, Volume 69, Issue 8

Circulation

February 21 2017, Volume 135, Issue 8

European Heart Journal

March 1 2017, Volume 38, Issue 9

Latest Evidence

NICE National Institute for Health and Care Excellence

Enhancing the Quality of heart failure care. Kent, Surrey, Sussex Academic Health Science Network, Jan 2017

https://www.nice.org.uk/sharedlearning/enhancing-the-quality-of-heart-failure-care

Chronic heart failure. Nice pathway, update Feb 2017
This interactive flowchart covers the diagnosis and management of chronic heart failure in adults (aged 18 or over) in primary and secondary care.

https://pathways.nice.org.uk/pathways/chronic-heart-failure

Cochrane Library

Fisher SA, Doree C, Mathur A, Taggart DP, Martin-Rendon E. Stem cell therapy for chronic ischaemic heart disease and congestive heart failure. Cochrane Database of Systematic Reviews 2016, Issue 12. Art. No.: CD007888. DOI: 10.1002/14651858.CD007888.pub3.

http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007888.pub3/full

McLellan J, Heneghan CJ, Perera R, Clements AM, Glasziou PP, Kearley KE, Pidduck N, Roberts NW, Tyndel S, Wright FL, Bankhead C. B-type natriuretic peptide-guided treatment for heart failure. Cochrane Database of Systematic Reviews 2016, Issue 12. Art. No.: CD008966. DOI: 10.1002/14651858.CD008966.pub2.

http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008966.pub2/full

Ravani P, Quinn RR, Strippoli GFM. Pharmacological interventions for heart failure in people with chronic kidney disease (Protocol). Cochrane Database of Systematic Reviews 2016, Issue 12. Art. No.: CD012466. DOI: 10.1002/14651858.CD012466.

http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD012466/full

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What's new in cardiovascular medicine
Authors: Gordon M Saperia, MD, FACC; Susan B Yeon, MD, JD, FACC; Brian C Downey, MD, FACC
Literature review current through: Jan 2017. | **This topic last updated:** Feb 22, 2017.

Includes: HEART FAILURE Fully magnetically levitated centrifugal pump for advanced heart failure (November 2016)
https://www.uptodate.com/contents/whats-new-in-cardiovascular-medicine

Drugs that should be avoided or used with caution in patients with heart failure
Author: Wilson S Colucci, MD; Section Editor: Stephen S Gottlieb, MD; Deputy Editor: Susan B Yeon, MD, JD,

FACC
Literature review current through: Jan 2017. | **This topic last updated:** Feb 23, 2017.
https://www.uptodate.com/contents/drugs-that-should-be-avoided-or-used-with-caution-in-patients-with-heart-failure?source=related_link

The management of atrial fibrillation in patients with heart failure
Author: Brian Olshansky, MD; Section Editors: Wilson S Colucci, MD; Bradley P Knight, MD, FACC; Deputy Editor:Gordon M Saperia, MD, FACC
Literature review current through: Jan 2017. | **This topic last updated:** Sep 27, 2016.
https://www.uptodate.com/contents/the-management-of-atrial-fibrillation-in-patients-with-heart-failure?source=related_link

Current Awareness: Database Articles

Below is a selection of articles recently added to the healthcare databases.

A new topic can be chosen every quarter to reflect changes in practice or new developments in any particular field of interest

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk

Heart Failure

1. Prognostic role of copeptin with all-cause mortality after heart failure: a systematic review and meta-analysis.
2. No benefits of statins for sudden cardiac death prevention in patients with heart failure and reduced ejection fraction: A meta-analysis of randomized controlled trials.
3. The Effect of Exercise Training Intensity on Quality of Life in Heart Failure Patients: A Systematic Review and Meta-Analysis.
4. Effect of exercise training on endothelial function in heart failure patients: A systematic review meta-analysis.
5. Depression increases the risk of mortality in patients with heart failure: A meta-analysis.
6. The impact of obesity on heart failure.
7. Measuring self-care in patients with heart failure: A review of the psychometric properties of the European Heart Failure Self-Care Behaviour Scale (EHFScBS).
8. Remote Monitoring to Reduce Heart Failure Readmissions.
9. The heart failure epidemic: a UK perspective.
10. Global Variations in Patient Populations and Outcomes in Heart Failure Clinical Trials.
11. Psychosocial needs and interventions for heart failure patients and families receiving palliative care support: a systematic review.
12. Heart failure after conventional metal-on-metal hip replacements.
13. A Fully Magnetically Levitated Circulatory Pump for Advanced Heart Failure.
14. Intrapericardial Left Ventricular Assist Device for Advanced Heart Failure.
15. Comparative effectiveness of transitional care services in patients discharged from the hospital with heart failure: a systematic review and network meta-analysis.
16. The importance of myocardial contractile reserve in predicting response to cardiac resynchronization therapy.
17. Effect of exercise on diastolic function in heart failure patients: a systematic review and meta-analysis.
18. Tai Chi Exercise for Patients with Chronic Heart Failure: A Meta-analysis of Randomized Controlled Trials.
19. Implantable cardioverter/defibrillators for primary prevention in dilated cardiomyopathy post-DANISH: an updated meta-analysis and systematic review of randomized controlled trials.
20. Pre-cardiac transplant amiodarone use is not associated with postoperative mortality: An updated meta-analysis.
21. The prevalence of frailty in heart failure: A systematic review and meta-analysis.
22. Meta-Analysis of Soluble Suppression of Tumorigenicity-2 and Prognosis in Acute Heart Failure.
23. Clinical Outcomes of Metformin Use in Populations With Chronic Kidney Disease, Congestive Heart Failure, or Chronic Liver Disease: A Systematic Review.
24. Strategies to Improve Self-Management in Heart Failure Patients.
25. The Impact Exerted on Clinical Outcomes of Patients With Chronic Heart Failure by Aldosterone Receptor Antagonists: A Meta-Analysis of Randomized Controlled Trials.
26. Growth-differentiation factor 15 as a predictor of mortality in patients with heart failure: a meta-analysis.
27. Decreased Mortality With Beta-Blockers in Patients With Heart Failure and Coexisting Atrial Fibrillation: An AF-CHF Substudy.
28. The effect of beta-blockers on mortality in heart failure with preserved ejection fraction: A meta-analysis of observational cohort and randomized controlled studies.
29. Factors related to self-care behaviours in heart failure: A systematic review of European Heart Failure Self-Care Behaviour Scale studies.

1. Prognostic role of copeptin with all-cause mortality after heart failure: a systematic review and meta-analysis.

Author(s): Zhang, Peng; Wu, Xiaomei; Li, Guangxiao; Sun, Hao; Shi, Jingpu

Source: Therapeutics and clinical risk management; 2017; vol. 13 ; p. 49-58

Publication Type(s): Journal Article

Available in full text at Therapeutics and Clinical Risk Management - from National Library of Medicine

Abstract:BACKGROUNDAs the C-terminal section of vasopressin precursor, copeptin has been recently suggested as a new prognostic biomarker after heart failure (HF). Thus, the aim of this study was to evaluate the prognostic value of plasma copeptin level with all-cause mortality in patients with HF.METHODSComprehensive strategies were used to search relevant studies from electronic databases. Pooled hazard ratios (HRs) and standardized mean differences (SMDs) together with their 95% confidence intervals (CIs) were calculated. Subgroup analysis and sensitivity analysis were performed to find the potential sources of heterogeneity.RESULTSA total of 5,989 participants from 17 prospective studies were included in this meta-analysis. A significant association was observed between circulating copeptin levels and risk of all-cause mortality in patients with HF (categorical copeptin: HR =1.69, 95% CI =1.42-2.01; per unit copeptin: HR =1.03, 95% CI =1.00-1.07; log unit copeptin: HR =3.26, 95% CI =0.95-11.25). Pooled SMD showed that copeptin levels were significantly higher in patients with HF who died during the follow-up period than in survivors (SMD =1.19, 95% CI =0.81-1.57). Subgroup analyses also confirmed this significant association, while sensitivity analyses indicated that the overall results were stable.CONCLUSIONThis study demonstrated that circulating copeptin seemed to be a novel biomarker to provide better prediction of all-cause mortality in patients with HF.

2. No benefits of statins for sudden cardiac death prevention in patients with heart failure and reduced ejection fraction: A meta-analysis of randomized controlled trials.

Author(s): Al-Gobari, Muaamar; Le, Hai-Ha; Fall, Mor; Gueyffier, François; Burnand, Bernard

Source: PloS one; 2017; vol. 12 (no. 2); p. e0171168

Publication Type(s): Journal Article

Available in full text at PLoS ONE - from National Library of Medicine

Available in full text at PLoS One - from ProQuest

Abstract:BACKGROUND AND OBJECTIVESStatins showed mixed results in heart failure (HF) patients. The benefits in major HF outcomes, including all-cause mortality and sudden cardiac death (SCD), have always been discordant across systematic reviews and meta-analyses. We intended to systematically identify and appraise the available evidence that evaluated the effectiveness of statins in clinical outcomes for HF patients.DESIGNSystematic review and meta-analysis.DATA SOURCESWe searched, until April 28, 2016: Medline, Embase, ISI Web of Science and EBM reviews (Cochrane DSR, ACP journal club, DARE, CCTR, CMR, HTA, and NHSEED), checked clinicaltrials.gov for ongoing trials and manually searched references of included studies.ELIGIBILITY CRITERIA FOR SELECTING STUDIESWe identified 24 randomized clinical trials that evaluated the efficacy of statins for HF patients. All randomized clinical trials were assessed for risk of bias and pooled together in a meta-analysis. Pre-specified outcomes were sudden cardiac death, all-cause mortality, and hospitalization for worsening heart failure.RESULTSStatins did not reduce sudden cardiac death (SCD) events in HF patients [relative risk (RR) 0.92, 95% confidence interval (CI) 0.70 to 1.21], all-cause mortality [RR 0.88, 95% CI 0.75 to 1.02] but significantly reduced hospitalization for worsening heart failure (HWHF) although modestly [RR 0.79, 95% CI 0.66 to 0.94]. Nevertheless, estimated predictive intervals were insignificant in SCD, all-cause mortality and HWHF [RR, 0.54 to 1.63, 0.64 to 1.19, and 0.54 to 1.15], respectively. An important finding was the possible presence of publication bias, small-study effects and heterogeneity of the trials conducted in HF patients.CONCLUSIONSStatins do not reduce sudden cardiac death, all-cause mortality, but may slightly decrease hospitalization for worsening heart failure in HF patients. The evaluation of the risk of biases suggested moderate quality of the published results. Until new evidence is available, this study supports the 2013 ACCF/AHA guidelines to not systematically prescribe statins in "only" HF patients, which should help avoid unnecessary polypharmacy.

3. The Effect of Exercise Training Intensity on Quality of Life in Heart Failure Patients: A Systematic Review and Meta-Analysis.

Author(s): Ostman, Cecilia; Jewiss, Daniel; Smart, Neil A

Source: Cardiology; 2017; vol. 136 (no. 2); p. 79-89

Publication Type(s): Journal Article

Abstract:OBJECTIVESTo establish if exercise training intensity produces different effect sizes for quality of life in heart failure.BACKGROUNDExercise intensity is the primary stimulus for physical and mental adaptation.METHODSWe conducted a MEDLINE search (1985 to February 2016) for exercise-based rehabilitation trials in heart failure using the search terms 'exercise training', 'left ventricular dysfunction', 'peak VO2', 'cardiomyopathy', and 'systolic heart dysfunction'.RESULTSTwenty-five studies were included; 4 (16%) comprised high-, 10 (40%) vigorous-, 9 (36%) moderate- and 0 (0%) low-intensity groups; two studies were unclassified. The 25 studies provided a total of 2,385 participants, 1,223 exercising and 1,162 controls (36,056 patient-hours of training). Analyses reported significant improvement in total Minnesota living with heart failure (MLWHF) total score [mean difference (MD) -8.24, 95% CI -11.55 to -4.92, $p < 0.00001$]. Physical MLWHF scorewas significantly improved in all studies (MD -2.89, 95% CI -4.27 to -1.50, $p < 0.00001$). MLWHF total score was significantly reduced after high- (MD -13.74, 95% CI -21.34 to -6.14, $p = 0.0004$) and vigorous-intensity training (MD -8.56, 95% CI -12.77 to -4.35, $p < 0.0001$) but not moderate-intensity training. A significant improvement in the total MLWHF score was seen after aerobic training (MD -3.87, 95% CI -6.97 to -0.78, $p = 0.01$), and combined aerobic and resistance training (MD -9.82, 95% CI -15.71 to -3.92, $p = 0.001$), but not resistance training.CONCLUSIONSAs exercise training intensity rises, so may the magnitude of improvement in quality of life in exercising patients. Aerobic-only or combined aerobic and resistance training may offer the greatest improvements in quality of life.

4. Effect of exercise training on endothelial function in heart failure patients: A systematic review meta-analysis.

Author(s): Pearson, M J; Smart, N A

Source: International journal of cardiology; Mar 2017; vol. 231 ; p. 234-243

Publication Type(s): Journal Article

Abstract:OBJECTIVEEndothelial dysfunction contributes to the development and progression of cardiovascular disease and heart failure (HF) and is associated with an increased risk of mortality. Flow-mediated dilation (FMD) is widely utilised to assess endothelial function and is improved with exercise training in heart failure patients. The aim of this meta-analysis is to quantify the effect of exercise training in patients with heart failure.BACKGROUNDA large number of studies now exist that have examined endothelial function in patients with heart failure. We sought to add to the current literature by quantifying the effect of exercise training on endothelial function.METHODSWe conducted database searches (PubMed, EMBASE, PROQUEST and Cochrane Trials Register to June 2016) for exercise based rehabilitation trials in heart failure, using search terms exercise training, endothelial function, flow-mediated dilation (FMD) and endothelial progenitor cells (EPCs).RESULTSThe 16 included studies provided a total of 529 participants, 293 in an intervention and 236 in controls groups. FMD was improved with exercise training in exercise vs. control, SMD of 1.08 (95%CI 0.70 to 1.46, p<0.00001).CONCLUSIONOverall exercise training improved endothelial function, assessed via FMD, and endothelial progenitor cells in heart failure patients.

5. Depression increases the risk of mortality in patients with heart failure: A meta-analysis.

Author(s): Gathright, Emily C; Goldstein, Carly M; Josephson, Richard A; Hughes, Joel W

Source: Journal of psychosomatic research; Mar 2017; vol. 94 ; p. 82-89

Publication Type(s): Journal Article

Abstract:BACKGROUNDDepression is a risk factor for mortality in cardiovascular diseases. Prior studies confirm that depression predicts adverse outcomes in patients with heart failure (HF). However, data were inconclusive regarding the effect of depression on mortality. This meta-analysis examines the relationship between depression and mortality in HF.METHODSProspective studies of depression and mortality in HF published between 1999 and April 2016 were located using PubMed, PsychINFO, and MEDLINE. Comprehensive Meta-Analysis software was used to compute an aggregated effect size estimates of hazard ratios and to conduct subgroup analyses.RESULTSEighteen studies met inclusion criteria. For 8 aggregated univariate and 14 multivariate estimates, depressive symptoms were related to all-cause mortality. A pooled HR of 3 multivariate analyses indicated that depressive symptoms were not linked to cardiovascular mortality. In subgroup analyses, depression predicted all-cause mortality in samples with a mean age >65. The impact of depression on all-cause mortality also differed by follow-up duration, with samples with shorter follow-up durations demonstrating a larger effect.CONCLUSIONSIn HF, depression is related to increased all-cause mortality risk, with stronger effects in samples with shorter follow-up and in older adults. In older adults, depression may serve as a marker of more severe HF. However, this possibility is difficult to examine given inconsistent adjustment for HF severity. Additional studies may assist in determining the relationship between depression and cardiovascular mortality, as the low number of studies examining cardiovascular mortality may have precluded detection of an effect.

6. The impact of obesity on heart failure.

Author(s): Zhai, Alexander B; Haddad, Haissam

Source: Current opinion in cardiology; Mar 2017; vol. 32 (no. 2); p. 196-202

Publication Type(s): Journal Article

Abstract:PURPOSE OF REVIEWObesity, a growing global health problem, contributes to the development of heart failure. However, increased BMI seems protective for those with established disease, a phenomenon known as the 'obesity paradox'. In this review, we outline the mechanism through which obesity can contribute to the development of heart failure, explore the concept of obesity paradox, and highlight the challenges that obesity presents for advanced heart failure therapy.RECENT FINDINGSAlthough the mechanism underlying the obesity paradox is complex, meta-analysis shows that intentional weight loss through bariatric surgery can indeed improve cardiac structure and function. With regard to ventricular assist device therapy in obese patients, recent studies demonstrate that while obesity was indeed associated with higher likelihood of complications, there were no statistically significant differences in terms of mortality or delisting from cardiac transplant waiting list.SUMMARYObesity is strongly associated with the development of heart failure, through direct and indirect mechanisms. Although clear consensus regarding weight reduction in this patient population is lacking, there is mounting clinical evidence that intentional weight loss may be beneficial, in spite of the well-recognized obesity paradox, particularly as the presence of obesity presents unique challenges in the advanced therapy of heart failure patients.

7. Measuring self-care in patients with heart failure: A review of the psychometric properties of the European Heart Failure Self-Care Behaviour Scale (EHFScBS).

Author(s): Sedlar, Natasa; Socan, Gregor; Farkas, Jerneja; Mårtensson, Jan; Strömberg, Anna; Jaarsma, Tiny; Lainscak, Mitja

Source: Patient education and counseling; Feb 2017

Publication Type(s): Journal Article Review

Abstract:OBJECTIVEThe aim of this study was to review and evaluate the evidence related to psychometric properties of the European Heart Failure Self-Care Behaviour Scale (EHFScBS) that was developed and tested to measure health maintenance behaviours of heart failure (HF) patients and translated into several languages.METHODSPRISMA guidelines were used to search major health databases (PubMed, Scopus and ScienceDirect), to identify relevant studies. A literature search was undertaken in November 2015. An integrative review, aiming to bring together all evidence relating to the psychometric properties (validity, reliability) of the EHFScBS was conducted.RESULTS13 eligible studies were included. The results showed content, discriminant and convergent validity of the 9- and 12-item scale across the samples, while the factor structure of both versions of the scale was inconsistent. Most commonly used reliability estimates (Cronbach's alpha) of the total scale were satisfactory.CONCLUSIONOverall, published data demonstrate satisfactory psychometric properties of the EHFScBS, indicating that the scale is a reliable and valid tool for measuring health maintenance behaviours of HF patients.PRACTICE IMPLICATIONSTaking the findings regarding the factorial structure of the scale into account, we recommend the use of the total EHFScBS score or scores on specific items.

8. Remote Monitoring to Reduce Heart Failure Readmissions.

Author(s): Emani, Sitaramesh

Source: Current heart failure reports; Feb 2017

Publication Type(s): Journal Article Review

Abstract:PURPOSE OF REVIEWRehospitalization for heart failure remains a challenge in the treatment of affected patients. The ability to remotely monitor patients for worsening heart failure may provide an avenue through which therapeutic interventions can be made to prevent a rehospitalization. Available data on remote monitoring to reduce heart failure rehospitalizations are reviewed within.RECENT FINDINGSStrategies to reduce readmissions include clinical telemonitoring, bioimpedance changes, biomarkers, and remote hemodynamic monitoring. Telemonitoring is readily available, but has low sensitivity and adherence. No data exist to demonstrate the efficacy of this strategy in reducing admissions. Bioimpedance offers improved sensitivity compared to telemonitoring, but has not demonstrated an ability to reduce hospitalizations and is currently limited to those patients who have separate indications for an implantable device. Biomarker levels have shown variable results in the ability to reduce hospitalizations and remain without definitive proof supporting their utilization. Remote hemodynamic monitoring has shown the strongest ability to reduce heart failure readmissions and is currently approved for this purpose. However, remote hemodynamic monitoring requires an invasive procedure and may not be cost-effective. All currently available strategies to reduce hospitalizations with remote monitoring have drawbacks and challenges. Remote hemodynamic monitoring is currently the most efficacious based on data, but is not without its own imperfections.

9. The heart failure epidemic: a UK perspective.

Author(s): Cowie, Martin R

Source: Echo research and practice; Feb 2017

Publication Type(s): Journal Article Review

Available in full text at Echo Research and Practice - from Highwire Press

Abstract: Heart failure is appropriately described as an epidemic, with 1-2% of healthcare expenditure being directed at its management. In England, the National Institute for Health and Care Excellence (NICE) has issued guidance on best practice for the diagnosis and treatment of acute and chronic heart failure. Echocardiography is key to the diagnosis of the underlying cardiac abnormalities, and access to this (with our without biochemical testing using natriuretic peptides) is key to high quality and speedy diagnosis. New models of care aim to speed up access to echocardiography, but a shortage of technically trained staff remains a limiting factor in improving standards of care. The NHS audits the quality of care and outcome for patients admitted to hospital with heart failure, and this continues to show wide variation in practice, particularly where patients are not reviewed by the local heart failure multidisciplinary team. Recently, the All Party Parliamentary Group on Cardiac Disease

issued 10 suggestions for improvement in care for patients with heart failure - access to echocardiography being one of the key suggestions. Time will tell as to whether this support from law makers will assist in the implementation of NICE-recommended standards of care consistently across the country.

10. Global Variations in Patient Populations and Outcomes in Heart Failure Clinical Trials.

Author(s): Egwim, Chidiebube; Dixon, Brittany; Ambrosy, Andrew P; Mentz, Robert J

Source: Current heart failure reports; Feb 2017

Publication Type(s): Journal Article Review

Abstract:PURPOSE OF REVIEWHeart failure is a global pandemic and there has been a growing effort to enroll patients from different geographical regions in randomized controlled trials. In this review, we examined regional variation in both patient characteristics and outcomes among several of the most recent global heart failure trials RECENT FINDINGS: Retrospective analyses of global heart failure trials have identified marked variations in both baseline characteristics and management of heart failure by region of enrollment. In some trials, this variation has been significant enough to cause differential treatment effects. We summarized key heterogeneity observed in global heart failure clinical trials. Differences in both patient population and organization of these trials abroad pose an important challenge in making interpretations and country-level decisions. As such, we encourage a concerted effort to account for these differences in future research.

11. Psychosocial needs and interventions for heart failure patients and families receiving palliative care support: a systematic review.

Author(s): Cagle, John G; Bunting, Morgan; Kelemen, Anne; Lee, Joonyup; Terry, Dorothy; Harris, Ryan

Source: Heart failure reviews; Feb 2017

Publication Type(s): Journal Article Review

Abstract: Although diseases of the heart are the leading cause of death in the USA, palliative care research has largely focused on populations of cancer patients. However, a diagnosis of heart failure differs substantially than that of cancer. They differ in terms of signs and symptoms, disease trajectories, treatment options, stigma, and prognosis. Additionally, the populations affected by these differing illnesses are also unique in a number of fundamental ways. Based on these differences, it is reasonable to hypothesize that palliative care patients with heart failure, and their families, have a distinct set of psychosocial needs. The purpose of this review is to describe the psychosocial needs of palliative care heart failure patients, and their families, as well as the interventions that address those needs. Six electronic databases were searched in June 2016 resulting in 962 identified abstracts. After removal of 388 duplicates, 574 abstracts were screened based on the following criteria: (1) available in English, (2) peer-reviewed, (3) empirical data reported, (4) patient receiving palliative or hospice care, and (5) measured psychosocial needs of heart failure patients and/or their family caregivers. After screening 574 abstracts and conducting a full-text review of 150 articles, a total of 17 studies were identified in our review. Only three intervention studies were identified, two of which evaluated the impact of palliative care over usual care. The remaining study was a clinical trial of a psycho-educational support intervention, which failed to demonstrate beneficial outcomes. Heart failure patients and their family caregivers receiving palliative or hospice care have unique psychosocial needs that are largely unexamined by previous research. The need for further research is discussed.

12. Heart failure after conventional metal-on-metal hip replacements.

Author(s): Gillam, Marianne H; Pratt, Nicole L; Inacio, Maria C S; Roughead, Elizabeth E; Shakib, Sepehr; Nicholls, Stephen J; Graves, Stephen E

Source: Acta orthopaedica; Feb 2017; vol. 88 (no. 1); p. 2-9

Publication Type(s): Multicenter Study Journal Article

Available in full text at Acta Orthopaedica - from EBSCOhost

Available in full text at Acta Orthopaedica - from National Library of Medicine

Abstract: Background and purpose - It is unclear whether metal particles and ions produced by mechanical wear and corrosion of hip prostheses with metal-on-metal (MoM) bearings have systemic adverse effects on health. We compared the risk of heart failure in patients with conventional MoM total hip arthroplasty (THA) and in those with metal-on-polyethylene (MoP) THA. Patients and methods - We conducted a retrospective cohort study using data from the Australian Government Department of Veterans' Affairs health claims database on patients who received conventional THA for osteoarthritis between 2004 and 2012. The MoM THAs were

classified into groups: Articular Surface Replacement (ASR) XL Acetabular System, other large-head (LH) (> 32 mm) MoM, and small-head (SH) (≤ 32 mm) MoM. The primary outcome was hospitalization for heart failure after THA. Results - 4,019 patients with no history of heart failure were included (56% women). Men with an ASR XL THA had a higher rate of hospitalization for heart failure than men with MoP THA (hazard ratio (HR) = 3.2, 95% CI: 1.6-6.5). No statistically significant difference in the rate of heart failure was found with the other LH MoM or SH MoM compared to MoP in men. There was no statistically significant difference in heart failure rate between exposure groups in women. Interpretation - An association between ASR XL and hospitalization for heart failure was found in men. While causality between ASR XL and heart failure could not be established in this study, it highlights an urgent need for further studies to investigate the possibility of systemic effects associated with MoM THA.

13. A Fully Magnetically Levitated Circulatory Pump for Advanced Heart Failure.

Author(s): Mehra, Mandeep R; Naka, Yoshifumi; Uriel, Nir; Goldstein, Daniel J; Cleveland, Joseph C; Colombo, Paolo C; Walsh, Mary N; Milano, Carmelo A; Patel, Chetan B; Jorde, Ulrich P; Pagani, Francis D; Aaronson, Keith D; Dean, David A; McCants, Kelly; Itoh, Akinobu; Ewald, Gregory A; Horstmanshof, Douglas; Long, James W; Salerno, Christopher; MOMENTUM 3 Investigators

Source: The New England journal of medicine; Feb 2017; vol. 376 (no. 5); p. 440-450

Publication Type(s): Research Support, Non-u.s. Gov't Comparative Study Randomized Controlled Trial Multicenter Study Journal Article

Available in full text at New England Journal of Medicine - from Ovid

Abstract: Background Continuous-flow left ventricular assist systems increase the rate of survival among patients with advanced heart failure but are associated with the development of pump thrombosis. We investigated the effects of a new magnetically levitated centrifugal continuous-flow pump that was engineered to avert thrombosis. Methods We randomly assigned patients with advanced heart failure to receive either the new centrifugal continuous-flow pump or a commercially available axial continuous-flow pump. Patients could be enrolled irrespective of the intended goal of pump support (bridge to transplantation or destination therapy). The primary end point was a composite of survival free of disabling stroke (with disabling stroke indicated by a modified Rankin score >3; scores range from 0 to 6, with higher scores indicating more severe disability) or survival free of reoperation to replace or remove the device at 6 months after implantation. The trial was powered for noninferiority testing of the primary end point (noninferiority margin, -10 percentage points). Results Of 294 patients, 152 were assigned to the centrifugal-flow pump group and 142 to the axial-flow pump group. In the intention-to-treat population, the primary end point occurred in 131 patients (86.2%) in the centrifugal-flow pump group and in 109 (76.8%) in the axial-flow pump group (absolute difference, 9.4 percentage points; 95% lower confidence boundary, -2.1 [P<0.001 for noninferiority]; hazard ratio, 0.55; 95% confidence interval [CI], 0.32 to 0.95 [two-tailed P=0.04 for superiority]). There were no significant between-group differences in the rates of death or disabling stroke, but reoperation for pump malfunction was less frequent in the centrifugal-flow pump group than in the axial-flow pump group (1 [0.7%] vs. 11 [7.7%]; hazard ratio, 0.08; 95% CI, 0.01 to 0.60; P=0.002). Suspected or confirmed pump thrombosis occurred in no patients in the centrifugal-flow pump group and in 14 patients (10.1%) in the axial-flow pump group. Conclusions Among patients with advanced heart failure, implantation of a fully magnetically levitated centrifugal-flow pump was associated with better outcomes at 6 months than was implantation of an axial-flow pump, primarily because of the lower rate of reoperation for pump malfunction. (Funded by St. Jude Medical; MOMENTUM 3 ClinicalTrials.gov number, NCT02224755 .).

14. Intrapericardial Left Ventricular Assist Device for Advanced Heart Failure.

Author(s): Rogers, Joseph G; Pagani, Francis D; Tatooles, Antone J; Bhat, Geetha; Slaughter, Mark S; Birks, Emma J; Boyce, Steven W; Najjar, Samer S; Jeevanandam, Valluvan; Anderson, Allen S; Gregoric, Igor D; Mallidi, Hari; Leadley, Katrin; Aaronson, Keith D; Frazier, O H; Milano, Carmelo A

Source: The New England journal of medicine; Feb 2017; vol. 376 (no. 5); p. 451-460

Publication Type(s): Research Support, Non-u.s. Gov't Comparative Study Randomized Controlled Trial Multicenter Study Journal Article

Available in full text at New England Journal of Medicine - from Ovid

Abstract: Background Mechanical circulatory support with a left ventricular assist device (LVAD) is an established treatment for patients with advanced heart failure. We compared a newer LVAD design (a small intrapericardial centrifugal-flow device) against existing technology (a commercially available axial-flow device) in patients with advanced heart failure who were ineligible for heart transplantation. Methods We

conducted a multicenter randomized trial involving 446 patients who were assigned, in a 2:1 ratio, to the study (centrifugal-flow) device or the control (axial-flow) device. Adults who met contemporary criteria for LVAD implantation for permanent use were eligible to participate in the trial. The primary end point was survival at 2 years free from disabling stroke or device removal for malfunction or failure. The trial was powered to show noninferiority with a margin of 15 percentage points. Results The intention-to treat-population included 297 participants assigned to the study device and 148 participants assigned to the control device. The primary end point was achieved in 164 patients in the study group and 85 patients in the control group. The analysis of the primary end point showed noninferiority of the study device relative to the control device (estimated success rates, 55.4% and 59.1%, respectively, calculated by the Weibull model; absolute difference, 3.7 percentage points; 95% upper confidence limit, 12.56 percentage points; P=0.01 for noninferiority). More patients in the control group than in the study group had device malfunction or device failure requiring replacement (16.2% vs. 8.8%), and more patients in the study group had strokes (29.7% vs. 12.1%). Quality of life and functional capacity improved to a similar degree in the two groups. Conclusions In this trial involving patients with advanced heart failure who were ineligible for heart transplantation, a small, intrapericardial, centrifugal-flow LVAD was found to be noninferior to an axial-flow LVAD with respect to survival free from disabling stroke or device removal for malfunction or failure. (Funded by HeartWare; ENDURANCE ClinicalTrials.gov number, NCT01166347 .).

15. Comparative effectiveness of transitional care services in patients discharged from the hospital with heart failure: a systematic review and network meta-analysis.

Author(s): Van Spall, Harriette G C; Rahman, Tahseen; Mytton, Oliver; Ramasundarahettige, Chinthanie; Ibrahim, Quazi; Kabali, Conrad; Coppens, Michiel; Brian Haynes, R; Connolly, Stuart

Source: European journal of heart failure; Feb 2017

Publication Type(s): Journal Article

Abstract:AIMSTo compare the effectiveness of transitional care services in decreasing all-cause death and all-cause readmissions following hospitalization for heart failure (HF).METHODS AND RESULTSWe searched PubMed, Embase, CINAHL, and Cochrane Clinical Trials Register for randomized controlled trials (RCTs) published in 2000-2015 that tested the efficacy of transitional care services in patients hospitalized for HF, provided ≥1 month of follow-up, and reported all-cause mortality or all-cause readmissions. Our network meta-analysis included 53 RCTs (12 356 patients). Among services that significantly decreased all-cause mortality compared with usual care, nurse home visits were most effective [ranking P-score 0.6794; relative risk (RR) 0.78, 95% confidence intervals (CI) 0.62-0.98], followed by disease management clinics (DMCs) (ranking P-score 0.6368; RR 0.80, 95% CI 0.67-0.97). Among services that significantly decreased all-cause readmission, nurse home visits were most effective [ranking P-score 0.8365; incident rate ratio (IRR) 0.65, 95% CI 0.49-0.86], followed by nurse case management (NCM) (ranking P-score 0.6168; IRR 0.77, 95% CI 0.63-0.95), and DMCs (ranking P-score 0.5691; IRR 0.80, 95% CI 0.66-0.97). There was no significant difference in the comparative effectiveness of services that improved each outcome. Nurse home visits had the greatest pooled cost-savings (3810 USD, 95% CI 3682-3937), followed by NCM (3435 USD, 95% CI 3224-3645), and DMCs (245 USD, 95% CI -70 to 559). Telephone, telemonitoring, pharmacist, and education interventions did not significantly improve clinical outcomes.CONCLUSIONNurse home visits and DMCs decrease all-cause mortality after hospitalization for HF. Along with NCM, they also reduce all-cause readmissions, with no significant difference in comparative effectiveness. These services reduce healthcare system costs to varying degrees.

16. The importance of myocardial contractile reserve in predicting response to cardiac resynchronization therapy.

Author(s): Kloosterman, Mariëlle; Damman, Kevin; Van Veldhuisen, Dirk J; Rienstra, Michiel; Maass, Alexander H

Source: European journal of heart failure; Feb 2017

Publication Type(s): Journal Article

Abstract:AIMTo perform a meta-analysis and systematic review of published data to assess the relationship between contractile reserve and response to cardiac resynchronization therapy (CRT) in patients with heart failure.METHODS AND RESULTSWe searched MEDLINE/PubMed and Cochrane for all papers published up to 26 April 2016, supplemented by manual searches of reference lists from retrieved articles. The search strategy yielded nine observational studies that met our eligibility criteria with a total of 767 patients of which 757 provided data for this analysis. Contractile reserve after dobutamine infusion was present in 496 patients (66%). During follow-up 474 patients (63%) qualified as CRT responders. The presence of contractile reserve was

associated with a higher chance of CRT response (odds ratio 4.42, 95% confidence interval 2.15-9.07, P < 0.001) using a random-effects model. There was evidence of publication bias. Imputation of missing studies attenuated the association to some extent, but the positive association between contractile reserve and CRT response remained with an odds ratio of 2.42 (95% confidence interval 1.17-5.05, P = 0.018).CONCLUSIONThe presence of global contractile reserve at baseline, as assessed by dobutamine stress echocardiography, is associated with a higher chance of CRT response in patients with heart failure.

17. Effect of exercise on diastolic function in heart failure patients: a systematic review and meta-analysis.

Author(s): Pearson, M J; Mungovan, S F; Smart, N A

Source: Heart failure reviews; Feb 2017

Publication Type(s): Journal Article Review

Abstract: Diastolic dysfunction contributes to the development and progression of heart failure. Conventional echocardiography and tissue Doppler imaging are widely utilised in clinical research providing a number of indices of diastolic function valuable in the diagnosis and prognosis of heart failure patients. The aim of this meta-analysis was to quantify the effect of exercise training on diastolic function in patients with heart failure. Exercise training studies that investigate different indices of diastolic function in patients with heart failure have reported that exercise training improves diastolic function in these patients. We sought to add to the current literature by quantifying, where possible, the effect of exercise training on diastolic function. We conducted database searches (PubMed, EBSCO, EMBASE, and Cochrane Trials Register to 31 July 2016) for exercise based rehabilitation trials in heart failure, using the search terms 'exercise training, diastolic function and diastolic dysfunction'. Data from six studies, with a total of 266 heart failure with reduced ejection fraction (HFrEF) participants, 144 in intervention groups and 122 in control groups, indicated a significant reduction in the ratio of early diastolic transmitral velocity (E) to early diastolic tissue velocity (E') (E/E' ratio) with exercise training, exercise vs. control mean difference (MD) of -2.85 (95% CI -3.66 to -2.04, p < 0.00001). Data from five studies in heart failure with preserved ejection fraction (HFpEF) patients, with a total of 204 participants, 115 in intervention groups and 89 in control groups, also demonstrated a significant improvement in E/E' in exercise vs. control MD of -2.38 (95% CI -3.47 to -1.28, p < 0.0001).

18. Tai Chi Exercise for Patients with Chronic Heart Failure: A Meta-analysis of Randomized Controlled Trials.

Author(s): Gu, Qiang; Wu, Shui-Jing; Zheng, Yong; Zhang, Yan; Liu, Can; Hou, Jin-Chao; Zhang, Kai; Fang, Xiang-Ming

Source: American journal of physical medicine & rehabilitation; Feb 2017

Publication Type(s): Journal Article

Abstract:AIMThis meta-analysis aimed to update and evaluate evidence from randomized controlled trials of tai chi for patients with chronic heart failure.METHODBoth English and Chinese databases were searched from their inception to June 2, 2016 (PubMed, EMBASE, Cochrane Central Register of Controlled Trials for English publications and China Knowledge Resource Integrated, Wanfang, and Weipu databases for Chinese publication). Titles, abstracts, and full-text articles were screened against study inclusion criteria: randomized controlled trials studying tai chi intervention for patients with chronic heart failure. The meta-analysis was conducted with Revman 5.3 or STATA 12.RESULTThirteen randomized controlled trials were included. Tai chi induced significant improvement in 6-min walking distance (51.01 m; 30.49-71.53; P < 0.00). Moreover, tai chi was beneficial for quality of life (-10.37 points; -14.43 to -6.32; P = 0.00), left ventricular ejection fraction (7.72%; 3.58-11.89; P = 0.003), and B-type natriuretic peptide (-1.01; -1.82 to -0.19; P = 0.02).CONCLUSIONDespite heterogeneity and risk of bias, this meta-analysis further confirms that tai chi may be an effective cardiac rehabilitation method for patients with chronic heart failure. Larger, well-designed randomized controlled trials are needed to exclude the risk of bias.

19. Implantable cardioverter/defibrillators for primary prevention in dilated cardiomyopathy post-DANISH: an updated meta-analysis and systematic review of randomized controlled trials.

Author(s): Wolff, Georg; Lin, Yingfeng; Karathanos, Athanasios; Brockmeyer, Maximilian; Wolters, Susanne; Nowak, Bernd; Fürnkranz, Alexander; Makimoto, Hisaki; Kelm, Malte; Schulze, Volker

Source: Clinical research in cardiology : official journal of the German Cardiac Society; Feb 2017

Publication Type(s): Journal Article

Abstract:BACKGROUNDSudden cardiac death (SCD) is frequent in patients with heart failure due to dilated cardiomyopathy (DCM). Implantable cardioverter/defibrillator (ICD) device therapy is currently used for primary prevention. However, publication of the DANISH trial has recently given reason for doubt, showing no significant improvement in all-cause mortality in comparison to contemporary medical therapy.METHODSWe performed a meta-analysis of all randomized controlled trials comparing ICD therapy to medical therapy (MT) for primary prevention in DCM. The primary outcome was all-cause mortality; secondary analyses were performed on sudden cardiac death, cardiovascular death and non-cardiac death.RESULTSFive trials including a total of 2992 patients were included in the pooled analysis. Compared to contemporary medical treatment there was a significant mortality reduction with ICD device therapy [odds ratio (OR) 0.77, 95% confidence interval (CI) 0.64-0.93; p = 0.006]. SCD was decreased significantly (OR 0.43, CI 0.27-0.69; p = 0.0004), while cardiovascular death and non-cardiac death showed no differences. Sensitivity analyses showed no influence of amiodarone therapy on overall results. Analysis of MT details revealed the DANISH population to adhere the most to current guideline recommendations. In addition, it was the only study including a substantial amount of CRT devices (58%).CONCLUSIONSOur meta-analysis of all available randomized evidence shows a survival benefit of ICD therapy for primary prevention in DCM. DANISH results suggest an attenuation of this ICD advantage when compared to contemporary medical and cardiac resynchronization therapy. Until larger trials have confirmed this finding, ICD therapy should remain the recommendation for primary prevention of SCD in DCM.

20. Pre-cardiac transplant amiodarone use is not associated with postoperative mortality: An updated meta-analysis.

Author(s): Jennings, Douglas L; Baker, William L

Source: International journal of cardiology; Feb 2017

Publication Type(s): Journal Article

Abstract:BACKGROUNDAmiodarone remains the preferred agent for the treatment and prevention of life-threatening ventricular arrhythmias in patients with end-stage heart failure. While several reports suggest that pre-operative amiodarone exposure worsens outcomes in heart transplant recipients, other studies have failed to validate this relationship. We sought to clarify this issue by performing a meta-analysis of the available literature surrounding this topic.METHODSWe searched Medline, SCOPUS and the Cochrane Central Register of Controlled Trials through December 15th 2016, as well as proceedings from related conferences over the prior 3years. Included studies evaluated patients undergoing cardiac transplantation who had received pre-transplant amiodarone and reported postoperative mortality. Outcomes were pooled using a Hartung-Knapp random-effects model producing odds ratios (OR) and 95% confidence intervals (CI). Statistical heterogeneity was evaluated using the Cochrane Q statistic p-value and I2 value. Publication bias was assessed by visual inspection of funnel plots and using Egger's weighted regression statistic.RESULTSNine studies including 16,509 participants were included in the overall analysis. Use of pre-transplant amiodarone was not associated with an increase in postoperative mortality versus control (OR 1.38, 95% 0.8 to 2.36). Moderate statistical heterogeneity was present (I2=45.8%, p=0.06); visual inspection of funnel plot analysis did not suggest publication bias. No association was noted between a longer duration of follow-up and higher odds of mortality with amiodarone use (p=0.91).CONCLUSIONMeta-analysis of the available evidence suggests that pre-operative amiodarone exposure does not increase mortality in cardiac transplant recipients.

21. The prevalence of frailty in heart failure: A systematic review and meta-analysis.

Author(s): Denfeld, Quin E; Winters-Stone, Kerri; Mudd, James O; Gelow, Jill M; Kurdi, Sawsan; Lee, Christopher S

Source: International journal of cardiology; Feb 2017

Publication Type(s): Journal Article

Abstract:BACKGROUNDThere is a growing interest in the intersection of heart failure (HF) and frailty; however, estimates of the prevalence of frailty in HF vary widely. The purpose of this paper was to quantitatively synthesize published literature on the prevalence of frailty in HF and to examine the relationship between study characteristics (i.e. age and functional class) and the prevalence of frailty in HF.METHODSThe prevalence of frailty in HF, divided into Physical Frailty and Multidimensional Frailty measures, was synthesized across published studies using a random-effects meta-analysis of proportions approach. Meta-regression was performed to examine the influence of age and functional class (at the level of the study) on the prevalence of frailty.RESULTSA total of 26 studies involving 6896 patients with HF were included in this meta-analysis. Despite considerable differences across studies, the overall estimated prevalence of frailty in HF was 44.5% (95% confidence interval, 36.2%-52.8%; z=10.54; p<0.001). The prevalence was slightly lower

among studies using Physical Frailty measures (42.9%, z=9.05; p<0.001) and slightly higher among studies using Multidimensional Frailty measures (47.4%, z=5.66; p<0.001). There were no significant relationships between study age or functional class and prevalence of frailty.CONCLUSIONSFrailty affects almost half of patients with HF and is not necessarily a function of age or functional classification. Future work should focus on standardizing the measurement of frailty and on broadening the view of frailty beyond a strictly geriatric syndrome in HF.

22. Meta-Analysis of Soluble Suppression of Tumorigenicity-2 and Prognosis in Acute Heart Failure.

Author(s): Aimo, Alberto; Vergaro, Giuseppe; Ripoli, Andrea; Bayes-Genis, Antoni; Pascual Figal, Domingo A; de Boer, Rudolf A; Lassus, Johan; Mebazaa, Alexandre; Gayat, Etienne; Breidthardt, Tobias; Sabti, Zaid; Mueller, Christian; Brunner-La Rocca, Hans-Peter; Tang, W H Wilson; Grodin, Justin L; Zhang, Yuhui; Bettencourt, Paulo; Maisel, Alan S; Passino, Claudio; Januzzi, James L; Emdin, Michele

Source: JACC. Heart failure; Feb 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVESThe aim of this study was to perform a meta-analysis of currently available data regarding the prognostic significance of soluble suppression of tumorigenecity-2 (sST2) concentration in acute heart failure (AHF).BACKGROUNDConcentration of sST2 may have prognostic value in AHF. A comprehensive assessment of all available studies regarding sST2 in AHF is lacking.METHODSThree databases (MEDLINE, Cochrane Library, and Scopus) were searched. Inclusion criteria were follow-up studies, papers published in English, enrollment of patients with AHF, and availability of median hazard ratios for all-cause death and other outcome measures, when available.RESULTSTen studies were included, with a global population of 4,835 patients and a median follow-up duration of 13.5 months. The following global hazard ratios calculated for log2(sST2) were admission sST2 and all-cause death, 2.46 (95% confidence interval [CI]: 1.80 to 3.37; p < 0.001); discharge sST2 and all-cause death, 2.06 (95% CI: 1.37 to 3.11; p < 0.001); admission sST2 and cardiovascular death, 2.29 (95% CI: 1.41 to 3.73; p < 0.001); discharge sST2 and cardiovascular death, 2.20 (95% CI: 1.48 to 3.25; p < 0.001); admission sST2 and heart failure (HF) hospitalization, 1.21 (95% CI: 0.96 to 1.52; p = 0.060); discharge sST2 and HF hospitalization, 1.54 (95% CI: 1.03 to 2.32; p = 0.007); admission sST2 and all-cause death or HF hospitalization, 1.74 (95% CI: 1.24 to 2.45; p < 0.001); and discharge sST2 and all-cause death or HF hospitalization, 1.63 (95% CI: 1.14 to 2.33; p < 0.001).CONCLUSIONSPlasma sST2 has prognostic value with respect to all-cause and cardiovascular death as well as the composite outcome of all-cause death or HF hospitalization, with both admission and discharge values having prognostic efficacy. Discharge sST2, but not admission sST2, is predictive of HF rehospitalization during follow-up.

23. Clinical Outcomes of Metformin Use in Populations With Chronic Kidney Disease, Congestive Heart Failure, or Chronic Liver Disease: A Systematic Review.

Author(s): Crowley, Matthew J; Diamantidis, Clarissa J; McDuffie, Jennifer R; Cameron, C Blake; Stanifer, John W; Mock, Clare K; Wang, Xianwei; Tang, Shuang; Nagi, Avishek; Kosinski, Andrzej S; Williams, John W

Source: Annals of internal medicine; Feb 2017; vol. 166 (no. 3); p. 191-200

Publication Type(s): Journal Article

Abstract: BackgroundRecent changes to the U.S. Food and Drug Administration boxed warning for metformin will increase its use in persons with historical contraindications or precautions. Prescribers must understand the clinical outcomes of metformin use in these populations.PurposeTo synthesize data addressing outcomes of metformin use in populations with type 2 diabetes and moderate to severe chronic kidney disease (CKD), congestive heart failure (CHF), or chronic liver disease (CLD) with hepatic impairment.Data SourcesMEDLINE (via PubMed) from January 1994 to September 2016, and Cochrane Library, EMBASE, and International Pharmaceutical Abstracts from January 1994 to November 2015.Study SelectionEnglish-language studies that: 1) examined adults with type 2 diabetes and CKD (with estimated glomerular filtration rate less than 60 mL/min/1.73 m2), CHF, or CLD with hepatic impairment; 2) compared diabetes regimens that included metformin with those that did not; and 3) reported all-cause mortality, major adverse cardiovascular events, and other outcomes of interest.Data Extraction2 reviewers abstracted data and independently rated study quality and strength of evidence.Data SynthesisOn the basis of quantitative and qualitative syntheses involving 17 observational studies, metformin use is associated with reduced all-cause mortality in patients with CKD, CHF, or CLD with hepatic impairment, and with fewer heart failure readmissions in patients with CKD or CHF.LimitationsStrength of evidence was low, and data on multiple outcomes of interest were sparse. Available studies were observational and varied in follow-up duration.ConclusionMetformin use in patients with moderate CKD, CHF, or CLD with hepatic impairment is associated with improvements in key clinical outcomes. Our

findings support the recent changes in metformin labeling.Primary Funding SourceU.S. Department of Veterans Affairs. (PROSPERO: CRD42016027708).

24. Strategies to Improve Self-Management in Heart Failure Patients.

Author(s): Toback, Mehnosh; Clark, Nancy

Source: Contemporary nurse; Feb 2017 ; p. 1-35

Publication Type(s): Journal Article

Abstract:BACKGROUNDHeart failure is one of the most common causes of hospitalization, hospital readmission and death. Patients with heart failure have many complications, with multiple co-existing diagnoses which result in polypharmacy. Following instructions provided by many physicians, medication adjustments based on changes in their symptoms are required. Behavioral adjustments concerning diet and exercise regime are recommended. Therefore, the patient plays a crucial role in the management of heart failure.OBJECTIVESTo review the available studies on heart failure self-management, and investigate educational, behavioral and psychosocial strategies that plays an important role to improve patient self-management.METHODA literature review was conducted based upon the preferred reporting items for systematic reviews and meta- analyses (PRISMA) guidance. The articles identified through an extensive search using PubMed and UpToDate from 1999 to 2016.This study summarizes and highlights strategic factors that are essential to improve self-management in patients with heart failure.CONCLUSIONImproved self-management will increase compliance, promote patient quality-of-life, advance clinical outcomes, reduce hospital re-admission, and will decrease hospitalization costs.

25. The Impact Exerted on Clinical Outcomes of Patients With Chronic Heart Failure by Aldosterone Receptor Antagonists: A Meta-Analysis of Randomized Controlled Trials.

Author(s): De Vecchis, Renato; Cantatrione, Claudio; Mazzei, Damiana; Barone, Augusto; Maurea, Nicola

Source: Journal of clinical medicine research; Feb 2017; vol. 9 (no. 2); p. 130-142

Publication Type(s): Journal Article

Abstract:BACKGROUNDAldosterone receptor antagonists (ARAs) have been associated with improved clinical outcomes in patients with heart failure with reduced left ventricular ejection fraction (HFREF), but not in those with heart failure with preserved left ventricular ejection fraction (HFpEF). With the aim to study this topic more deeply, we carried out a meta-analysis of selective and non-selective ARAs in HFREF and HFpEF.METHODSWe searched PubMed and Scopus databases. We decided to incorporate in the meta-analysis only randomized controlled trials (RCTs) of ARAs in patients with chronic heart failure (CHF) if they met the following criteria: experimental groups included patients with CHF treated with ARAs in addition to the conventional therapy; control groups included patients with CHF receiving conventional therapy without ARAs. Outcomes of interest were all-cause death, hospitalizations from cardiovascular cause, hyperkalemia, or gynecomastia.RESULTSWe detected 15 studies representing 15,671 patients. ARAs were associated with a reduced odds of all-cause death (odds ratio (OR): 0.79; 95% confidence interval (CI): 0.73 - 0.87) and hospitalizations from cardiovascular cause (OR: 0.73; 95% CI: 0.61 - 0.89). However, subgroup analysis showed that these advantages were limited to HFREF (all-cause death: OR: 0.77, 95% CI: 0.69 - 0.84; hospitalizations from cardiovascular cause: OR: 0.66, 95% CI: 0.51 - 0.85), but they did not affect the HFpEF group (all-cause death: OR: 0.91, 95% CI: 0.76 - 1.1; hospitalizations from cardiovascular cause: OR: 0.85, 95% CI: 0.7 - 1.09). ARAs increased the risk of hyperkalemia (OR: 2.17; 95% CI: 1.88 - 2.5). Non-selective ARAs, but not selective ARAs, increased the risk of gynecomastia (OR: 8.22, 95% CI: 4.9 - 13.81 vs. OR: 0.74, 95% CI: 0.43 - 1.27).CONCLUSIONSARAs reduced the risk of adverse cardiac events in HFREF but not HFpEF. In particular, ARA use in HFpEF patients is questionable, since in this CHF type, no significant improvement in all-cause death and cardiovascular hospitalizations was demonstrated with ARA treatment, in the face of the well-known risks of hyperkalemia and/or gynecomastia that chronic ARA therapy entails. Selective ARAs were equally effective as non-selective ARAs, without the risk of gynecomastia.

26. Growth-differentiation factor 15 as a predictor of mortality in patients with heart failure: a meta-analysis.

Author(s): Zeng, Xiaocong; Li, Lang; Wen, Hong; Bi, Qi

Source: Journal of cardiovascular medicine (Hagerstown, Md.); Feb 2017; vol. 18 (no. 2); p. 53-59

Publication Type(s): Journal Article

Abstract: AIMS Measurement of the biomarker growth-differentiation factor 15 (GDF-15) in patients with heart failure may help in risk stratification. We assessed the relationship between GDF-15 and mortality in patients with heart failure by conducting a meta-analysis.METHODSPubMed, Embase, ISI Web of Science, SCOPUS, and Cochrane Library databases were searched for studies that reported data on the baseline GDF-15 levels and all-cause or cardiovascular mortality. Pooled hazard ratios for mortality were calculated and presented with 95% confidence intervals (CIs). Potential sources of heterogeneity were assessed by meta-regression, subgroup, and sensitivity analyses.RESULTSEight studies with a total of 4126 heart failure patients were included. Pooled results showed that overexpression of GDF-15 was associated with poor survival in heart failure patients (log unit GDF-15: hazard ratio=1.86, 95% CI=1.37-2.52). Subgroup analyses revealed similar results. However, there was evidence of heterogeneity and publication bias. The association disappeared after correction using the trim-and-fill method (log unit GDF-15: hazard ratio 1.07, 95% CI 0.80-1.42).CONCLUSIONThe results of this meta-analysis indicate an association of elevated GDF-15 levels with increased risk of mortality in patients with heart failure. However, the results should be interpreted with caution due to substantial heterogeneity and publication bias among the studies included in the meta-analysis.

27. Decreased Mortality With Beta-Blockers in Patients With Heart Failure and Coexisting Atrial Fibrillation: An AF-CHF Substudy.

Author(s): Cadrin-Tourigny, Julia; Shohoudi, Azadeh; Roy, Denis; Talajic, Mario; Tadros, Rafik; Mondésert, Blandine; Dyrda, Katia; Rivard, Léna; Andrade, Jason G; Macle, Laurent; Guerra, Peter G; Thibault, Bernard; Dubuc, Marc; Khairy, Paul

Source: JACC. Heart failure; Feb 2017; vol. 5 (no. 2); p. 99-106

Publication Type(s): Journal Article

Abstract:OBJECTIVESThe impact of beta-blockers on mortality and hospitalizations was assessed in the largest randomized trial of patients with both atrial fibrillation (AF) and heart failure with a reduced ejection fraction (HFrEF): the Atrial Fibrillation-Congestive Heart Failure trial.BACKGROUNDAlthough beta-blockers are the cornerstone of therapy for HFrEF, a recent patient-level meta-analysis cast doubt on their efficacy in patients with coexisting AF.METHODSFrom a total of 1,376 subjects randomized in the AF-CHF trial, those without beta-blockers at baseline were propensity matched to a maximum of 2 exposed patients. All absolute standardized differences after matching were ≤10%. Primary analyses respected the intention-to-treat principle. In on-treatment sensitivity analyses, beta-blocker status was modeled as a time-dependent covariate.RESULTSBaseline characteristics were comparable among the matched cohorts (mean age 70 ± 11 years, 81% male, and mean left ventricular ejection fraction 27 ± 6%). During a median follow-up of 37 months, beta-blockers were associated with significantly lower all-cause mortality (hazard ratio [HR]: 0.721, 95% confidence interval [CI]: 0.549 to 0.945; p = 0.0180) but not hospitalizations (HR: 0.886; 95% CI: 0.715 to 1.100; p = 0.2232). Similar results were obtained in sensitivity analyses that modeled beta-blockers as a time-dependent variable (HR: 0.668 for all-cause mortality; 95% CI: 0.511 to 0.874; p = 0.0032; HR: 0.814 for hospitalizations; 95% CI: 0.653 to 1.014; p = 0.0658). There were no significant interactions between beta-blockers and patterns (i.e., persistent vs. paroxysmal) or burden of AF with respect to mortality or hospitalizations.CONCLUSIONSIn propensity-matched analyses, beta-blockers were associated with significantly lower mortality but not hospitalizations in patients with HFrEF and AF, irrespective of the pattern or burden of AF. These results support current evidence-based recommendations for beta-blockers in patients with HFrEF, whether or not they have associated AF.

28. The effect of beta-blockers on mortality in heart failure with preserved ejection fraction: A meta-analysis of observational cohort and randomized controlled studies.

Author(s): Fukuta, Hidekatsu; Goto, Toshihiko; Wakami, Kazuaki; Ohte, Nobuyuki

Source: International journal of cardiology; Feb 2017; vol. 228 ; p. 4-10

Publication Type(s): Journal Article

Abstract:BACKGROUNDNearly half of patients with heart failure (HF) have preserved ejection fraction (EF) and the mortality of patients with HF with preserved EF (HFpEF) is high. However, there is no therapy to improve survival in HFpEF. Although observational cohort studies (OCSs) have examined the survival benefit of beta-blockers in HFpEF, the results are inconsistent due to limited power with small sample sizes and/or lack of adjustment for known confounders. Furthermore, recent randomized controlled trial (RCT)s failed to show the mortality benefit of beta-blockers in HFpEF. However, these RCTs were not adequately powered and thus the definite conclusion cannot be drawn.METHODS AND RESULTSWe aimed to conduct a meta-analysis of the effect of beta-blockers on mortality in HFpEF. The search of electronic databases identified 5 OCSs with

propensity score (PS) analysis (12,315 patients), 6 OCSs without PS analysis (15,275 patients), and 3 RCTs (1046 patients). Beta-blocker use was associated with improved survival in the pooled analysis of OCSs with PS analysis (RR [95% CI]=0.79 [0.66-0.95]) and in that of OCSs without PS analysis (0.70 [0.52-0.94]). In the pooled analysis of RCTs, beta-blocker use was associated with non-significant reduced risk for mortality (RR [95% CI]=0.80 [0.61-1.05]). Overall, use of beta-blockers reduced the risk of mortality by 21% (RR [95% CI]=0.79 [0.71-0.88]).CONCLUSIONOur meta-analysis suggests the potential mortality benefit of beta-blockers in HFpEF. Well-designed and powered RCTs should be planned to confirm our observed potential survival benefit of beta-blockers in HFpEF.

29. Factors related to self-care behaviours in heart failure: A systematic review of European Heart Failure Self-Care Behaviour Scale studies.

Author(s): Sedlar, Natasa; Lainscak, Mitja; Mårtensson, Jan; Strömberg, Anna; Jaarsma, Tiny; Farkas, Jerneja

Source: European journal of cardiovascular nursing : journal of the Working Group on Cardiovascular Nursing of the European Society of Cardiology; Feb 2017 ; p. 1474515117691644

Publication Type(s): Journal Article

Abstract:BACKGROUNDSelf-care is an important element in the comprehensive management of patients with heart failure. The European Heart Failure Self-Care Behaviour Scale (EHFScBS) was developed and tested to measure behaviours performed by the heart failure patients to maintain life, healthy functioning, and wellbeing.AIMSThe purpose of this review was to evaluate the importance of factors associated with heart failure self-care behaviours as measured by the EHFScBS.METHODSPreferred Reporting Items for Systematic Review and Meta-Analysis guidelines were used to search major health databases (PubMed, Scopus and ScienceDirect). Obtained associating factors of heart failure self-care were qualitatively synthesised and the association levels of most commonly addressed factors were further explored.RESULTSWe identified 30 studies that were included in the review; a diverse range of personal and environmental factors associated with self-care behaviours in heart failure patients were identified. Age, health-related quality of life, gender, education, New York Heart Association class, depressive symptoms and left ventricular ejection fraction were most often correlated with the EHFScBS score. Consistent evidence for the relationship between self-care behaviours and depression was found, while their association with New York Heart Association class and health-related quality of life was non-significant in most of the studies. Associations with other factors were shown to be inconsistent or need to be further investigated as they were only addressed in single studies.CONCLUSIONA sufficient body of evidence is available only for a few factors related to heart failure self-care measured by the EHFScBS and indicates their limited impact on patient heart failure self-care. The study highlights the need for further exploration of relationships that would offer a more comprehensive understanding of associating factors.

30. Renin-Angiotensin System Inhibition, Worsening Renal Function, and Outcome in Heart Failure Patients With Reduced and Preserved Ejection Fraction: A Meta-Analysis of Published Study Data.

Author(s): Beldhuis, Iris E; Streng, Koen W; Ter Maaten, Jozine M; Voors, Adriaan A; van der Meer, Peter; Rossignol, Patrick; McMurray, John J V; Damman, Kevin

Source: Circulation. Heart failure; Feb 2017; vol. 10 (no. 2)

Publication Type(s): Journal Article

Available in full text at Circulation: Heart Failure - from Highwire Press

Abstract:BACKGROUNDRenin-angiotensin aldosterone system (RAAS) inhibitors significantly improve outcome in heart failure (HF) patients with reduced ejection fraction (HFREF), irrespective of the occurrence of worsening renal function (WRF). However, in HF patients with preserved ejection fraction (HFPEF), RAAS inhibitors have not been shown to improve outcome but are still frequently prescribed.METHODS AND RESULTSRandom effect meta-analysis was performed to investigate the relationship between RAAS inhibitor therapy, WRF in both HF phenotypes, and mortality. Studies were selected based on literature search in MEDLNE and included randomized, placebo controlled trials of RAAS inhibitors in chronic HF. The primary outcome consisted of the interaction analysis for the association between RAAS inhibition-induced WRF, HF phenotype and outcome. A total of 8 studies (6 HFREF and 2 HFPEF, including 28 961 patients) were included in our analysis. WRF was more frequent in the RAAS inhibitor group, compared with the placebo group, in both HFREF and HFPEF. In HFREF, WRF induced by RAAS inhibitor therapy was associated with a less increased relative risk of mortality (relative risk, 1.19 (1.08-1.31); P<0.001), compared with WRF induced by placebo (relative risk, 1.48 (1.35-1.62); P<0.001; P for interaction 0.005). In contrast, WRF induced by RAAS inhibitor therapy was strongly associated with worse outcomes in HFPEF (relative risk, 1.78 (1.43-2.21); P<0.001),

whereas placebo-induced WRF was not (relative risk, 1.25 (0.88-1.77); P=0.21; P for interaction 0.002).CONCLUSIONSRAAS inhibitors induce renal dysfunction in both HFREF and HFPEF. However, in contrast to patients with HFREF where mortality increase with WRF is small, HFPEF patients with RAAS inhibitor-induced WRF have an increased mortality risk, without experiencing improved outcome with RAAS inhibition.

31. Preeclampsia and Future Cardiovascular Health: A Systematic Review and Meta-Analysis.

Author(s): Wu, Pensée; Haththotuwa, Randula; Kwok, Chun Shing; Babu, Aswin; Kotronias, Rafail A; Rushton, Claire; Zaman, Azfar; Fryer, Anthony A; Kadam, Umesh; Chew-Graham, Carolyn A; Mamas, Mamas A

Source: Circulation. Cardiovascular quality and outcomes; Feb 2017; vol. 10 (no. 2)

Publication Type(s): Journal Article

Available in full text at Circulation: Cardiovascular Quality and Outcomes - from Highwire Press

Abstract:BACKGROUNDPreeclampsia is a pregnancy-specific disorder resulting in hypertension and multiorgan dysfunction. There is growing evidence that these effects persist after pregnancy. We aimed to systematically evaluate and quantify the evidence on the relationship between preeclampsia and the future risk of cardiovascular diseases.METHODS AND RESULTSWe studied the future risk of heart failure, coronary heart disease, composite cardiovascular disease, death because of coronary heart or cardiovascular disease, stroke, and stroke death after preeclampsia. A systematic search of MEDLINE and EMBASE was performed to identify relevant studies. We used random-effects meta-analysis to determine the risk. Twenty-two studies were identified with >6.4 million women including >258 000 women with preeclampsia. Meta-analysis of studies that adjusted for potential confounders demonstrated that preeclampsia was independently associated with an increased risk of future heart failure (risk ratio [RR], 4.19; 95% confidence interval [CI], 2.09-8.38), coronary heart disease (RR, 2.50; 95% CI, 1.43-4.37), cardiovascular disease death (RR, 2.21; 95% CI, 1.83-2.66), and stroke (RR, 1.81; 95% CI, 1.29-2.55). Sensitivity analyses showed that preeclampsia continued to be associated with an increased risk of future coronary heart disease, heart failure, and stroke after adjusting for age (RR, 3.89; 95% CI, 1.83-8.26), body mass index (RR, 3.16; 95% CI, 1.41-7.07), and diabetes mellitus (RR, 4.19; 95% CI, 2.09-8.38).CONCLUSIONSPreeclampsia is associated with a 4-fold increase in future incident heart failure and a 2-fold increased risk in coronary heart disease, stroke, and death because of coronary heart or cardiovascular disease. Our study highlights the importance of lifelong monitoring of cardiovascular risk factors in women with a history of preeclampsia.

32. Effect of Sleep-Disordered Breathing on Appropriate Implantable Cardioverter-Defibrillator Therapy in Patients With Heart Failure: A Systematic Review and Meta-Analysis.

Author(s): Kwon, Younghoon; Koene, Ryan J; Kwon, Osung; Kealhofer, Jessica V; Adabag, Selcuk; Duval, Sue

Source: Circulation. Arrhythmia and electrophysiology; Feb 2017; vol. 10 (no. 2); p. e004609

Publication Type(s): Journal Article

Available in full text at Circulation: Arrhythmia and Electrophysiology - from Highwire Press

Abstract:BACKGROUNDPatients with heart failure and reduced ejection fraction are at increased risk of malignant ventricular arrhythmias. Implantable cardioverter-defibrillator (ICD) is recommended to prevent sudden cardiac death in some of these patients. Sleep-disordered breathing (SDB) is highly prevalent in this population and may impact arrhythmogenicity. We performed a systematic review and meta-analysis of prospective studies that assessed the impact of SDB on ICD therapy.METHODS AND RESULTSRelevant prospective studies were identified in the Ovid MEDLINE, EMBASE, and Google Scholar databases. Weighted risk ratios of the association between SDB and appropriate ICD therapies were estimated using random effects meta-analysis. Nine prospective cohort studies (n=1274) were included in this analysis. SDB was present in 52% of the participants. SDB was associated with a 55% higher risk of appropriate ICD therapies (45% versus 28%; risk ratio, 1.55; 95% confidence interval, 1.32-1.83). In a subgroup analysis based on the subtypes of SDB, the risk was higher in both central (risk ratio, 1.50; 95% confidence interval, 1.11-2.02) and obstructive (risk ratio, 1.43; 95% confidence interval, 1.01-2.03) sleep apnea.CONCLUSIONSSDB is associated with an increased risk of appropriate ICD therapy in patients with heart failure and reduced ejection fraction.

33. Efficacy and Safety of Intravenous Urapidil for Older Hypertensive Patients with Acute Heart Failure: A Multicenter Randomized Controlled Trial.

Author(s): Yang, Wei; Zhou, Yu Jie; Fu, Yan; Qin, Jian; Qin, Shu; Chen, Xiao Min; Guo, Jin Cheng; Wang, De Zhao; Zhan, Hong; Li, Jing; He, Jing Yu; Hua, Qi

Source: Yonsei medical journal; Jan 2017; vol. 58 (no. 1); p. 105-113

Publication Type(s): Randomized Controlled Trial Multicenter Study Journal Article

Available in full text at Yonsei Medical Journal - from National Library of Medicine

Abstract:PURPOSEUrapidil is putatively effective for patients with hypertension and acute heart failure, although randomized controlled trials thereon are lacking. We investigated the efficacy and safety of intravenous urapidil relative to that of nitroglycerin in older patients with hypertension and heart failure in a randomized controlled trial.MATERIALS AND METHODSPatients (>60 y) with hypertension and heart failure were randomly assigned to receive intravenous urapidil (n=89) or nitroglycerin (n=91) for 7 days. Hemodynamic parameters, cardiac function, and safety outcomes were compared.RESULTSPatients in the urapidil group had significantly lower mean systolic blood pressure (110.1±6.5 mm Hg) than those given nitroglycerin (126.4±8.1 mm Hg, p=0.022), without changes in heart rate. Urapidil was associated with improved cardiac function as reflected by lower N terminal-pro B type natriuretic peptide after 7 days (3311.4±546.1 ng/mL vs. 4879.1±325.7 ng/mL, p=0.027) and improved left ventricular ejection fraction (62.2±3.4% vs. 51.0±2.4%, p=0.032). Patients given urapidil had fewer associated adverse events, specifically headache (p=0.025) and tachycardia (p=0.004). The one-month rehospitalization and all-cause mortality rates were similar.CONCLUSIONIntravenous administration of urapidil, compared with nitroglycerin, was associated with better control of blood pressure and preserved cardiac function, as well as fewer adverse events, for elderly patients with hypertension and acute heart failure.

34. Prediction of risk of diabetic retinopathy for all-cause mortality, stroke and heart failure: Evidence from epidemiological observational studies.

Author(s): Zhu, Xiao-Rong; Zhang, Yong-Peng; Bai, Lu; Zhang, Xue-Lian; Zhou, Jian-Bo; Yang, Jin-Kui

Source: Medicine; Jan 2017; vol. 96 (no. 3); p. e5894

Publication Type(s): Meta-analysis Journal Article

Abstract: To examine and quantify the potential relation between diabetic retinopathy (DR) and risk of all-cause mortality, stroke and heart failure (HF).The resources of meta-analysis of epidemiological observational studies were from Pub-med, EMBASE, CINAHL, Cochrane Library, conference, and proceedings.Random/fixed effects models were used to calculate pooled subgroup analysis stratified by different grades of DR was performed to explore the potential source of heterogeneity. Statistical manipulations were undertaken using program STATA.Of the included 25 studies, comprising 142,625 participants, 19 studies were concluded to find the relation of DR to all-cause mortality, 5 for stroke, and 3 for HF. Risk ratio (RR) for all-cause mortality with the presence of DR was 2.33 (95% CI 1.92-2.81) compared with diabetic individuals without DR. Evidences showed a higher risk of all-cause mortality associated with DR in patients with T2D or T1D (RR 2.25, 95% CI 1.91-2.65. RR 2.68, 95% CI 1.34-5.36). According to different grades of DR in patients with T2D, RR for all-cause mortality varied, the risk of nonproliferative diabetic retinopathy (NPDR) was 1.38 (1.11-1.70), while the risk of proliferative diabetic retinopathy (PDR) was 2.32 (1.75-3.06). There was no evidence of significant heterogeneity (Cochran Q test P=0.29 vs 0.26, I=19.6% vs 22.6%, respectively). Data from 5 studies in relation to DR and the risk of stroke showed that DR was significantly associated with increased risk of stroke (RR=1.74, 95%CI: 1.35-2.24), compared with patients without DR. Furthermore, DR (as compared with individuals without DR) was associated with a marginal increased risk of HF in patients with diabetes mellitus (DM) (n=3 studies; RR 2.24, 95% CI 0.98-5.14, P=0.056).Our results showed that DR increased the risk of all-cause mortality, regardless of the different stages, compared with the diabetic individuals without DR. DR predicted increased risk of stroke and HF. Although only 3 studies about HF were available, the association between DR and HF should be careful.

35. Heart failure 2016: still more questions than answers.

Author(s): Metra, Marco; Carubelli, Valentina; Ravera, Alice; Stewart Coats, Andrew J

Source: International journal of cardiology; Jan 2017; vol. 227 ; p. 766-777

Publication Type(s): Journal Article Review

Abstract: Heart failure has reached epidemic proportions given the ageing of populations and is associated with high mortality and re-hospitalization rates. This article reviews and summarizes recent advances in the diagnosis, assessment and treatment of the patients with heart failure. Data are discussed based also on the most recent guidelines indications. Open issues and unmet needs are highlighted.

36. Clinical relevance of pharmacokinetic and pharmacodynamic properties of edoxaban when treating patients with atrial fibrillation and heart failure.

Author(s): Aspromonte, Nadia; Colivicchi, Furio

Source: Expert opinion on drug metabolism & toxicology; Jan 2017; vol. 13 (no. 1); p. 113-122

Publication Type(s): Journal Article Review

Abstract:INTRODUCTIONAtrial fibrillation (AF) is an independent risk factor for stroke. It is most prevalent in the elderly and frequently coexists with heart failure (HF). The joint occurrence of AF and HF further worsens prognosis. The prevention of thromboembolism is crucial in the management of AF. In recent years, new oral anticoagulants (NOACs) have been licensed for the prevention of stroke and systemic embolism in patients with AF. Areas covered: This article reviews the key published studies on the pharmacology, clinical efficacy and safety of edoxaban, the latest NOAC to receive approval for the AF indication. This potent and selective inhibitor of factor Xa shows predictable pharmacokinetic and pharmacodynamic profiles. Its efficacy and safety have been demonstrated in the pivotal, phase III, warfarin-controlled ENGAGE AF-TIMI 48 trial in 21,105 AF patients. Expert opinion: NOACs will likely improve the management of AF, with or without HF. Edoxaban has a favorable pharmacokinetic profile that supports its use in special patient populations, including patients aged ≥75 years, with HF, renal impairment, poor adherence, and on polypharmacy. Proven strategies of edoxaban dose-reduction for optimal use in the presence of moderate renal impairment, and/or use of strong P-gp inhibitors are available.

37. Heart Failure and Hypertension: Importance of Prevention.

Author(s): Pfeffer, Marc A

Source: The Medical clinics of North America; Jan 2017; vol. 101 (no. 1); p. 19-28

Publication Type(s): Journal Article Review

Abstract: This article discusses the role of hypertension in heart failure. Elevated blood pressure has the greatest population attributable risk for the development of heart failure. The mortality rates following the clinical recognition of heart failure is increased multifold. The treatment of hypertension with antihypertensive agents is particularly effective in preventing heart failure, which makes it the most effective therapy for heart failure.

38. Symptom burden in heart failure: assessment, impact on outcomes, and management.

Author(s): Alpert, Craig M; Smith, Michael A; Hummel, Scott L; Hummel, Ellen K

Source: Heart failure reviews; Jan 2017; vol. 22 (no. 1); p. 25-39

Publication Type(s): Journal Article Review

Abstract: Evidence-based management has improved long-term survival in patients with heart failure (HF). However, an unintended consequence of increased longevity is that patients with HF are exposed to a greater symptom burden over time. In addition to classic symptoms such as dyspnea and edema, patients with HF frequently suffer additional symptoms such as pain, depression, gastrointestinal distress, and fatigue. In addition to obvious effects on quality of life, untreated symptoms increase clinical events including emergency department visits, hospitalizations, and long-term mortality in a dose-dependent fashion. Symptom management in patients with HF consists of two key components: comprehensive symptom assessment and sufficient knowledge of available approaches to alleviate the symptoms. Successful treatment addresses not just the physical but also the emotional, social, and spiritual aspects of suffering. Despite a lack of formal experience during cardiovascular training, symptom management in HF can be learned and implemented effectively by cardiology providers. Co-management with palliative medicine specialists can add significant value across the spectrum and throughout the course of HF.

39. Remote Monitoring of Patients With Heart Failure: An Overview of Systematic Reviews.

Author(s): Bashi, Nazli; Karunanithi, Mohanraj; Fatehi, Farhad; Ding, Hang; Walters, Darren

Source: Journal of medical Internet research; Jan 2017; vol. 19 (no. 1); p. e18

Publication Type(s): Journal Article Review

Available in full text at Journal of Medical Internet Research - from National Library of Medicine

Abstract:BACKGROUNDMany systematic reviews exist on the use of remote patient monitoring (RPM) interventions to improve clinical outcomes and psychological well-being of patients with heart failure. However,

research is broadly distributed from simple telephone-based to complex technology-based interventions. The scope and focus of such evidence also vary widely, creating challenges for clinicians who seek information on the effect of RPM interventions.OBJECTIVEThe aim of this study was to investigate the effects of RPM interventions on the health outcomes of patients with heart failure by synthesizing review-level evidence.METHODSWe searched PubMed, EMBASE, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and the Cochrane Library from 2005 to 2015. We screened reviews based on relevance to RPM interventions using criteria developed for this overview. Independent authors screened, selected, and extracted information from systematic reviews. AMSTAR (Assessment of Multiple Systematic Reviews) was used to assess the methodological quality of individual reviews. We used standardized language to summarize results across reviews and to provide final statements about intervention effectiveness.RESULTSA total of 19 systematic reviews met our inclusion criteria. Reviews consisted of RPM with diverse interventions such as telemonitoring, home telehealth, mobile phone-based monitoring, and videoconferencing. All-cause mortality and heart failure mortality were the most frequently reported outcomes, but others such as quality of life, rehospitalization, emergency department visits, and length of stay were also reported. Self-care and knowledge were less commonly identified.CONCLUSIONSTelemonitoring and home telehealth appear generally effective in reducing heart failure rehospitalization and mortality. Other interventions, including the use of mobile phone-based monitoring and videoconferencing, require further investigation.

40. Patient journey in decompensated heart failure: An analysis in departments of cardiology and geriatrics in the Greater Paris University Hospitals.

Author(s): Laveau, Florent; Hammoudi, Nadjib; Berthelot, Emmanuelle; Belmin, Joël; Assayag, Patrick; Cohen, Ariel; Damy, Thibaud; Duboc, Denis; Dubourg, Olivier; Hagege, Albert; Hanon, Olivier; Isnard, Richard; Jondeau, Guillaume; Labouree, Florian; Logeart, Damien; Mansencal, Nicolas; Meune, Christophe; Pautas, Eric; Wolmark, Yves; Komajda, Michel

Source: Archives of cardiovascular diseases; Jan 2017; vol. 110 (no. 1); p. 42-50

Publication Type(s): Journal Article Observational Study

Abstract:BACKGROUNDHospitalization for worsening/acute heart failure is increasing in France, and limited data are available on referral/discharge modalities.AIMTo evaluate patients' journeys before and after hospitalization for this condition.METHODSOn 1 day per week, between October 2014 and February 2015, this observational study enrolled 260 consecutive patients with acute/worsening heart failure in all 10 departments of cardiology and four of the departments of geriatrics in the Greater Paris University Hospitals.RESULTSFirst medical contact was an emergency unit in 45% of cases, a general practitioner in 16% of cases, an emergency medical ambulance in 13% of cases and a cardiologist in 13% of cases; 78% of patients were admitted directly after first medical contact. In-hospital stay was 13.2±11.3 days; intensive care unit stay (38% of the population) was 6.4±5 days. In-hospital mortality was 2.7%. Overall, 63% of patients were discharged home, whereas 21% were transferred to rehabilitation units. A post-discharge outpatient visit was made by only 72% of patients within 3 months (after a mean of 45±28 days). Only 53% of outpatient appointments were with a cardiologist.CONCLUSIONEmergency departments, ambulances and general practitioners are the main points of entry before hospitalization for acute/worsening heart failure. Home discharge occurs in two of three cases. Time to first patient post-discharge visit is delayed. Therefore, actions to improve the patient journey should target primary care physicians and emergency structures, and efforts should be made to reduce the time to the first visit after discharge.

41. Association between arterial stiffness and left ventricular diastolic function in relation to gender and age.

Author(s): Kim, Hack-Lyoung; Lim, Woo-Hyun; Seo, Jae-Bin; Chung, Woo-Young; Kim, Sang-Hyun; Kim, Myung-A; Zo, Joo-Hee

Source: Medicine; Jan 2017; vol. 96 (no. 1); p. e5783

Publication Type(s): Journal Article Observational Study

Abstract: Left ventricular (LV) diastolic dysfunction and subsequent overt heart failure are more prevalent in elderly women. Close interaction between arterial stiffness and LV morphology/function has been reported. The aim of this study was to investigate whether there is an age- and gender-dependent relationship between arterial stiffness and LV diastolic function. A total of 819 subjects (58.6±13.3 years, 50.2% men) without structural heart disease (LV ejection fraction ≥50%) were retrospectively analyzed. All participants underwent transthoracic echocardiography and brachial-ankle pulse wave velocity (baPWV) measurement on the same day. The association of baPWV with septal e' velocity and average E/e' was assessed. In the total study subjects, baPWV was negatively correlated with septal e' velocity (r=0.383, P 0.05 for each). In conclusion, baPWV was

independently associated with septal e' velocity and E/e' in elderly women but not in younger women or men. The results of this study provide additional evidence that increased arterial stiffness plays an important role in the development of heart failure with preserved ejection fraction as well as LV diastolic dysfunction in elderly women.

42. Nutraceuticals and dietary supplements to improve quality of life and outcomes in heart failure patients.

Author(s): Cicero, Arrigo Fg; Colletti, Alessandro

Source: Current pharmaceutical design; Jan 2017

Publication Type(s): Journal Article

Abstract:BACKGROUNDHeart failure (HF) is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the ventricle to fill or eject blood. It represents a major public health issue, with a prevalence of over 23 million worldwide. The lifetime risk of developing HF is one in five and the most important risk factors identified are ischemic heart disease, hypertension, smoking, obesity and diabetes. Preventive approaches are based on improvements of lifestyle, associated with pharmacological therapy. Several nutraceuticals have shown interesting clinical results in prevention of HF as well as in the treatment of the early stages of the disease, alone or in association with pharmacological therapy.AIMThe aim of this review is to resume the available clinical evidence on phytochemicals effect on HF prevention and/or treatment.METHODSA systematic search strategy was developed to identify trials in PubMed (January 1980 to April 2016). The terms 'nutraceuticals', 'dietary supplements', 'herbal drug' and 'heart failure' were incorporated into an electronic search strategy.RESULTSClinical trials reported that the intake of some nutraceuticals (hawthorn, coenzyme Q10, L-carnitine, D-ribose, Carnosine, Vitamin D, Some probiotics, Omega-3 PUFAs, Beet nitrates) is associated with improvements in functional parameters such as ejection fraction, stroke volume and cardiac output in HF patients, with minimal side effects. These findings were sometimes reinforced by subsequent meta-analyses, which further concluded that benefits tended to be greater in earlier stage HF. The main mechanisms involved are antioxidant, antinflammatory, anti-ischemic and antiaggregant effects.CONCLUSIONSEvidence suggests that the supplementation with nutraceuticals may be a useful option for effective management of HF, with the advantage of excellent clinical tolerance.

43. The safety and efficacy of cardiac contractility modulation in heart failure : A meta-analysis of clinical trials.

Author(s): Liu, X; Yang, H J; Ping, H Q; Qiu, S; Shi, S; Yang, B

Source: Herz; Jan 2017

Publication Type(s): Journal Article

Abstract:BACKGROUNDCardiac contractility modulation (CCM) has developed as a promising treatment device for heart failure (HF). This meta-analysis aimed at systematically reviewing the latest available published trials to provide evidence on the safety and efficacy of CCM in patients with HF.METHODSWe searched the Cochrane Central Resister of Controlled Trials, PubMed, and EMBASE in May 2016 to identify eligible clinical trials comparing CCM with sham treatment or with usual care. All-cause mortality, all-cause hospitalization, and serious cardiopulmonary adverse effects were considered to be the primary outcomes of interest in evaluating the safety of CCM for patients with HF. Peak oxygen consumption and 6‐min walk tests were performed as the second outcomes of interest to assess efficacy. Risk ratio (RR), standard mean difference (SMD), and 95% confidence intervals (CIs) were calculated.RESULTSFour studies enrolling 723 participants were included. Compared with the control arm, CCM did not significantly improve all-cause mortality or all-cause hospitalizations. No differences were observed for adverse effects of CCM, possibly due to the low number of studies. By contrast, CCM significantly improved peak oxygen consumption (standard mean difference 0.233, 95% CI, 0.065-0.401 ml/kg/min, p = 0.006) and the 6‐min walk test distance (standard mean difference 0.924, 95% CI, 0.001-0.334 m, p = 0.049).CONCLUSIONIn our meta-analysis of published clinic trials we found that CCM did not lower the risk of severe cardiovascular adverse events; however, it was associated with remarkable improvements in functional cardiopulmonary capacity. Therefore, CCM may serve as an alternative option for patients with advanced HF.

44. Non-Invasive Ventilation in Patients with Heart Failure: A Systematic Review and Meta-Analysis.

Author(s): Bittencourt, Hugo Souza; Reis, Helena França Correia Dos; Lima, Melissa Santos; Gomes, Mansueto

Source: Arquivos brasileiros de cardiologia; Jan 2017

Publication Type(s): Journal Article

Abstract: Non-invasive ventilation (NIV) may perfect respiratory and cardiac performance in patients with heart failure (HF). The objective of the study to establish, through systematic review and meta-analysis, NIV influence on functional capacity of HF patients. A systematic review with meta-analysis of randomized studies was carried out through research of databases of Cochrane Library, SciELO, Pubmed and PEDro, using the key-words: heart failure, non-invasive ventilation, exercise tolerance; and the free terms: bi-level positive airway pressure (BIPAP), continuous positive airway pressure (CPAP), and functional capacity (terms were searched for in English and Portuguese) using the Boolean operators AND and OR. Methodological quality was ensured through PEDro scale. Weighted averages and a 95% confidence interval (CI) were calculated. The meta-analysis was done thorugh the software Review Manager, version 5.3 (Cochrane Collaboration). Four randomized clinical trials were included. Individual studies suggest NIV improved functional capacity. NIV resulted in improvement in the distance of the six-minute walk test (6MWT) (68.7m 95%CI: 52.6 to 84.9) in comparison to the control group. We conclude that the NIV is an intervention that promotes important effects in the improvement of functional capacity of HF patients. However, there is a gap in literature on which are the most adequate parameters for the application of this technique.

45. The effects of resistance training on muscle strength, quality of life and aerobic capacity in patients with chronic heart failure - A meta-analysis.

Author(s): Giuliano, Catherine; Karahalios, Amalia; Neil, Christopher; Allen, Jason; Levinger, Itamar

Source: International journal of cardiology; Jan 2017; vol. 227 ; p. 413-423

Publication Type(s): Journal Article Review

Abstract:BACKGROUNDResistance training (RT) has been utilised to target muscle dysfunction associated with Chronic Heart Failure (CHF). However, there is limited meta-analysis evidence to support its use as a standalone therapy. This meta-analysis examined the effects of RT on muscle strength (one repetition maximum, 1RM and Peak Torque), aerobic capacity (VO2peak and 6min walk distance) and quality of life (QoL) in patients with CHF.METHODSWe searched Medline, EMBASE, Cochrane and CINAHL for studies published up to July 2016, combining terms related to the population (eg, heart failure, CHF) with terms for the intervention (eg, resistance, strength training) and the outcomes (eg, QoL, VO2peak,strength, aerobic capacity).RESULTSTen studies including 240 participants were included in our meta-analysis (aged 48-76years, Ejection Fraction 18-37%). Training duration ranged from 8 to 24weeks and intensity up to 80% of 1RM. RT increased 1RM (standardised change score=0.60; 95% Confidence Interval: 0.43, 0.77) but not strength measured via peak torque at 60°/s-1 and 180°/s-1. RT increased VO2peak (CSMD: 2.71ml/kg/min; 1.96, 3.45) and QoL (CSMD: -5.71; -9.85, -1.56).CONCLUSIONRT as a single intervention can increase muscle strength, aerobic capacity and QoL in patients with CHF and may offer an alternative approach, particularly for those unable to participate in aerobic training. The effect of RT on muscle strength is mainly during slow controlled movements and not during rapid movements. Older adults and patients with advanced CHF are underrepresented in RT trials and future studies should seek to optimise their inclusion.

46. The effectiveness of the use of consumer health information technology in patients with heart failure: A meta-analysis and narrative review of randomized controlled trials.

Author(s): Or, Calvin Kl; Tao, Da; Wang, Hailiang

Source: Journal of telemedicine and telecare; Jan 2017; vol. 23 (no. 1); p. 155-166

Publication Type(s): Journal Article

Abstract: Purpose The purpose of this study was to examine whether the use of consumer health information technologies (CHITs) has an impact on outcomes of patients in the self-management of heart failure (HF). Methods A literature search of six electronic databases was conducted to identify relevant reports of randomized controlled trials (RCTs) for the analysis. Mortality, hospitalization and length of hospital stay were meta-analyzed and other patient outcomes were synthesized using a narrative approach. Results The literature search identified 50 studies, representing 43 RCTs, comparing the use of CHITs with usual care for HF patients. The meta-analysis showed that the use of CHITs reduced the risk of HF-caused mortality (relative risk (RR) = 0.70, 95% confidence interval (CI): 0.54-0.91), p = 0.007), lowered the risk of HF-caused hospitalization (RR = 0.80, 95% CI: 0.66-0.96), p = 0.020), and shortened HF-caused length of hospital stay (mean difference = -0.52, 95% CI: -0.77 to -0.27, p < 0.00), but not all-cause mortality, all-cause hospitalization or all-cause length of hospital stay, compared with usual care. The narrative synthesis indicated that only a small proportion of the trials reported positive effects of CHITs over usual care. Conclusions Evidence from RCTs presents mixed results on the impacts of CHITs for HF management. Further studies are required to assess whether and how CHITs would

play a role in enhancing health care and patient outcomes and what specific CHIT features and functions are relevant to different HF treatment goals and self-care objectives.

47. Palliative Care Interventions for Patients with Heart Failure: A Systematic Review and Meta-Analysis.

Author(s): Diop, Michelle S; Rudolph, James L; Zimmerman, Kristin M; Richter, Mary A; Skarf, L Michal

Source: Journal of palliative medicine; Jan 2017; vol. 20 (no. 1); p. 84-92

Publication Type(s): Journal Article

Abstract:OBJECTIVETo systematically characterize interventions and effectiveness of palliative care for advanced heart failure (HF) patients.BACKGROUNDPatients with advanced heart failure experience a high burden of distressing symptoms and diminished quality of life. Palliative care expertise with symptom management and healthcare decision-making benefits HF patients.METHODSA systematic PubMed search was conducted from inception to June 2016 for studies of palliative care interventions for HF patients. Studies of humans with a HF diagnosis who underwent a palliative care intervention were included. Data were extracted on study design, participant characteristics, intervention components, and in three groups of outcomes: patient-centered outcomes, quality-of-death outcomes, and resource utilization. Study characteristics were examined to determine if meta-analysis was possible.RESULTSThe fifteen identified studies varied in design (prospective, n = 10; retrospective, n = 5). Studies enrolled older patients, but greater variability was found for race, sex, and marital status. A majority of studies measuring patient-centered outcomes demonstrated improvements including quality of life and satisfaction. Quality-of-death outcomes were mixed with a majority of studies reporting clarification of care preferences, but less improvement in death at home and hospice enrollment. A meta-analysis in three studies found that home-based palliative care consults in HF patients lower the risk of rehospitalization by 42% (RR = 0.58; 95% Confidence Interval 0.44, 0.77).DISCUSSIONAvailable evidence suggests that home and team-based palliative interventions for HF patients improve patient-centered outcomes, documentation of preferences, and utilization. Increased high quality studies will aid the determination of the most effective palliative care approaches for the HF population.

48. Prognostic Importance of Atrial Fibrillation Timing and Pattern in Adults With Congestive Heart Failure: A Systematic Review and Meta-Analysis.

Author(s): Odutayo, Ayodele; Wong, Christopher X; Williams, Rashida; Hunn, Benjamin; Emdin, Connor A

Source: Journal of cardiac failure; Jan 2017; vol. 23 (no. 1); p. 56-62

Publication Type(s): Journal Article

Abstract:BACKGROUNDAtrial fibrillation (AF) is common among adults with congestive heart failure (CHF). We conducted a meta-analysis to summarize the risk of mortality and cardiovascular disease associated with AF in CHF and stratified our analyses by AF timing and pattern.METHODSWe searched MEDLINE and EMBASE for observational studies examining the association of AF with cardiovascular disease and death. Eligible studies had a minimum of 50 participants with AF and 50 participants without AF, and a median follow-up of 6 months.RESULTSThirty-three studies involving 114,204 adults (43,549 with AF) were included in this meta-analysis. AF was associated with an increased risk of mortality and this risk varied between incident and prevalent AF (relative risk 2.21, 95% confidence interval 1.96-2.49 vs relative risk 1.19, 95% confidence interval 1.03-1.38, respectively; P < .001 for interaction). The risk of mortality associated with incident AF was consistent in adults with CHF with reduced and preserved ejection fraction. The relative risk of mortality did not vary between paroxysmal and chronic AF. Finally, AF was associated with an increased risk of cardiovascular mortality and stroke.LIMITATIONUse of anticoagulation was infrequently reported in included studies.CONCLUSIONSAF was associated with an increased risk of cardiovascular disease and death and, notably, the risk of mortality varied by AF timing.

49. Atrial fibrillation and cognitive function in patients with heart failure: a systematic review and meta-analysis.

Author(s): Myserlis, Pavlos G; Malli, Antonia; Kalaitzoglou, Dimitrios K; Kalaitzidis, Grigorios; Miligkos, Michael; Kokkinidis, Damianos G; Kalogeropoulos, Andreas P

Source: Heart failure reviews; Jan 2017; vol. 22 (no. 1); p. 1-11

Publication Type(s): Journal Article

Abstract: Cognitive impairment and dementia are established complications of heart failure (HF) in adult patients and impair medication adherence and self-care. Atrial fibrillation (AF) is suggested to play an

independent role in the cognitive decline in patients with HF. The objective of this systematic review was to assess the effect of AF on cognitive function in these patients. Medline (PubMed), Scopus, and the CENTRAL databases were queried from their inception up to April 30, 2016. The search included primary research articles evaluating the effect of AF on cognition in HF patients. There were five eligible studies, including a total of 1670 patients with HF; of these, 449 (26.9%) had AF. Different AF types were studied, including persistent, paroxysmal, or permanent. Four cognitive tests were used to assess cognitive function (Mini-Mental State Examination, Short Portable Mental Status Questionnaire, Modified Mini-Mental Examination, and Montreal cognitive assessment tool). Using the inverse variance method and a random effects model, we observed that presence of AF was significantly associated with increased risk of cognitive impairment in HF patients (odds ratio [OR], 1.94; 95% confidence interval [CI], 1.30-2.87), although with significant heterogeneity (I 2 = 39%). This heterogeneity can be attributed to the different populations and types of AF studied as well as to varying cognitive assessment methods. Concomitant AF may exacerbate cognitive dysfunction in HF patients. However, data are sparse and heterogeneous. Well-designed, prospective studies are needed to (a) establish a causative link and (b) identify the underlying mechanism in order to design appropriate interventions to attenuate risk of cognitive impairment in patients with HF.

50. Survival Benefits of Invasive Versus Conservative Strategies in Heart Failure in Patients With Reduced Ejection Fraction and Coronary Artery Disease: A Meta-Analysis.

Author(s): Wolff, Georg; Dimitroulis, Dimitrios; Andreotti, Felicita; Kołodziejczak, Michalina; Jung, Christian; Scicchitano, Pietro; Devito, Fiorella; Zito, Annapaola; Occhipinti, Michele; Castiglioni, Battistina; Calveri, Giuseppe; Maisano, Francesco; Ciccone, Marco M; De Servi, Stefano; Navarese, Eliano P

Source: Circulation. Heart failure; Jan 2017; vol. 10 (no. 1)

Publication Type(s): Journal Article

Available in full text at Circulation: Heart Failure - from Highwire Press

Abstract:BACKGROUNDHeart failure with reduced ejection fraction caused by ischemic heart disease is associated with increased morbidity and mortality. It remains unclear whether revascularization by either coronary artery bypass grafting (CABG) or percutaneous coronary intervention (PCI) carries benefits or risks in this group of stable patients compared with medical treatment.METHODS AND RESULTSWe performed a meta-analysis of available studies comparing different methods of revascularization (PCI or CABG) against each other or medical treatment in patients with coronary artery disease and left ventricular ejection fraction ≤40%. The primary outcome was all-cause mortality; myocardial infarction, revascularization, and stroke were also analyzed. Twenty-one studies involving a total of 16 191 patients were included. Compared with medical treatment, there was a significant mortality reduction with CABG (hazard ratio, 0.66; 95% confidence interval, 0.61-0.72; P<0.001) and PCI (hazard ratio, 0.73; 95% confidence interval, 0.62-0.85; P<0.001). When compared with PCI, CABG still showed a survival benefit (hazard ratio, 0.82; 95% confidence interval, 0.75-0.90; P<0.001).CONCLUSIONSThe present meta-analysis indicates that revascularization strategies are superior to medical treatment in improving survival in patients with ischemic heart disease and reduced ejection fraction. Between the 2 revascularization strategies, CABG seems more favorable compared with PCI in this particular clinical setting.

51. Thirty Years of Evidence on the Efficacy of Drug Treatments for Chronic Heart Failure With Reduced Ejection Fraction: A Network Meta-Analysis.

Author(s): Burnett, Heather; Earley, Amy; Voors, Adriaan A; Senni, Michele; McMurray, John J V; Deschaseaux, Celine; Cope, Shannon

Source: Circulation. Heart failure; Jan 2017; vol. 10 (no. 1)

Publication Type(s): Journal Article

Available in full text at Circulation: Heart Failure - from Highwire Press

Abstract:BACKGROUNDTreatments that reduce mortality and morbidity in patients with heart failure with reduced ejection fraction, including angiotensin-converting enzyme inhibitors (ACEI), angiotensin receptor blockers (ARB), β-blockers (BB), mineralocorticoid receptor antagonists (MRA), and angiotensin receptor-neprilysin inhibitors (ARNI), have not been studied in a head-to-head fashion. This network meta-analysis aimed to compare the efficacy of these drugs and their combinations regarding all-cause mortality in patients with heart failure with reduced ejection fraction.METHODS AND RESULTSA systematic literature review identified 57 randomized controlled trials published between 1987 and 2015, which were compared in terms of study and patient characteristics, baseline risk, outcome definitions, and the observed treatment effects. Despite differences identified in terms of study duration, New York Heart Association class, ejection fraction, and use of

background digoxin, a network meta-analysis was considered feasible and all trials were analyzed simultaneously. The random-effects network meta-analysis suggested that the combination of ACEI+BB+MRA was associated with a 56% reduction in mortality versus placebo (hazard ratio 0.44, 95% credible interval 0.26-0.66); ARNI+BB+MRA was associated with the greatest reduction in all-cause mortality versus placebo (hazard ratio 0.37, 95% credible interval 0.19-0.65). A sensitivity analysis that did not account for background therapy suggested that ARNI monotherapy is more efficacious than ACEI or ARB monotherapy.CONCLUSIONSThe network meta-analysis showed that treatment with ACEI, ARB, BB, MRA, and ARNI and their combinations were better than the treatment with placebo in reducing all-cause mortality, with the exception of ARB monotherapy and ARB plus ACEI. The combination of ARNI+BB+MRA resulted in the greatest mortality reduction.

52. Traditional Chinese medicines in the management of cardiovascular diseases: a comprehensive systematic review.

Author(s): Layne, Kerry; Ferro, Albert

Source: British journal of clinical pharmacology; Jan 2017; vol. 83 (no. 1); p. 20-32

Publication Type(s): Journal Article Review

Abstract:AIMSThe aim was to perform a systematic review of the efficacy of traditional Chinese medicines (TCM) in cardiovascular disease.METHODSElectronic databases were searched up to 11 November 2015 for all randomized-controlled trials evaluating the effect of TCM in hypertension, ischaemic stroke, heart failure, coronary heart disease and type 2 diabetes mellitus. Pooled odds ratios (ORs) were calculated using a fixed-effects model.RESULTSFour hypertension studies were eligible for statistical analysis and included 133 patients receiving TCM and 130 control patients. There were significant reductions in systolic blood pressure in patients receiving TCM, comparable to results achieved with pharmaceutical medicines. An OR of 3.781 (95% confidence interval 2.392, 5.977; P = 0.000) was observed for the anti-hypertensive effect of TCM. Significant heterogeneity was present (P = 0.011), with a tendency towards publication bias that did not reach significance (P = 0.05275). Outcome measures for other cardiovascular diseases were inconsistent.CONCLUSIONSCertain TCM compounds appear to have significant anti-hypertensive effects, and although some are associated in some studies with improved outcomes in coronary heart disease, heart failure and type 2 diabetes mellitus, the data are inconsistent and will require large-scale randomized-controlled trials to allow full evaluation of any potential therapeutic benefit in these areas.

Exercise: Heterogeneity

Heterogeneity is the extent to which studies brought together in a systematic review demonstrate variation across a range of key variables.

Match the different types of heterogeneity:

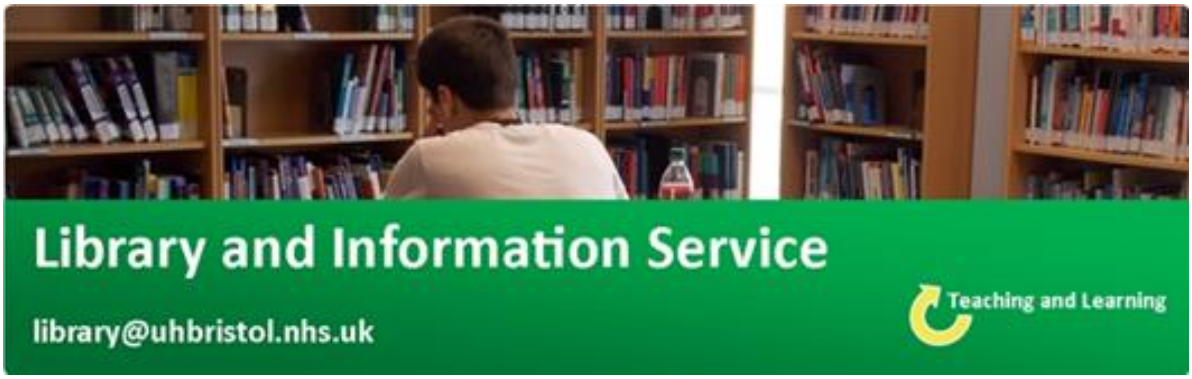
1. Statistical heterogeneity (conventionally just known as 'heterogeneity')
2. Methodological heterogeneity
3. Clinical heterogeneity

A. Variability in the participants, interventions and outcomes studied

B. Variability in study design and risk of bias

C. Variability in the intervention effects being evaluated in the different studies

Answers: 1C, 2B, 3A



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