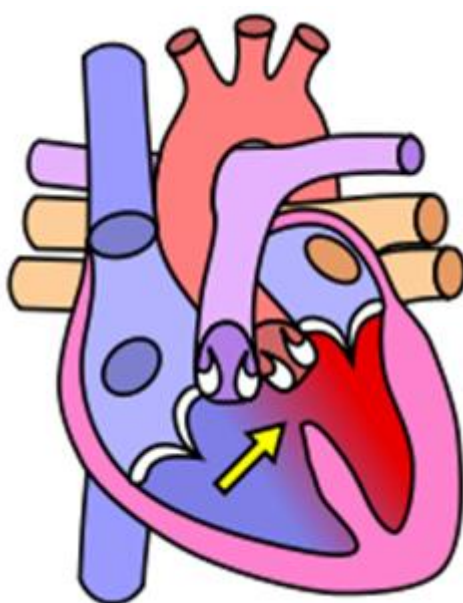


# Cardiac Nurses: Arrhythmia Evidence Update



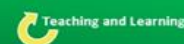
## January 2018

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## Lunchtime Drop-in Sessions

*All sessions last one hour*

### January (13:00)

4 <sup>th</sup> Thu	Statistics
8 <sup>th</sup> Mon	Literature Searching
18 <sup>th</sup> Thu	Critical Appraisal
24 <sup>th</sup> Wed	Statistics

### February (12:00)

1 <sup>st</sup> Thu	Literature Searching
9 <sup>th</sup> Fri	Critical Appraisal
12 <sup>th</sup> Mon	Statistics
20 <sup>th</sup> Tue	Literature Searching
28 <sup>th</sup> Wed	Critical Appraisal

### March (13:00)

8 <sup>th</sup> Thu	Statistics
12 <sup>th</sup> Mon	Literature Searching
20 <sup>th</sup> Tues	Critical Appraisal
28 <sup>th</sup> Wed	Statistics

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# New Additions to NICE, The Cochrane Library, and UpToDate®

**NICE** National Institute for Health and Care Excellence

**NIHR Signal: Alternative drug may prevent atrial fibrillation following heart surgery**

12 December 2017 - Publisher: National Institute for Health Research Signal

**What are the benefits and harms of antiarrhythmics for maintaining sinus rhythm after cardioversion of atrial fibrillation?**

Source: [Cochrane Clinical Answers](#) - 26 October 2017

**What are the benefits and harms of exercise-based cardiac rehabilitation in adults with atrial fibrillation?**

Source: [Cochrane Clinical Answers](#) - 20 September 2017



Kimachi M, Furukawa TA, Kimachi K, Goto Y, Fukuma S, Fukuhara S. [Direct oral anticoagulants versus warfarin for preventing stroke and systemic embolic events among atrial fibrillation patients with chronic kidney disease](#). Cochrane Database of Systematic Reviews 2017, Issue 11. Art. No.: CD011373. DOI: 10.1002/14651858.CD011373.pub2.

**UpToDate®**

OpenAthens login required. Register here: <https://openathens.nice.org.uk/>

**[Overview of atrial fibrillation](#)**

Author: [Kapil Kumar, MD](#)

Literature review current through: Dec 2017. | This topic last updated: Aug 21, 2017.

**[Epidemiology of and risk factors for atrial fibrillation](#)**

Authors: [Leonard I Ganz, MD, FHRS, FACC](#); [David Spragg, MD, FHRS](#)

Literature review current through: Dec 2017. | This topic last updated: Oct 11, 2017.

**[Atrial fibrillation: Anticoagulant therapy to prevent embolization](#)**

Authors: [Warren J Manning, MD](#); [Daniel E Singer, MD](#); [Gregory YH Lip, MD, FRCPE, FESC, FACC](#)

Literature review current through: Dec 2017. | This topic last updated: Oct 30, 2017.

**[Cardiac resynchronization therapy in heart failure: Indications](#)**

Authors: [Evan Adelstein, MD](#); [Samir Saba, MD](#)

Literature review current through: Dec 2017. | This topic last updated: Dec 15, 2017.

**[Cardiac resynchronization therapy in heart failure: Implantation and other considerations](#)**

Author: [Daniel J Cantillon, MD, FACC, HRS](#)

All topics are updated as new evidence becomes available and our [peer review process](#) is complete.

Literature review current through: Dec 2017. | This topic last updated: Jun 06, 2017.



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## Recent Database Articles

Below is a selection of articles recently added to the healthcare databases. 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](mailto:library@uhbristol.nhs.uk)

### 1. Left atrial appendage occlusion for stroke prevention in patients with atrial fibrillation: a systematic review and network meta-analysis of randomized controlled trials.

**Author(s):** Hanif, Hasib; Belley-Cote, Emilie P; Alotaibi, Abdullah; Dvirnik, Nazari; Neupane, Binod; Beyene, Joseph; Eikelboom, John W; Holmes, David; Whitlock, Richard P

**Source:** The Journal of cardiovascular surgery; Feb 2018; vol. 59 (no. 1); p. 128-139

**Publication Type(s):** Journal Article

**Abstract:**INTRODUCTION Atrial fibrillation (AF) is one of the leading causes of stroke. Risks associated with oral anticoagulation (OAC) limit adherence to recommended therapy. Left atrial appendage (LAA) occlusion is a treatment alternative in patients with AF. We performed a network meta-analysis (NMA) of randomized trials evaluating the efficacy of LAA occlusion compared with oral anticoagulant, antiplatelet, and placebo for stroke prevention. We also assessed the impact of LAA occlusion on mortality, major bleeding, and operative time. EVIDENCE ACQUISITION We searched MEDLINE, EMBASE, PubMed, and Cochrane Library for randomized trials comparing percutaneous or surgical LAA occlusion with standard of care in AF patients. EVIDENCE SYNTHESIS Conventional meta-analysis found no difference between groups for stroke (5 trials, 1285 patients; RR 0.78, 95% CI 0.47-1.29), and a significant reduction in mortality (5 trials, 1285 patients; RR 0.71, 95% CI 0.51-0.99) favouring LAA occlusion. NMA demonstrated a trend towards reduction in stroke (OR 0.84, 95% CrI 0.47-1.55) and mortality (OR 0.69, 95% CrI 0.44-1.10) for LAA occlusion versus warfarin, but no statistically significant effect. Statistical ranking curves placed LAA occlusion as the most efficacious treatment on the outcomes of stroke and mortality when compared to warfarin, aspirin, or placebo. No significant differences between groups were seen in major bleeding or operative time for surgical trials. The overall quality of the evidence was low as assessed by GRADE. CONCLUSIONS LAA occlusion appears to preserve the benefits of OAC therapy for stroke prevention in patients with AF, but the current evidence is of low quality.

### 2. Cardiac troponin and adverse outcomes in atrial fibrillation: A meta-analysis

**Author(s):** Fan Y.; Zhao X.; Li X.; Li N.; Hu X.

**Source:** Clinica Chimica Acta; Feb 2018; vol. 477 ; p. 48-52

**Publication Type(s):** Review

**Abstract:**Background The prognostic value of cardiac troponin elevation in atrial fibrillation (AF) is unclear. Objective To investigate the association of cardiac troponin elevation with adverse outcomes in AF by conducting a meta-analysis. Methods We systematically searched the PubMed and Embase databases until April 2017 for studies assessing the association of cardiac troponin-T (cTnT) or troponin-I (cTnI) elevation with adverse outcomes in AF. The outcome measures were all-cause mortality and major adverse cardiac events (MACEs: death, stroke, myocardial infarction, pulmonary embolism, major bleeding, or revascularization). Results Six studies involving 22,697 AF patients were identified. Meta-analysis showed that AF with elevated cardiac troponin was independently associated with increased risk of all-cause mortality (HR 2.04; 95% CI 1.56-2.67) and MACEs (HR 1.93; 95% CI 1.61-2.30). Furthermore, the prognostic value of cardiac troponin elevation was consistently found irrespective of method determination, type of troponin measured, sample size, and study quality subgroup. Conclusions AF with cardiac troponin elevation was independently associated with increased risk of all-cause mortality and MACEs. Therefore, determination of troponin should be considered for risk stratification in AF.

### 3. Predictive value of inter-atrial block for new onset or recurrent atrial fibrillation: A systematic review and meta-analysis.

**Author(s):** Tse, Gary; Wong, Cheuk Wai; Gong, Mengqi; Wong, Wing Tak; Bazoukis, George; Wong, Sunny Hei; Li, Guangping; Wu, William K K; Tse, Lap Ah; Lampropoulos, Konstantinos; Xia, Yunlong; Liu, Tong; Baranchuk, Adrian; International Health Informatics Study (IHIS) Network

**Source:** International journal of cardiology; Jan 2018; vol. 250 ; p. 152-156

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND AND OBJECTIVESInter-atrial block (IAB) is characterized by a delay of inter-atrial conduction and is defined electrocardiographically by a P-wave duration (PWD)>120ms. Several studies have implicated IAB in the development of new onset atrial fibrillation (AF), whereas others have reported no significant associations. Moreover, there has been no systematic evaluation of the predictive value of IAB in AF recurrence. Therefore, we conducted a systematic review and meta-analysis to examine whether IAB predicts new onset AF or AF recurrence.METHODSPubMed and Embase databases were searched through 30th July 2017 for studies investigating the relationship between IAB and AF.RESULTSThe initial search identified 260 studies, of which 16 studies met the inclusion criteria. This meta-analysis included 18,204 patients (mean age 56±13, 48% male) with a mean follow-up period of 15.1years. IAB significantly predicted new onset AF (hazard ratio [HR]: 2.42, 95% confidence interval [CI]: 1.44 to 4.07, P=0.001; I<sup>2</sup>=84%). For partial IAB, the risk of new onset AF did not reach statistical significance (HR: 1.42, 95% CI: 0.85 to 2.34; P=0.18; I<sup>2</sup>=13%). Contrastingly, advanced IAB was a significant predictor of new onset AF with a pooled HR of 2.58 (95% CI: 1.35 to 4.96; P<0.01; I<sup>2</sup>=67%). IAB also predicted AF recurrence after ablation (HR: 2.59, 95% CI: 1.35 to 4.96; P<0.01; I<sup>2</sup>=67%).CONCLUSIONSIAB is a significant predictor of both new onset AF and AF recurrence.

### 4. Smoking as a Risk Factor for the Occurrence of Atrial Fibrillation in Men Versus Women: A Meta-Analysis of Prospective Cohort Studies.

**Author(s):** Wang, Qing; Guo, Yibin; Wu, Cheng; Yin, Liang; Li, Wei; Shen, Hua; Xi, Wang; Zhang, Tianyi; He, Jia; Wang, Zhinong

**Source:** Heart, lung & circulation; Jan 2018; vol. 27 (no. 1); p. 58-65

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDAlthough smoking is known to be associated with cardiovascular diseases, the number of large-scale cohort studies on the association between smoking and atrial fibrillation (AF) is limited and the results obtained are also inconsistent, and even fewer studies have addressed the difference between the male and female genders. The present study was intended to clarify and quantify the association between smoking and the risk of AF in men versus women.METHODSUsing AF- and smoking-related keywords, a comprehensive literature search on PubMed, Embase and Web of Science was conducted with a time limit until December 2016, which was followed by manual screening, quality assessment and data extraction. The pooled relative risk (RR) of the included studies was estimated by using the random-effects model. Subgroup, heterogeneity and sensitivity analyses were also conducted.RESULTSA total of 14 prospective studies and 222,159 individuals were included in this meta-analysis, and the pooled RR of the 14 studies was 1.24 (95% CI, 1.12-1.36; p<0.0001) for the occurrence of AF in smoking populations. The pooled RR in men was 1.38 (95% CI, 1.21-1.57 p<0.0001) versus 1.28 in women (95% CI, 0.93-1.76; p=0.1356). The male-to-female ratio of relative risk (RRR) was 1.17 (95% CI, 0.84-1.63; p=0.3418) of smoking versus non-smoking individuals.CONCLUSIONSmoking is a risk factor for the occurrence of AF. Compared with women, male smokers are more likely to develop AF.

### 5. Impact of a Computerized Antithrombotic Risk Assessment Tool on the Prescription of Thromboprophylaxis in Atrial Fibrillation: Hospital Setting.

**Author(s):** Pandya, E; Masood, N; Wang, Y; Krass, I; Bajorek, B

**Source:** Clinical and applied thrombosis/hemostasis : official journal of the International Academy of Clinical and Applied Thrombosis/Hemostasis; Jan 2018; vol. 24 (no. 1); p. 85-92

**Publication Type(s):** Journal Article

Available at [Clinical and applied thrombosis/hemostasis : official journal of the International Academy of Clinical and Applied Thrombosis/Hemostasis](#) - from EBSCO (MEDLINE Complete)

**Abstract:**The computerized antithrombotic risk assessment tool (CARAT) is an online decision-support algorithm that facilitates a systematic review of a patient's stroke risk, bleeding risk, and pertinent medication safety considerations, to generate an individualized treatment recommendation. The CARAT was prospectively

applied across 2 hospitals in the greater Sydney area. Its impact on antithrombotics utilization for thromboprophylaxis in patients with nonvalvular atrial fibrillation was evaluated. Factors influencing prescribers' treatment selection were identified. The CARAT recommended a change in baseline therapy for 51.8% of patients. Among anticoagulant-eligible patients (ie, where the risk of stroke outweighed the risk of bleeding) using "nil therapy" or antiplatelet therapy at baseline, the CARAT recommended an upgrade to warfarin in 60 (30.8%) patients. For those in whom the bleeding risk outweighed the stroke risk, the CARAT recommended a downgrade from warfarin to safer alternatives (eg, aspirin) in 37 (19%) patients. Among the "most eligible" (ie, high stroke risk, low bleeding risk, no contraindications; n = 75), the CARAT recommended warfarin for all cases. Discharge therapy observed a marginal increase in anticoagulation prescription in eligible patients (n = 116; 57.8% vs 64.7%, P = .35) compared to baseline. Predictors of warfarin use (vs antiplatelets) included congestive cardiac failure, diabetes mellitus, and polypharmacy. The CARAT was able to optimize the selection of therapy, increasing anticoagulant use among eligible patients. With the increasing complexity of decision-making, such tools may be useful adjuncts in therapy selection in atrial fibrillation. Future studies should explore the utility of such tools in selecting therapies from within an expanded treatment armamentarium comprising the non-vitamin K antagonist oral anticoagulants.

## 6. Chocolate consumption and risk of atrial fibrillation: Two cohort studies and a meta-analysis.

**Author(s):** Larsson, Susanna C; Drca, Nikola; Jensen-Urstad, Mats; Wolk, Alicja

**Source:** American heart journal; Jan 2018; vol. 195 ; p. 86-90

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDChocolate consumption has been inconsistently associated with risk of atrial fibrillation (AF). We investigated the association between chocolate consumption and risk of AF in Swedish adults from two cohort studies and conducted a meta-analysis to summarize available evidence from cohort studies on this topic.METHODSOur study population comprised 40,009 men from the Cohort of Swedish Men and 32,486 women from the Swedish Mammography Cohort. Incident AF cases were ascertained through linkage with the Swedish National Patient Register. Published cohort studies of chocolate consumption in relation to risk of AF were identified by a PubMed search through September 14, 2017.RESULTSDuring a mean follow-up of 14.6 years, AF was diagnosed in 9978 Swedish men and women. Compared with non-consumers, the multivariable hazard ratio of AF for those in the highest category of chocolate consumption ( $\geq 3$ -4 servings/week) was 0.96 (95% CI 0.88-1.04). In a random-effects meta-analysis of 5 cohort studies, including 180,454 participants and 16,356 AF cases, the hazard ratios of AF were 0.97 (95% CI 0.94-1.01) per 2 servings/week increase in chocolate consumption and 0.96 (95% CI 0.90-1.03) for the highest versus lowest category of chocolate consumption.CONCLUSIONAvailable data provide no evidence of an association of chocolate consumption with risk of AF.

## 7. Contemporary genetic testing in inherited cardiac disease: tools, ethical issues, and clinical applications.

**Author(s):** Girolami, Francesca; Frisso, Giulia; Benelli, Matteo; Crotti, Lia; Iascone, Maria; Mango, Ruggiero; Mazzaccara, Cristina; Pilichou, Kalliope; Arbustini, Eloisa; Tomberli, Benedetta; Limongelli, Giuseppe; Basso, Cristina; Olivotto, Iacopo

**Source:** Journal of cardiovascular medicine (Hagerstown, Md.); Jan 2018; vol. 19 (no. 1); p. 1-11

**Publication Type(s):** Journal Article

**Abstract:** Inherited cardiac diseases comprise a wide and heterogeneous spectrum of diseases of the heart, including the cardiomyopathies and the arrhythmic diseases in structurally normal hearts, that is, channelopathies. With a combined estimated prevalence of 3% in the general population, these conditions represent a relevant epidemiological entity worldwide, and are a major cause of cardiac morbidity and mortality in the young. The extraordinary progress achieved in molecular genetics over the last three decades has unveiled the complex molecular basis of many familial cardiac conditions, paving the way for routine use of gene testing in clinical practice. In current practice, genetic testing can be used in a clinically affected patient to confirm diagnosis, or to formulate a differential diagnosis among overlapping phenotypes or between hereditary and acquired (nongenetic) forms of disease. Although genotype-phenotype correlations are generally unpredictable, a precise molecular diagnosis can help predict prognosis in specific patient subsets and may guide management. In clinically unaffected relatives, genetic cascade testing is recommended, after the initial identification of a pathogenic variation, with the aim of identifying asymptomatic relatives who might be at risk of disease-related complications, including unexpected sudden cardiac death. Future implications include the identification of novel therapeutic targets and development of tailored treatments including gene therapy. This document reflects



the multidisciplinary, 'real-world' experience required when implementing genetic testing in cardiomyopathies and arrhythmic syndromes, along the recommendations of various guidelines.

### **8. Amiodarone, lidocaine, magnesium or placebo in shock refractory ventricular arrhythmia: A Bayesian network meta-analysis.**

**Author(s):** Khan, Safi U; Winnicka, Lydia; Saleem, Muhammad A; Rahman, Hammad; Rehman, Najeeb

**Source:** Heart & lung : the journal of critical care; 2017; vol. 46 (no. 6); p. 417-424

**Publication Type(s):** Journal Article Review

**Abstract:**Recent evidence challenges, the superiority of amiodarone, compared to other anti-arrhythmic medications, as the agent of choice in pulseless ventricular tachycardia (VT) or ventricular fibrillation (VF). We conducted Bayesian network and traditional meta-analyses to investigate the relative efficacies of amiodarone, lidocaine, magnesium (MgSO<sub>4</sub>) and placebo as treatments for pulseless VT or VF. Eleven studies [5200 patients, 7 randomized trials (4, 611 patients) and 4 non-randomized studies (589 patients)], were included in this meta-analysis. The search was conducted, from 1981 to February 2017, using MEDLINE, EMBASE and The Cochrane Library. Estimates were reported as odds ratio (OR) with 95% Credible Interval (CrI). Markov chain Monte Carlo (MCMC) modeling was used to estimate the relative ranking probability of each treatment group based on surface under cumulative ranking curve (SUCRA). Bayesian analysis demonstrated that lidocaine had superior effects on survival to hospital discharge, compared to amiodarone (OR, 2.18, 95% Cr.I 1.26-3.13), MgSO<sub>4</sub> (OR, 2.03, 95% Cr.I 0.74-4.82) and placebo (OR, 2.42, 95% Cr.I 1.39-3.54). There were no statistical differences among treatment groups regarding survival to hospital admission/24 h (hrs) and return of spontaneous circulation (ROSC). Probability analysis revealed that lidocaine was the most effective therapy for survival to hospital discharge (SUCRA, 97%). We conclude that lidocaine may be the most effective anti-arrhythmic agent for survival to hospital discharge in patients with pulseless VT or VF.

### **9. Barriers and enablers to adherence to anticoagulation in heart failure with atrial fibrillation: patient and provider perspectives.**

**Author(s):** Ferguson, Caleb; Inglis, Sally C; Newton, Phillip J; Middleton, Sandy; Macdonald, Peter S; Davidson, Patricia M

**Source:** Journal of clinical nursing; Dec 2017; vol. 26 (no. 23-24); p. 4325-4334

**Publication Type(s):** Journal Article

**Abstract:**AIMS & OBJECTIVESThe purpose of this study was to elucidate the barriers and enablers to adherence to anticoagulation in individuals with chronic heart failure (CHF) with concomitant atrial fibrillation (AF) from the perspective of patients and providers.BACKGROUNDCHF and AF commonly coexist and are associated with increased stroke risk and mortality. Oral anticoagulation significantly reduces stroke risk and improves outcomes. Yet, in approximately 30% of cases, anticoagulation is not commenced for a variety of reasons.DESIGNQualitative study using narrative inquiry.METHODSData from face-to-face individual interviews with patients and information retrieved from healthcare file note review documented the clinician perspective. This study is a synthesis of the two data sources, obtained during patient clinical assessments as part of the Atrial Fibrillation And Stroke Thromboprophylaxis in hEart failuRe (AFASTER) Study.RESULTSPatient choice and preference were important factors in anticoagulation decisions, including treatment burden, unfavourable or intolerable side effects and patient refusal. Financial barriers included cost of travel, medication cost and reimbursement. Psychological factors included psychiatric illness, cognitive impairment and depression. Social barriers included homelessness and the absence of a caregiver or lack of caregiver assistance. Clinician reticence included fear of falls, frailty, age, fear of bleeding and the challenges of multimorbidity. Facilitators to successful prescription and adherence were caregiver support, reminders and routine, self-testing and the use of technology.CONCLUSIONSMany barriers remain to high-risk individuals being prescribed anticoagulation for stroke prevention. There are a number of enabling factors that facilitate prescription and optimise treatment adherence. Nurses should challenge these treatment barriers and seek enabling factors to optimise therapy.RELEVANCE TO CLINICAL PRACTICENurses can help patients and caregivers to understand complex anticoagulant risk-benefit information, and act as a patient advocate when making complex stroke prevention decisions.

### **10. Colchicine for primary prevention of atrial fibrillation after open-heart surgery: Systematic review and meta-analysis.**

**Author(s):** Lennerz, Carsten; Barman, Manish; Tantawy, Mahmoud; Sopher, Mark; Whittaker, Peter

**Source:** International journal of cardiology; Dec 2017; vol. 249 ; p. 127-137

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Atrial fibrillation occurs frequently after open-heart surgery. It is associated with increased morbidity and mortality, longer hospital stays, and increased healthcare costs. Prophylactic administration of colchicine may mitigate post-operative atrial fibrillation (POAF).METHODS We searched PubMed, ClinicalTrials.gov and CENTRAL databases to identify randomized controlled trials (RCTs) that; (1) compared prophylactic use of colchicine to placebo, or usual care, in patients with sinus rhythm who underwent elective open-heart surgery and (2) reported POAF-incidence. We excluded trials focused on incidence of atrial fibrillation after percutaneous interventions or colchicine treatment of diagnosed pericarditis or post-pericardiotomy-syndrome. A random-effects model was used to pool data for POAF-incidence as the primary outcome and for drug-related adverse effects, major adverse events (death and stroke), and hospital length-of-stay as secondary outcomes.RESULTS We included five RCTs (1412 patients). Colchicine treatment reduced POAF-events by 30% versus placebo or usual care (18% vs. 27%, risk ratio (RR) 0.69, 95% confidence interval (CI) 0.57 to 0.84,  $p=0.0002$ ). Adverse drug-related effects, especially gastrointestinal intolerance, increased with colchicine; (21% vs. 8.2%, RR 2.52, 95% CI 1.62 to 3.93,  $p<0.0001$ ). However, major adverse events were unchanged (3.2% vs. 3.2%, RR 0.96, 95% CI 0.48 to 1.95,  $p=0.92$ ). Length-of-stay decreased by 1.2 days with colchicine (95% CI -1.89 to -0.44,  $p=0.002$ ).CONCLUSION Colchicine demonstrated superior efficacy versus usual care for prevention of atrial fibrillation after cardiac surgery. Moreover, colchicine treatment was associated with shorter hospital stays. These benefits outweigh increased risk of adverse drug-related effects; although further work is needed to minimize gastrointestinal effects.

**11. Comparison of major bleeding risk in patients with non-valvular atrial fibrillation receiving direct oral anticoagulants in the real-world setting: a network meta-analysis.**

**Author(s):** Deitelzweig, S; Farmer, C; Luo, X; Li, X; Vo, L; Mardekian, J; Fahrbach, K; Ashaye, A

**Source:** Current medical research and opinion; Dec 2017 ; p. 1-12

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVE To conduct a systematic literature review (SLR) and network meta-analysis (NMA) of real-world studies comparing major bleeding risk among patients with non-valvular atrial fibrillation (NVAf) on direct oral anticoagulants (DOACs) or warfarin.METHODS Systematic searches were conducted in MEDLINE and Embase for full-text articles published between January 1, 2003 and March 18, 2017. Eligible studies compared at least two of the following in a real-world setting: warfarin, apixaban, dabigatran, rivaroxaban, or edoxaban. A Bayesian NMA was conducted to estimate hazard ratios (HRs) for major bleeding using a random-effects model.RESULTS Eleven studies were included in the NMA. Nine studies included DOACs vs Warfarin comparisons, and four studies included DOACs vs DOACs comparisons (two studies included both comparisons). Median follow-up duration ranged from 2.6-31.2 months. No evidence was identified for edoxaban. Apixaban was associated with a significantly lower risk of major bleeding compared to other oral anticoagulants (warfarin HR = 0.58; 95% credible interval [CrI] = 0.48-0.69; dabigatran = 0.73; 0.61-0.87; rivaroxaban = 0.55; 0.46-0.66). Dabigatran was associated with a significantly lower risk than warfarin (0.79; 0.71-0.88) and rivaroxaban (0.76; 0.67-0.85), and rivaroxaban was not statistically different from warfarin (1.05; 0.91-1.19). Sensitivity analyses with standard dose and sponsorship showed consistent results.CONCLUSION DOACs were associated with lower or similar risk of major bleeding compared with warfarin in NVAf patients. Apixaban was associated with a significantly lower risk of major bleeding than other DOACs. Dabigatran was associated with a significantly lower risk of major bleeding compared to rivaroxaban and warfarin.

**12. Timing of oral anticoagulant therapy in acute ischemic stroke with atrial fibrillation: study protocol for a registry-based randomised controlled trial.**

**Author(s):** Åsberg, Signild; Hijazi, Ziad; Norrving, Bo; Terént, Andreas; Öhagen, Patrik; Oldgren, Jonas

**Source:** Trials; Dec 2017; vol. 18 (no. 1); p. 581

**Publication Type(s):** Journal Article

Available at [TRIALS](#) - from BioMed Central

Available at [TRIALS](#) - from Europe PubMed Central - Open Access

Available at [TRIALS](#) - from EBSCO (MEDLINE Complete)

**Abstract:**BACKGROUND Oral anticoagulation therapy is recommended for the prevention of recurrent ischemic stroke in patients with atrial fibrillation (AF). Current guidelines do not provide evidence-based recommendations on optimal time-point to start anticoagulation therapy after an acute ischemic stroke. Non-

vitamin K antagonist oral anticoagulants (NOACs) may offer advantages compared to warfarin because of faster and more predictable onset of action and potentially a lower risk of intracerebral haemorrhage also in the acute phase after an ischemic stroke. The TIMING study aims to establish the efficacy and safety of early vs delayed initiation of NOACs in patients with acute ischemic stroke and AF. **METHODS/DESIGN** The TIMING study is a national, investigator-led, registry-based, multicentre, open-label, randomised controlled study. The Swedish Stroke Register is used for enrolment, randomisation and follow-up of 3000 patients, who are randomised (1:1) within 72 h from ischemic stroke onset to either early ( $\leq 4$  days) or delayed ( $\geq 5-10$  days) start of NOAC therapy. The primary outcome is the composite of recurrent ischemic stroke, symptomatic intracerebral haemorrhage, or all-cause mortality within 90 days after randomisation. Secondary outcomes include: individual components of the primary outcome at 90 and 365 days; major haemorrhagic events; functional outcome by the modified Rankin Scale at 90 days; and health economics. In an optional biomarker sub-study, blood samples will be collected after randomisation from approximately half of the patients for central analysis of cardiovascular biomarkers after study completion. The study is funded by the Swedish Medical Research Council. Enrolment of patients started in April 2017. **CONCLUSION** The TIMING study addresses the ongoing clinical dilemma of when to start NOAC after an acute ischemic stroke in patients with AF. By the inclusion of a randomisation module within the Swedish Stroke Register, the advantages of a prospective randomised study design are combined with the strengths of a national clinical quality register in allowing simplified enrolment and follow-up of study patients. In addition, the register adds the possibility of directly assessing the external validity of the study findings. **TRIAL REGISTRATION** ClinicalTrials.gov, NCT02961348 . Registered on 8 November 2016.

### **13. Meta-analysis of safety and efficacy for direct oral anticoagulation treatment of non-valvular atrial fibrillation in relation to renal function.**

**Author(s):** Zou, Rongjun; Tao, Jun; Shi, Wanting; Yang, Minglei; Li, Hongmu; Lin, Xifeng; Yang, Songran; Hua, Ping

**Source:** Thrombosis research; Dec 2017; vol. 160 ; p. 41-50

**Publication Type(s):** Journal Article

**Abstract:** **INTRODUCTION** We performed a meta-analysis of the safety and efficacy of anticoagulation treatment for atrial fibrillation (AF) in relation to renal function. We also examined the change in estimated glomerular filtration rate (eGFR) from baseline and compared the outcomes for patients with stable and worsening renal function. **MATERIALS AND METHODS** We selected studies that used randomized controlled trials in which outcomes for direct oral anticoagulants (DOACs) (dabigatran, rivaroxaban, apixaban, or edoxaban) were compared with those for warfarin in AF patients with normal, mild or moderate renal function, except the severe one (creatinine clearance  $< 30$ ). **RESULTS** We assessed five clinical trials, involving 72,608 patients. Pooled analysis indicated that the risk of stroke was lower for DOACs than for warfarin among patients with mild renal impairment (Risk ratio, 0.79; 95% confidence interval, 0.68-0.91) and moderate renal impairment (0.80, 0.69-0.92). No major differences were found in patients with normal renal function. Additionally, DOACs were associated with fewer major bleeds among patients with normal (0.77, 0.70-0.84), mild (0.86, 0.77-0.95), and moderate renal impairment (0.73, 0.65-0.82). Among those treated with DOACs, a lower dosage was associated with lower risk of major bleeding (0.75, 0.68-0.83) and higher risk of stroke or systemic embolism (1.28, 1.12-1.47). Further, DOACs tended to be associated with a lower estimated glomerular filtration rate (eGFR) than warfarin even after 30 months. Finally, we found significant differences in the risk of stroke (2.09, 1.64-2.68) and major bleeding (2.01, 1.66-2.42) between patients with stable and worsening renal function. **CONCLUSIONS** DOACs have a greater clinical benefit than warfarin with respect to renal function. They are associated with a comparatively lower risk of stroke and major bleeding, as well lower eGFR. This suggests these agents are a better choice in patients with renal disease.

### **14. Systematic review and meta-analysis on the impact of preoperative atrial fibrillation on short- and long-term outcomes after aortic valve replacement.**

**Author(s):** Saxena, Akshat; Virk, Sohaib A; Bowman, Sebastian; Bannon, Paul G

**Source:** The Journal of cardiovascular surgery; Dec 2017; vol. 58 (no. 6); p. 943-950

**Publication Type(s):** Meta-analysis Journal Article Review

**Abstract:** **INTRODUCTION** This systematic review and meta-analysis was performed to evaluate the impact of preoperative atrial fibrillation (preAF) on early and late outcomes after aortic valve replacement (AVR). **EVIDENCE ACQUISITION** Medline, EMBASE, and CENTRAL were systematically searched for studies that reported AVR outcomes according to the presence or absence of preAF. Data were independently extracted by two investigators; a meta-analysis was conducted according to predefined clinical endpoints.

Studies including patients undergoing concomitant atrial fibrillation surgery were excluded. **EVIDENCE SYNTHESIS** Six observational studies with 8 distinct AVR cohorts (AVR± concomitant surgery) met criteria for inclusion, including a total of 6693 patients. Of these, 1014 (15%) presented with preAF. Overall, perioperative mortality was increased in patients with preAF (odds ratio [OR] 2.33; 95% CI: 1.48-3.67;  $P < 0.001$ ). Subgroup analysis of patients undergoing isolated AVR also demonstrated preAF as a risk factor for perioperative mortality (OR 2.49; 95% CI: 1.57-3.95;  $P < 0.001$ ). PreAF was also associated with acute renal failure (OR 1.42; 95% CI: 1.07-1.89;  $P = 0.02$ ) but not stroke (OR 1.11; 95% CI: 0.59-2.12;  $P = 0.74$ ). Late mortality was significantly higher in patients with preAF (hazard ratio [HR] 1.75; 95% CI: 1.33-2.30;  $P < 0.001$ ). This relationship remained true when only patients who underwent isolated AVR were analyzed (HR 1.97; 95% CI: 1.11-3.51;  $P = 0.02$ ). **CONCLUSIONS** PreAF is associated with an increased risk of early- and late-mortality after AVR. These data support the more widespread utilization of concomitant AF ablation.

### 15. Efficacy and safety of driver-guided catheter ablation for atrial fibrillation: A systematic review and meta-analysis.

**Author(s):** Ramirez, F Daniel; Birnie, David H; Nair, Girish M; Szczotka, Agnieszka; Redpath, Calum J; Sadek, Mouhannad M; Nery, Pablo B

**Source:** Journal of cardiovascular electrophysiology; Dec 2017; vol. 28 (no. 12); p. 1371-1378

**Publication Type(s):** Journal Article

**Abstract:** **INTRODUCTION** Targeting localized drivers (electrical rotors or focal impulses) during catheter ablation for atrial fibrillation (AF) has been proposed as a strategy to improve procedural success. However, the strength and quality of the evidence to support this approach is unclear. **METHODS AND RESULTS** Clinical studies reporting efficacy or safety outcomes of driver-guided ablation for AF were identified in Medline, Embase, the Cochrane Central Register of Controlled Trials, the Cochrane Database of Systematic Reviews, Pubmed, and conference abstracts from major scientific meetings. Random-effects meta-analysis of efficacy outcomes from controlled studies was performed. Thirty-one reports from 30 studies were included: two randomized controlled trials, five nonrandomized controlled studies, and 23 uncontrolled studies. In controlled studies, driver-guided ablation has been associated with higher rates of acute AF termination (RR 2.08, 95% CI 1.43-3.05;  $P < 0.001$ ) and increased freedom from AF/atrial tachycardia (AT) at  $\geq 1$  year (RR 1.34, 95% CI 1.05-1.70;  $P = 0.02$ ). Similar rates of procedural complications have been reported between ablation strategies. Overall, current data on driver-guided ablation are predominantly from nonrandomized studies with considerable heterogeneity in mapping and ablation strategies used and in clinical outcomes reported. **CONCLUSION** Pooled data on the efficacy of AF driver-guided catheter ablation suggest increased freedom from AF/AT relative to conventional strategies. However, most studies are nonrandomized and of moderate quality. Though promising data exist, there remains no conclusive evidence for the efficacy of AF driver ablation. Robust data from randomized trials are needed.

### 16. Integrated care in atrial fibrillation: a systematic review and meta-analysis.

**Author(s):** Gallagher, Celine; Elliott, Adrian D; Wong, Christopher X; Rangnekar, Geetanjali; Middeldorp, Melissa E; Mahajan, Rajiv; Lau, Dennis H; Sanders, Prashanthan; Hendriks, Jeroen M L

**Source:** Heart (British Cardiac Society); Dec 2017; vol. 103 (no. 24); p. 1947-1953

**Publication Type(s):** Meta-analysis Journal Article Review

Available at [Heart](#) - from BMJ Journals

Available at [Heart](#) - from BMJ Journals - NHS

**Abstract:** **OBJECTIVE** Atrial fibrillation (AF) is an emerging global epidemic associated with significant morbidity and mortality. Whilst other chronic cardiovascular conditions have demonstrated enhanced patient outcomes from coordinated systems of care, the use of this approach in AF is a comparatively new concept. Recent evidence has suggested that the integrated care approach may be of benefit in the AF population, yet has not been widely implemented in routine clinical practice. We sought to undertake a systematic review and meta-analysis to evaluate the impact of integrated care approaches to care delivery in the AF population on outcomes including mortality, hospitalisations, emergency department visits, cerebrovascular events and patient-reported outcomes. **METHODS** PubMed, Embase and CINAHL databases were searched until February 2016 to identify papers addressing the impact of integrated care in the AF population. Three studies, with a total study population of 1383, were identified that compared integrated care approaches with usual care in AF populations. **RESULTS** Use of this approach was associated with a reduction in all-cause mortality (OR 0.51, 95% CI 0.32 to 0.80,  $p = 0.003$ ) and cardiovascular hospitalisations (OR 0.58, 95% CI 0.44 to 0.77,  $p = 0.0002$ ) but did not significantly impact on AF-related hospitalisations (OR 0.82, 95% CI 0.56 to 1.19,  $p = 0.29$ ) or

cerebrovascular events (OR 1.00, 95% CI 0.48 to 2.09,  $p=1.00$ ). **CONCLUSION** The use of the integrated care approach in AF is associated with reduced cardiovascular hospitalisations and all-cause mortality. Further research is needed to identify optimal settings, methods and components of delivering integrated care to the burgeoning AF population.

### **17. Suitability of cardiac resynchronisation therapy in patients with Fontan circulation and congenitally corrected transposition of the great arteries.**

**Author(s):** Demetriades, P; Bell, A; Gubran, C; Marshall, H; de Bono, J; Hudsmith, L

**Source:** International journal of cardiology; Dec 2017; vol. 249 ; p. 166-168

**Publication Type(s):** Journal Article

**Abstract:** **BACKGROUND** Cardiac resynchronisation therapy (CRT) is a well-recognised treatment in systolic heart failure. There is limited evidence in congenital patients with univentricular hearts or systemic right ventricles. In 2014 PACES/HRS published a consensus statement recommending CRT if ventricular ejection fraction (EF)  $\leq 35\%$ , QRS duration  $\geq 150$ ms (with RBBB in systemic RV), NYHA II-IV and ventricular dilatation. The incidence of patients meeting these criteria in whom CRT is possible is not known. **METHODS** Retrospective analysis of 203 patients with a univentricular Fontan circulation and 55 patients with ccTGA under specialist ACHD care. **RESULTS** Univentricular functional data was available for 194 (96%), 10 (5%) having EF  $\leq 35\%$ . QRS duration was available for 190 (94%) and was  $\geq 150$ ms in five (3%). EF data was available for 54 (98%) ccTGA patients, and was  $\leq 35\%$  in 6 (11%). QRS duration was  $\geq 150$ ms in 13 (26%). Only four patients fulfilled recommendations and two received CRT. **CONCLUSIONS** Only a small proportion of patients with single ventricles or ccTGA meet the criteria for CRT. In many of these patients there are significant anatomical barriers to CRT which limit its use in this population. The decision to implant CRT in complex ACHD requires discussion in a combined ACHD electrophysiology surgical multidisciplinary meeting and close collaboration with patients.

### **18. Cardiac resynchronisation therapy: current indications, management and basic troubleshooting.**

**Author(s):** Rao, Praveen; Faddis, Mitchell

**Source:** Heart (British Cardiac Society); Dec 2017; vol. 103 (no. 24); p. 2000-2007

**Publication Type(s):** Journal Article

Available at [Heart](#) - from BMJ Journals

Available at [Heart](#) - from BMJ Journals - NHS

### **19. Incremental benefit of cardiac resynchronisation therapy with versus without a defibrillator.**

**Author(s):** Martens, Pieter; Verbrugge, Frederik H; Nijst, Petra; Dupont, Matthias; Nuyens, Dieter; Herendael, Hugo Van; Rivero-Ayerza, Maximo; Tang, Wilson H; Mullens, Wilfried

**Source:** Heart (British Cardiac Society); Dec 2017; vol. 103 (no. 24); p. 1977-1984

**Publication Type(s):** Comparative Study Journal Article

Available at [Heart](#) - from BMJ Journals

Available at [Heart](#) - from BMJ Journals - NHS

**Abstract:** **OBJECTIVE** To determine the incremental value of implantable cardioverter defibrillators (ICD) in contemporary optimally treated patients with heart failure (HF) undergoing cardiac resynchronisation therapy (CRT). **METHODS** Consecutive patients with HF undergoing CRT-pacemaker (CRT-P) or CRT-defibrillator (CRT-D) implantation in a single tertiary care centre between October 2008 and August 2015 were retrospectively evaluated. For patients with a primary prevention indication of the CRT-D, no benefit of the ICD was defined as absence of appropriate therapy (device analysis) or lethal ventricular tachyarrhythmias (mode of death analysis) during follow-up. **RESULTS** 687 patients (CRT-P/CRT-D;  $n=361/326$ ) were followed for  $38 \pm 22$  months. CRT-P recipients were older ( $75.7 \pm 9.1$  vs  $71.8 \pm 9.3$  years;  $p < 0.001$ ), New York Heart Association class IV, intolerance to beta-blockers and underlying non-ischaemic cardiomyopathy were independently associated with little incremental value of a primary prevention ICD on top of CRT. **CONCLUSIONS** The majority of patients with contemporary HF as currently selected for CRT-P exhibit mainly non-cardiac-driven mortality. Weighing risk of ventricular-tachyarrhythmic death versus risk of all-cause mortality helps to address the incremental value of an ICD to CRT-P.

## 20. Impact of Supraventricular Tachyarrhythmia in Patients With Inherited Cardiac Arrhythmia.

**Author(s):** Ragab, Ahmed A Y; Houck, Charlotte A; van der Does, Lisette J M E; Lanter, Eva A H; Muskens, Agnes J Q M; de Groot, Natasja M S

**Source:** The American journal of cardiology; Dec 2017; vol. 120 (no. 11); p. 1985-1989

**Publication Type(s):** Journal Article

**Abstract:**Supraventricular tachyarrhythmia (SVT), especially atrial fibrillation (AF), has been observed in patients with inherited cardiac arrhythmia (ICA). Data on the time course of SVT and the occurrence of SVT other than AF is limited. In this study, we examined the prevalence, co-existence, and the time course of different types of SVT in patients with various ICAs. In this retrospective study, we selected 393 patients (median 49 years, range 17 to 87, 57% male) from a cohort of patients visiting the outpatient clinic for cardiogenetic screening of ICA. Patients' medical records were examined for the occurrence of AF and other SVT. AF/SVT was found in 49 patients (12%, 31 male,  $42 \pm 17$  years). Patients presenting with only AF ( $n = 12$ , 3%) were older than patients presenting with only SVT ( $n = 28$ , 7%), respectively  $52 \pm 18$  versus  $37 \pm 14$ ,  $p = 0.007$ . Nineteen patients (5%) had multiple episodes of either AF ( $n = 7$ , 2%) or SVT ( $n = 12$ , 3%). Alternating episodes of AF and SVT occurred in 9 patients (2%). Intervals between second and third AF episodes were significantly shorter than between first and second episodes ( $p = 0.02$ ). An implantable cardioverter defibrillator (ICD) was implanted in 158 patients (40.2%) and 26 patients (16%) had inappropriate ICD shocks (SVT 25, AF 1), particularly those with multiple SVT episodes ( $p = 0.003$ ). In patients with a variety of ICAs, episodes of AF/SVT occurred in 12%. In patients with multiple AF episodes, intervals between consecutive episodes became significantly shorter over time. AF/SVT episodes are associated with inappropriate ICD shocks and aggressive therapy of AF/SVT is therefore justified.

## 21. Predictors of ventricular arrhythmia after left ventricular assist device implantation: A large single-center observational study.

**Author(s):** Efimova, Elena; Fischer, Julia; Bertagnolli, Livio; Dinov, Borislav; Kircher, Simon; Rolf, Sascha; Sommer, Philipp; Bollmann, Andreas; Richter, Sergio; Meyer, Anna; Garbade, Jens; Hindricks, Gerhard; Arya, Arash

**Source:** Heart rhythm; Dec 2017; vol. 14 (no. 12); p. 1812-1819

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDVentricular arrhythmias (VAs) are common in patients after left ventricular assist device (LVAD) implantation.OBJECTIVEThe purpose of this study was to determine the predictors of VAs and their impact on mortality in LVAD patients.METHODSA total of 98 consecutive patients with an implantable cardioverter-defibrillator (ICD) (86 [88%] male, mean age  $57 \pm 10$  years), 57 [58%] with nonischemic dilated cardiomyopathy) who had received an LVAD between May 2011 and December 2013 at our institution were included in the study.RESULTSMean left ventricular ejection fraction and left ventricular end-diastolic diameter were  $20\% \pm 8\%$  and  $73 \pm 11$  mm, respectively. Seventy-three patients (75%) had atrial fibrillation (AF). During the 12 months before LVAD implantation, 38 patients (39%) had experienced  $\geq 1$  episode of VAs ( $11.5 \pm 20$ ) requiring ICD therapies. The number of patients with VAs was comparable among all types of ICDs ( $P = .48$ ). During the 12-month follow-up after LVAD implantation, 48 patients (49%) experienced  $\geq 1$  episode of VAs ( $30 \pm 98$ ) with appropriate ICD therapies. The prevalence of VAs was significantly higher among patients with pre-LVAD VAs compared to those without VAs during the year before LVAD implantation (66% vs 38%;  $P = .008$ ). In a binary multiple logistic regression analysis, pre-LVAD VAs (hazard ratio 5.36, 95% confidence interval 2.0-14.3;  $P = .001$ ) and AF (hazard ratio 3.1, 95% confidence interval 1.1-11.9;  $P = .024$ ) predicted post-LVAD VAs.CONCLUSIONPre-LVAD VAs and AF predict the occurrence of VAs after LVAD implantation. According to the latest data on the negative impact of post-LVAD VAs on all-cause mortality, further studies should clarify the reasonability of maintaining sinus rhythm in patients with AF and/or prophylactic catheter ablation of ventricular tachycardias before LVAD implantation.

## 22. Can catheter ablation reduce the incidence of thromboembolic events in patients with atrial fibrillation?

**Author(s):** Liu M.; Zhuang X.; Wang L.; Wang Y.; Li X.; Chen X.

**Source:** Medicine (United States); Dec 2017; vol. 96 (no. 48)

**Publication Type(s):** Review

Available at [Medicine](#) - from Europe PubMed Central - Open Access

Available at [Medicine](#) - from IngentaConnect - Open Access

**Abstract:** Atrial fibrillation (AF), the most common cardiac arrhythmia, is a major risk factor for thromboembolic events, especially ischemic stroke. Catheter ablation is an effective method to maintain sinus rhythm in patients with AF. Although some observational studies have shown a relatively lower stroke rate after catheter ablation, whether catheter ablation can reduce the thromboembolic risk in patients with AF remains unclear. We aim to perform a systematic review to determine whether catheter ablation can prevent thromboembolism in patients with AF. PubMed, Embase, the Web of Science, and the Cochrane Library will be searched from January 2000 to the present for randomized controlled trials (RCTs) and non-randomized studies on catheter ablation in patients with AF. Other relevant sources, such as the references and conference proceedings, will also be manually retrieved. All studies will be limited to publication in English. The primary outcome will be thromboembolic events, including stroke, transient ischemic attack, and systemic embolic events. Study screening, data collection, and study quality assessment will be independently performed by 2 researchers. Disagreements will be resolved through team discussion or consultation with a third arbitrator. The risk of bias will be appraised using the Cochrane Collaboration tool and the Newcastle-Ottawa scale according to the different study designs, and a meta-analysis will be performed using RevMan V.5.3 software. The results will be presented as risk ratios and 95% confidence intervals for dichotomous data and continuous outcomes. Catheter ablation is an effective method to cure atrial fibrillation and maintain sinus rhythm. Although it is intuitive that if AF is eliminated, the thromboembolism in the heart would be abolished, and subsequently the incidence of thromboembolic events would be decreased, this in fact has not yet been clarified. This systematic review and meta-analysis will be performed with the aim of comprehensively identifying studies that have reported the impact of AF ablation on thromboembolic events in patients with non-valvular AF by comparing an ablation group and non-ablation group. These outcomes will not only produce useful evidence-based data regarding the influence of catheter ablation on thromboembolic events in patients with AF but will also provide some guidance regarding anticoagulation regimens in patients who have undergone catheter ablation.

### 23. Nurse-led clinics for atrial fibrillation: managing risk factors.

**Author(s):** Jacob, Liril

**Source:** British journal of nursing (Mark Allen Publishing); Dec 2017; vol. 26 (no. 22); p. 1245-1248

**Publication Type(s):** Journal Article

Available at [British journal of nursing \(Mark Allen Publishing\)](#) - from EBSCO (CINAHL with Full Text)

**Abstract:** Atrial fibrillation (AF) is the most common and sustained cardiac arrhythmia rated by cardiologists as one of the most difficult conditions to manage. Traditionally, AF management has focused on the three pillars of rate control, rhythm control and anticoagulation. However, more recently, cardiovascular risk-factor management in AF has emerged as a fourth and essential pillar, delivering improved patient outcomes. In the UK, AF is a condition that is often managed poorly, with patients reporting a lack of understanding of their condition and treatment options. Many aspects of assessment and communication in AF management are time consuming. Failure to address those aspects may negatively affect the quality of care. Nurse-led clinics can contribute significantly in the areas of patient education and sustained follow-up care, improving outcomes and addressing current deficiencies in AF risk-factor management due to scarcity of medical resources. This article discusses the major cardiovascular risk factors associated with AF, drawing on evidence from the literature, and considers the effectiveness and implications for practice of introducing community-based nurse-led clinics for risk-factor management in patients with AF.

### 24. Pharmacological interventions for preventing post-operative atrial fibrillation in patients undergoing cardiac surgery: a network meta-analysis protocol.

**Author(s):** Wang, Xiaoqin; Yao, Liang; Ge, Long; Li, Lun; Liang, Fuxiang; Zhou, Qi; Chen, Yaolong; Wang, Yongfeng; Yang, Kehu

**Source:** BMJ open; Dec 2017; vol. 7 (no. 12); p. e018544

**Publication Type(s):** Journal Article

Available at [BMJ open](#) - from HighWire - Free Full Text

Available at [BMJ open](#) - from Europe PubMed Central - Open Access

Available at [BMJ open](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** INTRODUCTION Postoperative atrial fibrillation (POAF) is the most common complication following cardiac surgery, and randomised clinical trials (RCTs) and systematic reviews have been conducted to compare and evaluate different pharmacological interventions for preventing POAF. This study aimed to explore the effect of different pharmacological interventions for prophylaxis against POAF after cardiac surgery

using network meta-analysis (NMA). **METHODS AND ANALYSIS** A systematic search will be performed in PubMed, EMBASE and the Cochrane Library to identify RCTs, systematic reviews, meta-analyses or NMA of different pharmacological interventions for POAF. We will evaluate the risk of bias of the included RCTs according to the Cochrane Handbook V.5.1.0, and use GRADE to assess the quality of evidence. Standard pairwise meta-analysis, trial sequential analysis and Bayesian network meta-analysis will be used to compare the efficacy of different pharmacological interventions. **ETHICS AND DISSEMINATION** Ethics approval and patient consent are not required as this study is a meta-analysis based on published studies. The results of this NMA and trial sequential analysis will be submitted to a peer-reviewed journal for publication. **PROTOCOL REGISTRATION NUMBER** CRD42017067492.

## **25. Efficacy and Safety Outcomes of Direct Oral Anticoagulants and Amiodarone in Patients with Atrial Fibrillation.**

**Author(s):** Lupercio, Florentino; Romero, Jorge; Peltzer, Bradley; Maraboto, Carola; Briceno, David; Villablanca, Pedro; Ferrick, Kevin; Gross, Jay N; Kim, Soo; Fisher, John; Di Biase, Luigi; Krumerman, Andrew

**Source:** The American journal of medicine; Dec 2017

**Publication Type(s):** Journal Article

**Abstract:** **BACKGROUND** Direct oral anticoagulants (DOACs) and amiodarone are widely used in the treatment of non-valvular atrial fibrillation. The DOACs are P-glycoprotein (P-gp) and cytochrome p-450 (CYP3A4) substrates. DOAC levels may be increased by the concomitant use of potent dual P-gp/CYP3A4 inhibitors such as amiodarone, which can potentially translate into adverse clinical outcomes. We aimed to assess the efficacy and safety of drug-drug interaction by the concomitant use of DOACs and amiodarone. **METHODS** We performed a systematic review of MEDLINE, Cochrane and Embase limiting our search to randomized controlled trials of patients with atrial fibrillation that have compared DOACs vs warfarin for prophylaxis of stroke or systemic embolism in order to analyze the impact on stroke or systemic embolism, major bleeding and intracranial bleeding risk in patients with concomitant use of amiodarone. Risk ratio (RR) 95% confidence intervals were measured using the Mantel-Haenszel method. The fixed effects model was used due to heterogeneity ( $I^2 < 25\%$ ). **RESULTS** Four trials with a total of 71,683 patients were analyzed from which 5% ( $n = 3,212$ ) of patients were concomitantly on DOAC and amiodarone. We found no statistically significant difference for any of the clinical outcomes (stroke or systemic embolism (RR, 0.85; 95% CI 0.67-1.06), major bleeding (RR, 0.91; 95% CI 0.77-1.07) or intracranial bleeding (RR, 1.10; 95% CI 0.68-1.78)) among patients on DOAC and amiodarone versus DOAC without amiodarone. **CONCLUSION** Based on the results of this meta-analysis, co-administration of DOACs and amiodarone, a dual P-gp/CYP3A4 inhibitor, does not appear to affect efficacy or safety outcomes in patients with atrial fibrillation.

## **26. Long-term benefits of education by emergency care nurses at discharge of patients with atrial fibrillation.**

**Author(s):** Fuenzalida, Carolina; Hernández, Gritzel; Ferro, Inés; Siches, Carme; Ambrós, Àngels; Coll-Vinent, Blanca

**Source:** International emergency nursing; Nov 2017; vol. 35 ; p. 7-12

**Publication Type(s):** Journal Article

**Abstract:** **INTRODUCTION AND OBJECTIVE** Health education improves the prognosis of many diseases. A previous study in patients with atrial fibrillation (AF) showed that an educational intervention by nurses at discharge from the emergency room (ER) decreased AF-related complications at 3-month follow-up. Our objective was to determine whether this intervention had a long-term effect. **PATIENTS AND METHODS** A prospective study assessed the outcomes of an intervention carried out upon discharge from the ER. Patients with a diagnosis of AF were randomized into two groups: the intervention group and the control group. The intervention consisted of a basic explanation about the arrhythmia and its treatment, precautions and warning signs, a training to take their pulse, and an individualized informational leaflet. At one year of follow-up, the clinical records for all participants were reviewed. The primary variable was the combined endpoint of AF-related or treatment-related complications and death. **RESULT** The study included 240 patients (116 intervention and 124 control), mean age  $76.1 \pm 10.9$  years. The primary variable was significantly lower in the intervention group (31.9% vs 48.4%;  $p = 0.005$ ). **CONCLUSION** Education by ER nurses at patient discharge helped to decrease AF-related complications at one year of follow-up.



## 27. Oral anticoagulants for prevention of stroke in atrial fibrillation: systematic review, network meta-analysis, and cost effectiveness analysis.

**Author(s):** López-López, José A; Sterne, Jonathan A C; Thom, Howard H Z; Higgins, Julian P T; Hingorani, Aron D; Okoli, George N; Davies, Philippa A; Bodalia, Pritesh N; Bryden, Peter A; Welton, Nicky J; Hollingworth, William; Caldwell, Deborah M; Savović, Jelena; Dias, Sofia; Salisbury, Chris; Eaton, Diane; Stephens-Boal, Annya; Sofat, Reeceha

**Source:** BMJ (Clinical research ed.); Nov 2017; vol. 359 ; p. j5058

**Publication Type(s):** Meta-analysis Journal Article Review

Available at [BMJ \(Online\)](#) - from BMJ Journals

Available at [BMJ \(Online\)](#) - from BMJ Journals - NHS

**Abstract:** Objective To compare the efficacy, safety, and cost effectiveness of direct acting oral anticoagulants (DOACs) for patients with atrial fibrillation. Design Systematic review, network meta-analysis, and cost effectiveness analysis. Data sources Medline, PreMedline, Embase, and The Cochrane Library. Eligibility criteria for selecting studies Published randomised trials evaluating the use of a DOAC, vitamin K antagonist, or antiplatelet drug for prevention of stroke in patients with atrial fibrillation. Results 23 randomised trials involving 94 656 patients were analysed: 13 compared a DOAC with warfarin dosed to achieve a target INR of 2.0-3.0. Apixaban 5 mg twice daily (odds ratio 0.79, 95% confidence interval 0.66 to 0.94), dabigatran 150 mg twice daily (0.65, 0.52 to 0.81), edoxaban 60 mg once daily (0.86, 0.74 to 1.01), and rivaroxaban 20 mg once daily (0.88, 0.74 to 1.03) reduced the risk of stroke or systemic embolism compared with warfarin. The risk of stroke or systemic embolism was higher with edoxaban 60 mg once daily (1.33, 1.02 to 1.75) and rivaroxaban 20 mg once daily (1.35, 1.03 to 1.78) than with dabigatran 150 mg twice daily. The risk of all-cause mortality was lower with all DOACs than with warfarin. Apixaban 5 mg twice daily (0.71, 0.61 to 0.81), dabigatran 110 mg twice daily (0.80, 0.69 to 0.93), edoxaban 30 mg once daily (0.46, 0.40 to 0.54), and edoxaban 60 mg once daily (0.78, 0.69 to 0.90) reduced the risk of major bleeding compared with warfarin. The risk of major bleeding was higher with dabigatran 150 mg twice daily than apixaban 5 mg twice daily (1.33, 1.09 to 1.62), rivaroxaban 20 mg twice daily than apixaban 5 mg twice daily (1.45, 1.19 to 1.78), and rivaroxaban 20 mg twice daily than edoxaban 60 mg once daily (1.31, 1.07 to 1.59). The risk of intracranial bleeding was substantially lower for most DOACs compared with warfarin, whereas the risk of gastrointestinal bleeding was higher with some DOACs than warfarin. Apixaban 5 mg twice daily was ranked the highest for most outcomes, and was cost effective compared with warfarin. Conclusions The network meta-analysis informs the choice of DOACs for prevention of stroke in patients with atrial fibrillation. Several DOACs are of net benefit compared with warfarin. A trial directly comparing DOACs would overcome the need for indirect comparisons to be made through network meta-analysis. Systematic review registration PROSPERO CRD 42013005324.

## 28. Surgical ablation of atrial fibrillation: a systematic review and meta-analysis of randomized controlled trials.

**Author(s):** McClure, Graham R; Belley-Cote, Emilie P; Jaffer, Iqbal H; Dvirnik, Nazari; An, Kevin R; Fortin, Gabriel; Spence, Jessica; Healey, Jeff; Singal, Rohit K; Whitlock, Richard P

**Source:** Europace : European pacing, arrhythmias, and cardiac electrophysiology : journal of the working groups on cardiac pacing, arrhythmias, and cardiac cellular electrophysiology of the European Society of Cardiology; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:** Aims The aim of this review was to assess the effect of concomitant surgical atrial fibrillation (AF) ablation on postoperative freedom from AF and patient-important outcomes. Methods and results We searched Cochrane CENTRAL, MEDLINE, and EMBASE databases from inception to May 2016 for randomized controlled trials (RCTs) evaluating surgical AF ablation using any lesion set vs. no surgical AF ablation in adults with AF undergoing cardiac surgery. We performed screening, risk-of-bias evaluation, and data collection independently and in duplicate. We evaluated risk of bias with the modified Cochrane tool, quality of evidence using GRADE framework, and pooled data with a random-effects model. Of the 23 included studies, only one was considered at low risk of bias. Surgical AF ablation was associated with more freedom from AF at 12 months [relative risk (RR) = 2.32, 95% confidence interval (CI) 1.92-2.80; P < 0.001, low quality]. However, no significant difference was seen in mortality (RR = 1.07, 95% CI 0.72-1.52; P = 0.41, moderate quality), stroke (RR = 1.19, 95% CI 0.59-2.39; P = 0.63, moderate quality), or pacemaker implantation (RR = 1.28, 95% CI 0.85-1.95; P = 0.24, high quality). Comparing biatrial and left-sided lesion sets showed no difference in mortality (P-interaction = 0.60) or stroke (P-interaction = 0.12). At 12 months, biatrial procedures led to more freedom from AF (RR = 2.80, 95% CI 2.13-3.68; P < 0.0001) when compared with left-sided ablation

(RR = 2.00, 95% CI 1.68-2.39;  $P < 0.0001$ ) (P-interaction = 0.04) Batrial procedures appear to increase the risk for pacemaker (RR = 2.68, 95% CI 1.41-5.11;  $P = 0.002$ ) compared with no ablation while left-sided ablation does not (RR = 1.08, 95% CI 0.67-1.74;  $P = 0.76$ ) (P-interaction = 0.03). Conclusion Surgical AF ablation during cardiac surgery improves freedom from AF. However, impact on patient-important outcomes including mortality and stroke has not shown statistical significance in current RCT evidence. Batrial compared with left-sided lesion sets showed no difference in mortality or stroke but were associated with significantly increased freedom from AF and risk for pacemaker requirement.

### **29. Real-World Use of Apixaban for Stroke Prevention in Atrial Fibrillation: A Systematic Review and Meta-Analysis.**

**Author(s):** Proietti, Marco; Romanazzi, Imma; Romiti, Giulio Francesco; Farcomeni, Alessio; Lip, Gregory YH

**Source:** Stroke; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND AND PURPOSEThe use of oral anticoagulant therapy for stroke prevention in atrial fibrillation has been transformed by the availability of the nonvitamin K antagonist oral anticoagulants. Real-world studies on the use of nonvitamin K antagonist oral anticoagulants would help elucidate their effectiveness and safety in daily clinical practice. Apixaban was the third nonvitamin K antagonist oral anticoagulants introduced to clinical practice, and increasing real-world studies have been published. Our aim was to summarize current evidence about real-world studies on apixaban for stroke prevention in atrial fibrillation.METHODSWe performed a systematic review and meta-analysis of all observational real-world studies comparing apixaban with other available oral anticoagulant drugs.RESULTSFrom the original 9680 results retrieved, 16 studies have been included in the final meta-analysis. Compared with warfarin, apixaban regular dose was more effective in reducing any thromboembolic event (odds ratio: 0.77; 95% confidence interval: 0.64-0.93), but no significant difference was found for stroke risk. Apixaban was as effective as dabigatran and rivaroxaban in reducing thromboembolic events and stroke. The risk of major bleeding was significantly lower for apixaban compared with warfarin, dabigatran, and rivaroxaban (relative risk reduction, 38%, 35%, and 46%, respectively). Similarly, the risk for intracranial hemorrhage was significantly lower for apixaban than warfarin and rivaroxaban (46% and 54%, respectively) but not dabigatran. The risk of gastrointestinal bleeding was lower with apixaban when compared with all oral anticoagulant agents ( $P < 0.00001$  for all comparisons).CONCLUSIONSUse of apixaban in real-life is associated with an overall similar effectiveness in reducing stroke and any thromboembolic events when compared with warfarin. A better safety profile was found with apixaban compared with warfarin, dabigatran, and rivaroxaban.

### **30. Incidence of postoperative atrial fibrillation recurrence in patients discharged in sinus rhythm after cardiac surgery: a systematic review and meta-analysis.**

**Author(s):** Lowres, Nicole; Mulcahy, Georgina; Jin, Kai; Gallagher, Robyn; Neubeck, Lis; Freedman, Ben

**Source:** Interactive cardiovascular and thoracic surgery; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**Postoperative atrial fibrillation (POAF) is associated with increased stroke risk and mortality post-discharge. POAF is often considered transient; however, recurrence is likely under-recognized as symptoms are an unreliable guide. Surveillance post-discharge may identify asymptomatic POAF recurrences in patients discharged in sinus rhythm. Therefore, we performed a systematic review and meta-analysis of studies investigating POAF recurrence post-discharge, in patients with new-onset POAF following cardiac surgery who reverted to sinus rhythm prior to discharge. Two independent reviewers searched medical databases, clinical trial registries, reference lists and the Internet. After screening from 6525 studies, 8 studies were identified (n = 1157 participants, mean age  $66 \pm 10$  years and 73% men). Monitoring methods included the following: telemetry during twice-daily exercise sessions (n = 2), continuous telemetry for 3 weeks (n = 1), daily 20-s electrocardiography (ECG) using wearable event recorder (n = 1), 30-s single-lead ECG, 4 times/day (n = 1) and implanted continuous monitoring (n = 2). The incidence rate of POAF recurrence identified through non-invasive monitoring in the first 4 weeks post-discharge was 28.3% [confidence interval (CI) 23.0-33.6%]; recurring  $12 \pm 5$  days (mean  $\pm$  SD) post-surgery. The incidence rate identified through implanted continuous monitoring was 61-100% within 2 years. Between 40% and 93% of episodes were asymptomatic. In one small study reporting stroke risk, 8 of 10 patients with recurrence were guideline-indicated (CHA<sub>2</sub>DS<sub>2</sub>-VASc score  $\geq 2$ ) for oral anticoagulation for stroke prevention. Monitoring for POAF recurrence post-hospital discharge identifies significant numbers of early asymptomatic recurrences in patients at high risk of stroke who may benefit from anticoagulation for stroke prevention. More intense monitoring is more likely to identify POAF

recurrence. Future research is required to investigate the prognostic significance of POAF recurrence, especially stroke and mortality risk.

### **31. Apixaban: Effective and Safe in Preventing Thromboembolic Events in Patients with Atrial Fibrillation and Renal Failure.**

**Author(s):** Cortese, Francesca; Scicchitano, Pietro; Gesualdo, Michele; Ricci, Gabriella; Carbonara, Santa; Franchini, Carlo; Pia Schiavone, Brigida Immacolata; Corbo, Filomena; Ciccone, Marco Matteo

**Source:** Current medicinal chemistry; Nov 2017; vol. 24 (no. 34); p. 3813-3827

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Thromboembolic events, principally stroke, represent one of the leading causes of morbidity and mortality among subjects with atrial fibrillation. Chronic kidney disease determines a further increase of thromboembolic events, bleeding and mortality and complicates the pharmacological management of patients with atrial fibrillation, mainly due to the side effects of antiarrhythmic and anticoagulant drugs with renal excretion. Apixaban is a new oral anticoagulant characterized by good bioavailability and renal elimination accounting for only 25%, showing a safety profile and effectiveness in patients with renal impairment. OBJECTIVE In this manuscript, we reviewed literature data on the use of apixaban in the management of non-valvular atrial fibrillation in patients with renal failure, in order to clarify an often-debated topic in clinical practice. METHOD A PubMed search was performed on the terms atrial fibrillation, apixaban and renal failure with the aim of identifying relevant manuscripts, large randomized clinical trials, meta-analyses, and current guidelines. RESULTS Literature data show that apixaban could represent an interesting alternative to warfarin and other selective antagonists of coagulation factors in patients with impaired renal function. About the risk of major bleeding, apixaban appears to be safer than warfarin in the presence of any degree of renal failure. CONCLUSION Apixaban show to be an effective anticoagulant in patients with atrial fibrillation, even superior to warfarin in reducing the risk of stroke and systemic embolism regardless of the presence of renal insufficiency. Moreover, Food and Drug Administration allows the use of apixaban in patients with end stage renal disease on hemodialysis.

### **32. Meta-Analysis of Safety and Efficacy of Uninterrupted Non-Vitamin K Antagonist Oral Anticoagulants Versus Vitamin K Antagonists for Catheter Ablation of Atrial Fibrillation.**

**Author(s):** Elgendy, Akram Y; Mahtta, Dhruv; Barakat, Amr F; Abuzaid, Ahmed; Mahmoud, Ahmad; Mentias, Amgad; Mahmoud, Ahmed N; Elgendy, Islam Y

**Source:** The American journal of cardiology; Nov 2017; vol. 120 (no. 10); p. 1830-1836

**Publication Type(s):** Journal Article

Available at [American journal of cardiology](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** This meta-analysis sought to assess the safety and efficacy of uninterrupted non-vitamin K antagonist oral anticoagulants (NOACs) versus uninterrupted vitamin K antagonists in atrial fibrillation (AF) patients undergoing catheter ablation. Electronic databases were searched for randomized trials (RCTs) and observational studies that compared uninterrupted NOACs versus uninterrupted vitamin K antagonists in the catheter ablation of AF. Safety outcomes included major bleeding, total bleeding, minor bleeding, and cardiac tamponade. Efficacy outcomes were symptomatic thromboembolism and symptomatic stroke/transient ischemic attack. Summary estimate risk ratios (RRs) were constructed primarily with a DerSimonian-Laird model. Thirteen studies (3 RCTs and 10 observational studies) with 4,878 patients were included. The risk of major bleeding (RR 0.83, 95% confidence interval [CI] 0.46 to 1.50,  $p = 0.53$ ), total bleeding (RR 0.90, 95% CI 0.71 to 1.15,  $p = 0.41$ ), minor bleeding (RR 0.98, 95% CI 0.80 to 1.21,  $p = 0.85$ ), cardiac tamponade (RR 0.85, 95% CI 0.43 to 1.69,  $p = 0.65$ ), symptomatic thromboembolism (RR 0.92, 95% CI 0.26 to 3.31,  $p = 0.90$ ), and symptomatic stroke/transient ischemic attack (RR 1.03, 95% CI 0.29 to 3.65,  $p = 0.97$ ) was similar in both groups. The quality of evidence for both major bleeding and symptomatic thromboembolism was moderate for RCTs and very low for observational studies. In conclusion, the use of uninterrupted NOACs in AF catheter ablation appears to be safe and efficacious. The evidence is not of high quality; thus, further high-quality RCTs are needed to confirm these findings.

### **33. Cost-Effectiveness of Colchicine treatment on Post-Operative Atrial fibrillation (POAF) events in patients of major cardiac surgery.**

**Author(s):** Barman, M; Tantawy, Mahmoud; Sopher, Mark; Lennerz, Carsten

**Source:** European heart journal. Quality of care & clinical outcomes; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**Background Post-operative atrial fibrillation (POAF) occurs in 20-50% of patients amid post-operative stay after Cardiac Surgery. We intend to determine whether colchicine therapy in patients undergoing cardiac surgery is a cost-effective strategy for prevention of postoperative atrial fibrillation. To undertake cost utility analysis and calculate ICUR for colchicine therapy in these subgroup of patients. Design Decision tree model to calculate the incremental cost utility ratio comparing two treatment strategies in patients undergoing cardiac surgery. One wherein patients received colchicine along with usual care and second where they received placebo or just usual care. Cost utility analysis was undertaken using relevant data from the systematic review and meta-analysis<sup>12</sup> of the available RCT's till June 2016 and mean cost calculations from validated available sources across various jurisdictions. Results Colchicine treatment based on mean costs for life expectancy calculated at 10 years' post-surgery using recommended discounting rates of 3.5% was €17521.60 cheaper per QALY gained. The incremental cost is negative and the incremental effect (QALY) is positive (SE quadrant), Hence the intervention of colchicine treatment is unequivocally cost-effective, meaning it is dominant and achieves better outcomes at a lower cost. Conclusion Our findings provide a benchmark for current and future analyses relating to effectiveness of colchicine on POAF events after cardiac surgery. Currently, there are few reports that provide cutting edge estimates of the higher expenses associated with POAF. Future analyses should likewise explore the impact of added costs from using pharmacologic efforts to prevent and treat POAF after cardiac surgery.

**34. Assessment of Remote Heart Rhythm Sampling Using the AliveCor Heart Monitor to Screen for Atrial Fibrillation: The REHEARSE-AF Study.**

**Author(s):** Halcox, Julian P J; Wareham, Kathie; Cardew, Antonia; Gilmore, Mark; Barry, James P; Phillips, Ceri; Gravenor, Michael B

**Source:** Circulation; Nov 2017; vol. 136 (no. 19); p. 1784-1794

**Publication Type(s):** Randomized Controlled Trial Journal Article

**Abstract:**BACKGROUND Asymptomatic atrial fibrillation (AF) is increasingly common in the aging population and implicated in many ischemic strokes. Earlier identification of AF with appropriate anticoagulation may decrease stroke morbidity and mortality. METHODS We conducted a randomized controlled trial of AF screening using an AliveCor Kardia monitor attached to a WiFi-enabled iPod to obtain ECGs (iECGs) in ambulatory patients. Patients  $\geq 65$  years of age with a CHADS-VASc score  $\geq 2$  free from AF were randomized to the iECG arm or routine care (RC). iECG participants acquired iECGs twice weekly over 12 months (plus additional iECGs if symptomatic) onto a secure study server with overread by an automated AF detection algorithm and by a cardiac physiologist and/or consultant cardiologist. Time to diagnosis of AF was the primary outcome measure. The overall cost of the devices, ECG interpretation, and patient management were captured and used to generate the cost per AF diagnosis in iECG patients. Clinical events and patient attitudes/experience were also evaluated. RESULTS We studied 1001 patients (500 iECG, 501 RC) who were  $72.6 \pm 5.4$  years of age; 534 were female. Mean CHADS-VASc score was 3.0 (heart failure, 1.4%; hypertension, 54%; diabetes mellitus, 30%; prior stroke/transient ischemic attack, 6.5%; arterial disease, 15.9%; all CHADS-VASc risk factors were evenly distributed between groups). Nineteen patients in the iECG group were diagnosed with AF over the 12-month study period versus 5 in the RC arm (hazard ratio, 3.9; 95% confidence interval=1.4-10.4;  $P=0.007$ ) at a cost per AF diagnosis of \$10 780 (£8255). There was a similar number of stroke/transient ischemic attack/systemic embolic events (6 versus 10, iECG versus RC; hazard ratio=0.61; 95% confidence interval=0.22-1.69;  $P=0.34$ ). The majority of iECG patients were satisfied with the device, finding it easy to use without restricting activities or causing anxiety. CONCLUSION Screening with twice-weekly single-lead iECG with remote interpretation in ambulatory patients  $\geq 65$  years of age at increased risk of stroke is significantly more likely to identify incident AF than RC over a 12-month period. This approach is also highly acceptable to this group of patients, supporting further evaluation in an appropriately powered, event-driven clinical trial. CLINICAL TRIAL REGISTRATION URL: <https://www.isrctn.com>. Unique identifier: ISRCTN10709813.

**35. Periprocedural analgesic efficacy of a single, pre-emptive administration of propacetamol in catheter ablation for atrial fibrillation: a randomized controlled trial.**

**Author(s):** Ham, Sung Yeon; Song, Jong-Wook; Shim, Jae-Kwang; Lee, Woo Kyung; Kim, Hee-Jung; Kwak, Young-Lan

**Source:** Minerva anesthesiologica; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Anesthetic care for termination of atrial fibrillation with catheter ablation poses significant challenges due to significant pain lengthy procedure. A delicate polypharmacy combining anaesthetic agents to minimize respiratory depression and hemodynamic changes and to provide satisfactory sedation and analgesia is needed. METHODS Ninety-eight patients were randomized into two groups receiving either two gram of propacetamol or normal saline intravenously for 20 min before anesthesia. Monitored anesthesia care was provided with midazolam and remifentanyl. RESULTS Total amounts of remifentanyl infused were similar between the groups ( $626 \pm 251 \mu\text{g}$  vs.  $597 \pm 315 \mu\text{g}$ ,  $P = 0.606$ ). Accounting for the mean duration of the procedure and the elimination half-life of propacetamol, remifentanyl requirements were significantly less among patients whose procedure ended within 180 min ( $n = 56$ ) in the Propacetamol group than those in the Control group ( $540 \pm 194 \mu\text{g}$  vs.  $421 \pm 164 \mu\text{g}$ ,  $P = 0.017$ ). In the Control group, the incidence of analgesics usage 24 h after the procedure was significantly greater (43% vs. 23%,  $P = 0.038$ ), and patients exhibited a higher pain score ( $3.1 \pm 2.1$  vs.  $1.9 \pm 2.1$ ,  $P = 0.007$ ), compared to the Propacetamol group. CONCLUSION The addition of a single dose of pre-emptive propacetamol showed promising results in terms of opioid consumption in patients whose procedure ended within 180 min. It provided better post-procedural pain control, compared with midazolam plus remifentanyl alone.

### 36. Efficacy and safety of intravenous vernakalant for the rapid conversion of recent-onset atrial fibrillation: A meta-analysis.

**Author(s):** Akel, Tamer; Lafferty, James

**Source:** Annals of noninvasive electrocardiology : the official journal of the International Society for Holter and Noninvasive Electrocardiology, Inc; Nov 2017

**Publication Type(s):** Journal Article Review

**Abstract:**BACKGROUND Atrial fibrillation is a common cardiac arrhythmia with increasing prevalence in the aging population. It is a major cause of emergency department visits worldwide. Vernakalant, a relatively new antiarrhythmic drug with selectively preferential effects on the atrial tissue is currently used in many European countries for the termination of recent-onset atrial fibrillation. Presently, the drug is still not approved by the United States Food and Drug Administration due to safety concerns. We evaluate the efficacy and safety of vernakalant for the conversion of recent-onset atrial fibrillation or atrial flutter into normal sinus rhythm (NSR). METHODS PubMed/MEDLINE (1993-2017), the Cochrane Central Register of Controlled Trials (2000-2017), and reference lists of relevant articles were searched for randomized controlled trials (RCTs) comparing vernakalant to a control drug and extracted subsequently. RESULTS Nine RCTs were identified and included in the meta-analysis. Pooled analysis of events extracted for a total of 1421 patients with recent-onset atrial fibrillation showed a statistically significant increase in cardioversion within 90 minutes from drug infusion (Relative Risk [RR], 6.61; 95% Confidence Interval [CI], 2.78 - 15.71;  $p < .00001$ ). In terms of adverse events, vernakalant was considered safe in comparison to control drugs (RR, 0.80; 95% CI, 0.61-1.05;  $p = .11$ ). CONCLUSION Vernakalant is effective for rapid conversion of recent-onset atrial fibrillation into NSR. However, although it showed a safe profile in terms of side effects in this analysis, we are still hesitant about this conclusion and few safety issues should be addressed within specific patients' subgroups.

### 37. A systematic review of the incidence of and risk factors for postoperative atrial fibrillation following general surgery.

**Author(s):** Chebbout, R; Heywood, E G; Drake, T M; Wild, J R L; Lee, J; Wilson, M; Lee, M J

**Source:** Anaesthesia; Nov 2017

**Publication Type(s):** Journal Article Review

**Abstract:** Atrial fibrillation is a common cardiac arrhythmia and can occur de novo following a surgical procedure. It is associated with increased inpatient and long-term mortality. There is limited evidence concerning new-onset atrial fibrillation following abdominal surgery. This study aimed to identify the prevalence of and risk factors for postoperative atrial fibrillation in the general surgical population. A systematic search of the Embase, MEDLINE and Cochrane (CENTRAL) databases was conducted. Studies were included in the review if they reported cases of new-onset atrial fibrillation within 30 days of the index operation. Results were evaluated qualitatively due to substantial clinical heterogeneity. Incidence rates were pooled using a weighted random-effects meta-analysis model. A total of 835 records were initially identified, from which 32 full texts were retrieved. Following review, 13 studies were included that involved 52,959 patients, of whom 10.94% (95% CI 7.22-15.33) developed atrial fibrillation. Five studies of patients undergoing oesophagectomy ( $n = 376/1923$ ) had a weighted average rate of 17.66% (95% CI 12.16-21.47), compared with 7.63% (95% CI 4.39-11.98) from eight studies of non-oesophageal surgery ( $n = 2927/51,036$ ). Identified risk factors included: increasing age; history of cardiac disease; postoperative complications, particularly, sepsis, pneumonia and

pleural effusions. New-onset postoperative atrial fibrillation is common, and is more frequent after surgery involving the thorax. Future work should focus on stratifying risk to allow targeted prophylaxis of atrial fibrillation and other peri-operative complications.

### **38. The Efficacy and Safety of the Use of Non-Vitamin-K Antagonist Oral Anticoagulants in Patients with Non-Valvular Atrial Fibrillation and Concomitant Aspirin Therapy: A Meta-Analysis of Randomized Trials.**

**Author(s):** Bennaghmouch, Naoual; de Veer, Anne J W M; Bode, Kerstin; Mahmoodi, Bakhtawar K; Dewilde, Willem J M; Lip, Gregory Y H; Brueckmann, Martina; Kleine, Eva; Ten Berg, Jurriën M

**Source:** Circulation; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**Background -Current guidelines recommend non-vitamin-K antagonist oral anticoagulants (NOACs) as the first choice therapy in patients with non-valvular atrial fibrillation, as these drugs have several benefits over the vitamin-K antagonists (VKA). It is unknown whether these benefits remain when NOACs have to be combined with aspirin therapy. To assess the efficacy and safety of NOACs compared with VKA in patients with AF and concomitant aspirin therapy, we conducted a systematic review and study based meta-analysis of published randomized controlled trials (RCTs). Methods -A systematic electronic literature search was done in MEDLINE, EMBASE and Cochrane CENTRAL Register of Controlled Trials for studies including published data (i) of patients age  $\geq 18$  y with non-valvular AF; (ii) randomizing to either VKA or NOACs; (iii) patients receiving aspirin therapy at any time during the study; and (iv) reporting on all-cause stroke or systemic embolism, vascular death, myocardial infarction, major bleeding and/or intracranial hemorrhage as an outcome. Hazard ratios (HR) with 95% confidence intervals (CIs) for each outcome were extracted from the individual studies and pooled using random-effects meta-analysis. Results -This study based meta-analysis was restricted to the subgroups of patients on aspirin therapy (n=21,722) from four RCTs comparing VKA and NOACs (N=71,681) in non-valvular AF. In this meta-analysis including patients on mainly low-dose aspirin, NOACs were found to be more effective (outcome stroke or systemic embolism HR: 0.78 [95% CI, 0.67-0.91] and vascular death HR 0.85 [0.76-0.93]) and as safe as VKA with respect to major bleeding (HR: 0.83 [95% CI, 0.69-1.01]). NOACs were safer with respect to the reduction of intracranial hemorrhage (HR: 0.38 [0.26-0.56]). Conclusions -This study based meta-analysis shows that it may be both safer and more effective to use NOACs as compared with VKA to treat patients with non-valvular AF and concomitant aspirin therapy.

### **39. Meta-Analysis of Effectiveness and Safety of Oral Anticoagulants in Atrial Fibrillation With Focus on Apixaban.**

**Author(s):** Bai, Ying; Shi, Xu-Bo; Ma, Chang-Sheng; Lip, Gregory Y H

**Source:** The American journal of cardiology; Nov 2017; vol. 120 (no. 9); p. 1689-1695

**Publication Type(s):** Journal Article Review

Available at [American journal of cardiology](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:**We performed a meta-analysis of data on the effectiveness and safety of apixaban compared with other oral anticoagulants (warfarin or rivaroxaban or dabigatran or edoxaban) for stroke prevention in atrial fibrillation (AF) in different settings of randomized controlled trials, real-world studies, and radiofrequency ablation (RFA). Thirty studies were searched in PubMed, the Cochrane Library, and Clinicaltrials.gov databases reporting comparative effectiveness and safety of apixaban with warfarin (n = 23), rivaroxaban (n = 12), dabigatran (n = 13), or edoxaban (n = 2) for stroke prevention in AF. In real-world estimates, apixaban was similar to warfarin for the prevention of stroke or systematic thromboembolism (hazard ratio 0.93, 95% CI 0.71 to 1.14, I<sup>2</sup> = 82.9%, N = 7), and safer than warfarin in the risks of major bleeding (hazard ratio 0.62, 95% CI 0.54 to 0.70, I<sup>2</sup> = 18.7%, N = 9) in patients with AF. The risk of stroke or thromboembolism with apixaban was similar to rivaroxaban, dabigatran, and edoxaban in the settings of real-world studies and RFA. Major bleeding with apixaban was generally lower than rivaroxaban (relative risks 0.45, 95% CI 0.38 to 0.53, I<sup>2</sup> = 0%, N = 5) and similar to dabigatran in real-world studies (relative risks 1.44, 95% CI 0.33 to 6.30, I<sup>2</sup> = 97.7%, N = 5), but similar to rivaroxaban, dabigatran, and edoxaban in RFA. In conclusion, our meta-analysis provides a comprehensive estimate of the effectiveness and safety of apixaban compared with other oral anticoagulants (warfarin, rivaroxaban, dabigatran, and edoxaban) in patients with AF in different settings of randomized controlled trial, real-world studies, and RFA.

#### **40. Meta-Analysis of Efficacy and Safety of Low-Intensity Warfarin Therapy for East Asian Patients With Nonvalvular Atrial Fibrillation.**

**Author(s):** Liu, Ting; Hui, Jie; Hou, Yun-Ying; Zou, Yan; Jiang, Wen-Ping; Yang, Xiang-Jun; Wang, Xiao-Hua

**Source:** The American journal of cardiology; Nov 2017; vol. 120 (no. 9); p. 1562-1567

**Publication Type(s):** Meta-analysis Journal Article Review

Available at [American journal of cardiology](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:**For patients with nonvalvular atrial fibrillation (NVAf) receiving warfarin therapy, the target international normalized ratio range of 2.0 to 3.0 is recommended by Western countries. However, this treatment carries a higher risk of bleeding which suggests more researches on whether low-intensity warfarin therapy (range <2.0 to 3.0) is suitable for East Asian patients. Three databases were searched from inception to April 21, 2016. Studies that reported thromboembolic and hemorrhagic events in low- and standard-intensity warfarin groups were included. Finally, seven studies were included in the analysis. There was a significantly decreased risk of hemorrhagic events (odds ratio [OR] 0.59, 95% confidence interval [CI] 0.43 to 0.82,  $p = 0.002$ ) with no statistically increased risk of thromboembolic events (OR 1.14, 95% CI 0.80 to 1.62,  $p = 0.47$ ) in the 1.5 to 2.0 group compared with that of the 2.0 to 3.0 group. Meanwhile, there was no significant difference of cardiovascular mortality (OR 1.58, 95% CI 0.89 to 2.83,  $p = 0.12$ ) between the 2 groups. Further analysis showed there was no significance in thromboembolic events (OR 1.15, 95% CI 0.83 to 1.60,  $p = 0.40$ ), major bleeding events (OR 0.74, 95% CI 0.50 to 1.09,  $p = 0.13$ ), and cardiovascular mortality (OR 1.45, 95% CI 0.79 to 2.65,  $p = 0.23$ ) between 1.5 to 2.5 and 2.0 to 3.0 groups. Although no significant difference was found in hemorrhagic events (OR 0.76, 95% CI 0.57 to 1.01,  $p = 0.06$ ), there was a decreased trend in it. In conclusion, low-intensity warfarin therapy can achieve reduced hemorrhage without increasing thromboembolism for East Asian patients with NVAf receiving warfarin therapy.

#### **41. Pulmonary Embolism and Atrial Fibrillation: Two Sides of the Same Coin? A Systematic Review.**

**Author(s):** Bikdeli, Behnood; Abou Ziki, Maen D; Lip, Gregory Y H

**Source:** Seminars in thrombosis and hemostasis; Nov 2017; vol. 43 (no. 8); p. 849-863

**Publication Type(s):** Journal Article

**Abstract:**Pulmonary embolism (PE) is a common, potentially fatal thrombotic disease. Atrial fibrillation (AF), the most common arrhythmia, may also lead to thromboembolic complications. Although initially appearing as distinct entities, PE and AF may coexist. The direction and extent of this association has not been well characterized. We performed a search of PubMed, Scopus, and the Cochrane Database of Systematic Reviews for publications that reported coexisting AF in patients with PE, or vice versa, to provide a systematic overview of pathophysiological and epidemiological aspects of this association (last search: October 13, 2016). We screened 650 articles following the PubMed search, and 697 through Scopus. PE and AF share many common risk factors, including old age, obesity, heart failure, and inflammatory states. In addition, PE may lead to AF through right-sided pressure overload or inflammatory cytokines. AF, in turn, might lead to right atrial appendage clot formation and thereby PE. Epidemiological studies indicate that AF can be seen as a presenting sign, during the early phase, or later in the course of recovery from PE. Patients with AF are also at increased risk of developing PE, a risk that correlates with the CHA<sub>2</sub>DS<sub>2</sub>-VASc score. For the choice of antithrombotic therapy, PE-related factors (provoked or unprovoked, active cancer, and prior recurrence) and AF-related factors (CHA<sub>2</sub>DS<sub>2</sub>-VASc score), risk of bleeding, and patient preferences should be considered. In conclusion, PE and AF may coexist, with an understudied bidirectional association. Prognostication and choice of antithrombotic therapy in patients with both PE and AF might be different compared with those who present with only one of the two and warrants further investigation.

#### **42. Glucagon-like peptide-1 receptor agonists and atrial fibrillation: a systematic review and meta-analysis of randomised controlled trials.**

**Author(s):** Monami, M; Nreu, B; Scatena, A; Giannini, S; Andreozzi, F; Sesti, G; Mannucci, E

**Source:** Journal of endocrinological investigation; Nov 2017; vol. 40 (no. 11); p. 1251-1258

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDThe pharmacological stimulation of GLP-1 receptors is associated with an increase in heart rate. A pooled analysis of patient-level data from phase III trials with albiglutide revealed a significant increase in the risk of atrial fibrillation. Aim of the present meta-analysis is to summarize all available evidence on the effects of individual GLP-1 receptor agonists (RA), and of the whole class, on the incidence of atrial

fibrillation. **METHODS** A Medline search for GLP-1 RA (exenatide, liraglutide, lixisenatide, albiglutide, dulaglutide, or semaglutide) was performed, collecting all randomized clinical trials with a duration  $\geq 12$  weeks, enrolling patients with type 2 diabetes and comparing a GLP-1 RA with placebo or any other non-GLP-1 RA drug. **RESULTS** Of the 113 trials fulfilling the inclusion criteria, 19 did not report information on atrial fibrillation, whereas 63 reported zero events in all treatment groups. In the remaining trials (enrolling 17,966 and 15,305 patients in GLP-1 RA and comparator arms, respectively, 55.3% women, with a mean age of  $57.0 \pm 3.8$  years), treatment with GLP-1 RA was not associated with a significant increase in the incidence of atrial fibrillation [Mantel-Haenszel OR (95% CI) 0.87 (0.71-1.05),  $p = 0.15$ ]. **CONCLUSIONS** In conclusion, available data suggest that GLP-1 RA is not associated with atrial fibrillation, with the only possible exception of albiglutide. Newly onset atrial fibrillation deserves to be investigated as an event of special interest in future trials with GLP-1 RA.

#### **43. Prevention of atrial fibrillation after cardiac surgery using low-dose landiolol: A systematic review and meta-analysis.**

**Author(s):** Tamura, Takahiko; Yatabe, Tomoaki; Yokoyama, Masataka

**Source:** Journal of clinical anesthesia; Nov 2017; vol. 42 ; p. 1-6

**Publication Type(s):** Journal Article

**Abstract:** **STUDY OBJECTIVE** Atrial fibrillation (AF) is associated with mortality after cardiac surgery. Several studies have reported that landiolol might help to prevent postoperative AF. The objective of this study was to investigate whether low-dose landiolol is useful in terms of balance of benefit and risk. **DESIGN** We conducted a meta-analysis after systematically searching the PubMed, the Cochrane library and the ICHUSHI to identify randomized, controlled trials investigating the preventive effect of landiolol on incidence of AF after cardiac surgery. **PATIENTS** Six randomized trial with 571 patients were included. **MEASUREMENTS** The primary outcome was incidence of AF after surgery, while secondary outcomes were mortality and complications. **MAIN RESULTS** Incidence of AF within 1 week after surgery was significantly lower in the landiolol group than in the control group (odds ratio, 0.27; 95% confidence interval, 0.18-0.42;  $p < 0.001$ ). Three of the 6 studies reported data regarding in-hospital mortality and complications, showing no significant differences between groups (0.7 vs 3.0%; OR, 0.45; 95% CI, 0.07-2.74;  $p = 0.39$ ; and 4.5 vs 9.7%; OR, 0.45; 95% CI, 0.16-1.23;  $p = 0.12$ , respectively). **CONCLUSIONS** Our systematic review revealed that low-dose landiolol might help to prevent AF after cardiac surgery and further large trials are needed to evaluate safety because mortality and morbidity rate were very low in included studies.

#### **44. Alcohol and incident atrial fibrillation - A systematic review and meta-analysis.**

**Author(s):** Gallagher, Celine; Hendriks, Jeroen M L; Elliott, Adrian D; Wong, Christopher X; Rangnekar, Geetanjali; Middeldorp, Melissa E; Mahajan, Rajiv; Lau, Dennis H; Sanders, Prashanthan

**Source:** International journal of cardiology; Nov 2017; vol. 246 ; p. 46-52

**Publication Type(s):** Journal Article

**Abstract:** **BACKGROUND** Whilst high levels of alcohol consumption are known to be associated with atrial fibrillation (AF), it is unclear if any level of alcohol consumption can be recommended to prevent the onset of the condition. The aim of this review is to characterise the association between chronic alcohol intake and incident AF. **METHODS AND RESULTS** Electronic literature searches were undertaken using PubMed and Embase databases up to 1 February 2016 to identify studies examining the impact of alcohol on the risk of incident AF. Prospective studies reporting on at least three levels of alcohol intake and published in English were eligible for inclusion. Studies of a retrospective or case control design were excluded. The primary study outcome was development of incident AF. Consistent with previous studies, high levels of alcohol intake were associated with an increased incident AF risk (HR 1.34, 95% CI 1.20-1.49,  $p < 0.001$ ). Moderate levels of alcohol intake were associated with a heightened AF risk in males (HR 1.26, 95% CI 1.04-1.54,  $p = 0.02$ ) but not females (HR 1.03, 95% CI 0.86-1.25,  $p = 0.74$ ). Low alcohol intake, of up to 1 standard drink (SD) per day, was not associated with AF development (HR 0.95, 95% CI 0.85-1.06,  $p = 0.37$ ). **CONCLUSIONS** Low levels of alcohol intake are not associated with the development of AF. Gender differences exist in the association between moderate alcohol intake and AF with males demonstrating greater increases in risk, whilst high alcohol intake is associated with a heightened AF risk across both genders.



#### **45. Cardiac resynchronisation therapy optimisation of interventricular delay by the systolic dyssynchrony index: A comparative, randomised, 12-month follow-up study.**

**Author(s):** Vondrak, Jiri; Marek, Dan; Vecera, Jan; Benesova, Klara; Matejka, Jan

**Source:** Hellenic journal of cardiology : HJC = Hellenike kardiologike epitheorese; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND The aim of our study was to compare the effect of interventricular (VV) delay optimisation in CRT recipients on the basis of systolic dyssynchrony index (SDI) derived from the three-dimensional echocardiography (3DE) versus QRS width assessment on left ventricle volume reduction at the 12-month follow-up. METHODS We included 63 patients with recently implanted CRT in this randomised, open-label trial. Patients were randomised to VV delay optimisation according to QRS complex width measurement in group 1 (n = 31) to obtain the narrowest QRS complex and SDI in group 2 (n = 32) to achieve its lowest possible value. We evaluated left ventricular end-systolic volume (LVESv), left ventricular ejection fraction (LVEF) and SDI by 3DE before CRT implantation and at a 12-month follow-up in all the patients. We also obtained the New York Heart Association functional class, the 6-minute walk test, the quality of life questionnaire and the level of NT-proBNP. RESULTS The number of volumetric responders was similar in both groups (17 vs. 20, P = 0.786). There were also no significant differences in the reduction of LVESv ( $-41 \pm 55$  mL vs.  $-61 \pm 51$  mL, P = 0.111), improvement in LVEF ( $+10.1 \pm 10.6\%$  vs.  $+13.0 \pm 9.9\%$ , P = 0.213) or differences in clinical outcomes between both groups at the 12-month follow-up. CONCLUSION CRT optimisation of interventricular delay using SDI compared with QRS width assessment did not reveal any significant difference in terms of volumetric and clinical response at the 12-month follow-up.

#### **46. Management of arrhythmia in sepsis and septic shock.**

**Author(s):** Balik, Martin; Matousek, Vojtech; Maly, Michal; Brozek, Tomas

**Source:** Anaesthesiology intensive therapy; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**The occurrence of supraventricular arrhythmias is associated with an unfavourable prognosis in septic shock. Available trials are difficult to apply in sepsis and septic shock patients due to included cohorts, control groups and because "one size does not fit all". The priorities in the critically ill are maintenance of a sinus rhythm and diastolic ventricular filling. The rate control modality should be reserved for chronic AF and in situations when a sinus rhythm is difficult to maintain due to extreme stress conditions resulting from a high dosage of vasoactive agents. Electric cardioversion is indicated in unstable patients with an absence of contraindications and is more feasible in combination with an antiarrhythmic agent. Besides amiodarone being preferred for its lower cardiodepressant side effect compared to other agents, drugs with a different degree of betablocking activity are very useful in supraventricular arrhythmias and septic shock, providing echocardiography is routinely used to support their indications within the current summary of product characteristics. A typical patient benefiting from propafenone is without significant structural heart disease, i.e. typically with normal to moderately reduced left ventricular systolic function. Future research should be channelled towards echocardiography-guided prospective controlled trials on antiarrhythmic therapy which may clarify the issue of rhythm versus rate control, the effects of various antiarrhythmic drugs, and a place for electric cardioversion in critically ill patients in septic shock.&nbsp;

#### **47. Predicting Short-term Risk of Arrhythmia among Patients With Syncope: The Canadian Syncope Arrhythmia Risk Score.**

**Author(s):** Thiruganasambandamoorthy, Venkatesh; Stiell, Ian G; Sivilotti, Marco L A; Rowe, Brian H; Mukarram, Muhammad; Arcot, Kirtana; Kwong, Kenneth; McRae, Andrew D; Wells, George A; Taljaard, Monica

**Source:** Academic emergency medicine : official journal of the Society for Academic Emergency Medicine; Nov 2017; vol. 24 (no. 11); p. 1315-1326

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Syncope can be caused by serious occult arrhythmias not evident during initial emergency department (ED) evaluation. We sought to develop a risk tool for predicting 30-day arrhythmia or death after ED disposition. METHODS We conducted a multicenter prospective cohort study at six tertiary care EDs and included adults ( $\geq 16$  years) with syncope. We collected standardized variables from clinical evaluation and investigations including electrocardiogram and troponin at index presentation. Adjudicated outcomes included death or arrhythmias including procedural interventions for arrhythmia within 30 days. We used

multivariable logistic regression to derive the prediction model and bootstrapping for interval validation to estimate shrinkage and optimism. **RESULTS**A total of 5,010 patients (mean  $\pm$  SD age = 53.4  $\pm$  23.0 years, 54.8% females, and 9.5% hospitalized) were enrolled with 106 (2.1%) patients suffering 30-day arrhythmia/death after ED disposition. We examined 39 variables and eight were included in the final model: lack of vasovagal predisposition, heart disease, any ED systolic blood pressure  $\geq$  180 mm Hg, troponin ( $>$ 99th percentile), QRS duration  $>$  130 msec, QTc interval  $>$  480 msec, and ED diagnosis of cardiac/vasovagal syncope (optimism corrected C-statistic 0.90 [95% CI = 0.87-0.93]; Hosmer-Lemeshow  $p$  = 0.08). The Canadian Syncope Arrhythmia Risk Score had a risk ranging from 0.2% to 74.5% for scores of -2 to 8. At a threshold score of  $\geq$ 0, the sensitivity was 97.1% (95% CI = 91.6%-99.4%) and specificity was 53.4% (95% CI = 52.0%-54.9%). **CONCLUSIONS**The Canadian Syncope Arrhythmia Risk Score can improve patient safety by identification of those at risk for arrhythmias and aid in acute management decisions. Once validated, the score can identify low-risk patients who will require no further investigations.

#### **48. Opportunistic screening for atrial fibrillation in a real-life setting in general practice in Denmark - The Atrial Fibrillation Found On Routine Detection (AFFORD) non-interventional study**

**Author(s):** Hald J.; Holm L.; Poulsen P.B.; Wedell-Wedellsborg D.; Qvist I.; Frost L.; Dybro L.

**Source:** PLoS ONE; Nov 2017; vol. 12 (no. 11)

**Publication Type(s):** Article

Available at [PLoS ONE](#) - from Public Library of Science (PLoS)

Available at [PLoS ONE](#) - from Europe PubMed Central - Open Access

Available at [PLoS ONE](#) - from EBSCO (MEDLINE Complete)

**Abstract:** Atrial fibrillation (AF) is a chronic disease with an incidence increasing steeply by age and affecting more than 11 million patients in Europe and the United States. Diagnosing AF is essential for the prevention of stroke by oral anticoagulation. Opportunistic screening for AF in patients 65 years of age is recommended by the European and Danish Societies of Cardiology. The study aim was to examine the detection rate of AF in consecutively screened patients in the primary care setting in Denmark. In an open, non-interventional, cluster, multicenter, cross-sectional, observational study patients 65 years of age entering consecutively into general practice clinics were invited to nurse-assisted opportunistic screening for AF. The General Practice (GP) clinics participating were randomized to patient inclusion in three age groups: 65-74, 75-84, and 85 years respectively. All patients underwent pulse palpation followed by 12-lead electrocardiogram in case of irregular pulse. Two cardiologists validated all electrocardiogram examinations. Forty-nine general practice clinics recruited in total 970 patients split into three age groups; 480 patients (65-74 years), 372 (75-84 years), and 118 patients 85 years of age. Co-morbidities increased by age with hypertension being most frequent. Eighty-seven patients (9%) were detected with an irregular pulse, representing 4.4%, 10.5% and 22.9%, respectively in the three age groups. Assessment of electrocardiograms by the GP showed suspicion of AF in 13 patients with final verification of electrocardiograms by cardiologists revealing 10 AF-patients. The highest detection rate of AF was found in the 85 age group (3.39%) followed by the 65-74 age group (0.83%) and the 75-84 age group (0.54%). Opportunistic screening of AF in primary care is feasible and do result in the detection of new AF-patients. Close collaboration with cardiologists is advisable to avoid false positive screening results. Copyright © 2017 Hald et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

#### **49. The importance of mean time in therapeutic range for complication rates in warfarin therapy of patients with atrial fibrillation: A systematic review and meta-regression analysis**

**Author(s):** Vestergaard A.S.; Ehlers L.H.; Skjoth F.; Larsen T.B.

**Source:** PLoS ONE; Nov 2017; vol. 12 (no. 11)

**Publication Type(s):** Article

Available at [PLoS ONE](#) - from Public Library of Science (PLoS)

Available at [PLoS ONE](#) - from Europe PubMed Central - Open Access

Available at [PLoS ONE](#) - from EBSCO (MEDLINE Complete)

**Abstract:** Background: Anticoagulation is used for stroke prophylaxis in non-valvular atrial fibrillation, amongst other by use of the vitamin K antagonist, warfarin. Quality in warfarin therapy is often summarized by the time patients spend within the therapeutic range (percent time in therapeutic range, TTR). The correlation between TTR and the occurrence of complications during warfarin therapy has been established, but the influence of

patient characteristics in that respect remains undetermined. The objective of the present papers was to examine the association between mean TTR and complication rates with adjustment for differences in relevant patient cohort characteristics. Methods: A systematic literature search was conducted in MEDLINE and Embase (2005-2015) to identify eligible studies reporting on use of warfarin therapy by patients with non-valvular atrial fibrillation and the occurrence of hemorrhage and thromboembolism. Both randomized controlled trials and observational cohort studies were included. The association between the reported mean TTR and major bleeding and stroke/systemic embolism was analyzed by random-effects meta-regression with and without adjustment for relevant clinical cohort characteristics. In the adjusted meta-regressions, the impact of mean TTR on the occurrence of hemorrhage was adjusted for the mean age and the proportion of populations with prior stroke or transient ischemic attack. In the adjusted analyses on thromboembolism, the proportion of females was, furthermore, included. Results: Of 2169 papers, 35 papers met pre-specified inclusion criteria, holding relevant information on 31 patient cohorts. In univariable meta-regression, increasing mean TTR was significantly associated with a decreased rate of both major bleeding and stroke/systemic embolism. However, after adjustment mean TTR was no longer significantly associated with stroke/systemic embolism. The proportion of residual variance composed by between-study heterogeneity was substantial for all analyses. Conclusions: Although higher mean TTR in warfarin therapy was associated with lower complication rates in atrial fibrillation, the strength of the association was decreased when adjusting for differences in relevant clinical characteristics of the patient cohorts. This study suggests that mainly the safety of warfarin therapy increases with higher mean TTR, whereas effectiveness appears not to be substantially improved. Due to the limitations immanent in the meta-regression methods, the results of the present study should be interpreted with caution. Further research on the association between the quality of warfarin therapy and risk of complications is warranted with adjustment for clinically relevant characteristics. Copyright © 2017 Vestergaard et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## 50. Electrical cardioversion for atrial fibrillation and flutter

**Author(s):** Mead G.E.; Elder A.; Flapan A.D.; Cordina J.

**Source:** Cochrane Database of Systematic Reviews; Nov 2017; vol. 2017 (no. 11)

**Publication Type(s):** Review

Available at [The Cochrane library](#) - from Cochrane Collaboration (Wiley)

**Abstract:** Background: Atrial fibrillation increases stroke risk and adversely affects cardiovascular haemodynamics. Electrical cardioversion may, by restoring sinus rhythm, improve cardiovascular haemodynamics, reduce the risk of stroke, and obviate the need for long-term anticoagulation. Objectives: To assess the effects of electrical cardioversion of atrial fibrillation or flutter on the risk of thromboembolic events, strokes and mortality (primary outcomes), the rate of cognitive decline, quality of life, the use of anticoagulants and the risk of re-hospitalisation (secondary outcomes) in adults (>18 years). Search methods: We searched the Cochrane CENTRAL Register of Controlled Trials (1967 to May 2004), MEDLINE (1966 to May 2004), Embase (1980 to May 2004), CINAHL (1982 to May 2004), proceedings of the American College of Cardiology (published in Journal of the American College of Cardiology 1983 to 2003), [www.trialscentral.org](#), [www.controlled-trials.com](#) and reference lists of articles. We hand-searched the indexes of the Proceedings of the British Cardiac Society published in British Heart Journal (1980 to 1995) and in Heart (1995 to 2002); proceedings of the European Congress of Cardiology and meetings of the Joint Working Groups of the European Society of Cardiology (published in European Heart Journal 1983-2003); scientific sessions of the American Heart Association (published in Circulation 1990-2003). Personal contact was made with experts. Selection criteria: Randomised controlled trial or controlled clinical trials of electrical cardioversion plus 'usual care' versus 'usual care' only, where 'usual care' included any combination of anticoagulants, antiplatelet drugs and drugs for 'rate control'. We excluded trials which used pharmacological cardioversion as the first intervention, and trials of new onset atrial fibrillation after cardiac surgery. There were no language restrictions. Data collection and analysis: For dichotomous data, odds ratios were calculated; and for continuous data, the weighted mean difference was calculated. Main results: We found three completed trials of electrical cardioversion (rhythm control) versus rate control, recruiting a total of 927 participants (Hot Cafe; RACE; STAF) and one ongoing trial (J-RHYTHM). There was no difference in mortality between the two strategies (OR 0.83; CI 0.48 to 1.43). There was a trend towards more strokes in the rhythm control group (OR 1.9; 95% CI 0.99 to 3.64). At follow up, three domains of quality of life (physical functioning, physical role function and vitality) were significantly better in the rhythm control group (RACE 2002; STAF 2003). Authors' conclusions: Electrical cardioversion (rhythm control) led to a non-significant increase in stroke risk but improved three domains of quality of life.

### **51. Smartphone electrographic monitoring for atrial fibrillation in acute ischemic stroke and transient ischemic attack.**

**Author(s):** Tu, Hans T; Chen, Ziyuan; Swift, Corey; Churilov, Leonid; Guo, Ruibing; Liu, Xinfeng; Jannes, Jim; Mok, Vincent; Freedman, Ben; Davis, Stephen M; Yan, Bernard

**Source:** International journal of stroke : official journal of the International Stroke Society; Oct 2017; vol. 12 (no. 7); p. 786-789

**Publication Type(s):** Journal Article

**Abstract:**Rationale Paroxysmal atrial fibrillation is a common and preventable cause of devastating strokes. However, currently available monitoring methods, including Holter monitoring, cardiac telemetry and event loop recorders, have drawbacks that restrict their application in the general stroke population. AliveCor™ heart monitor, a novel device that embeds miniaturized electrocardiography (ECG) in a smartphone case coupled with an application to record and diagnose the ECG, has recently been shown to provide an accurate and sensitive single lead ECG diagnosis of atrial fibrillation. This device could be used by nurses to record a 30-s ECG instead of manual pulse taking and automatically provide a diagnosis of atrial fibrillation. Aims To compare the proportion of patients with paroxysmal atrial fibrillation detected by AliveCor™ ECG monitoring with current standard practice. Sample size 296 Patients. Design Consecutive ischemic stroke and transient ischemic attack patients presenting to participating stroke units without known atrial fibrillation will undergo intermittent AliveCor™ ECG monitoring administered by nursing staff at the same frequency as the vital observations of pulse and blood pressure until discharge, in addition to the standard testing paradigm of each participating stroke unit to detect paroxysmal atrial fibrillation. Study outcome Proportion of patients with paroxysmal atrial fibrillation detected by AliveCor™ ECG monitoring compared to 12-lead ECG, 24-h Holter monitoring and cardiac telemetry. Discussion Use of AliveCor™ heart monitor as part of routine stroke unit nursing observation has the potential to be an inexpensive non-invasive method to increase paroxysmal atrial fibrillation detection, leading to improvement in stroke secondary prevention.

### **52. Second generation cryoballoon ablation for persistent atrial fibrillation: an updated meta-analysis.**

**Author(s):** Omran, Hazem; Gutleben, Klaus-Jürgen; Molatta, Stephan; Fischbach, Thomas; Wellmann, Birgit; Horstkotte, Dieter; Körber, Britta; Nölker, Georg

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

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Catheter ablation is an established treatment option for patients with symptomatic atrial fibrillation (AF). The cornerstone of AF ablation is pulmonary vein isolation (PVI). The second-generation cryoballoon (2G-CB) has shown non-inferiority to radiofrequency (RF) ablation in paroxysmal AF in several trials. Growing evidence suggests that 2G-CB is also effective in patients with persistent AF (perAF). The aim of this study was to summarize and analyze available data on safety and mid-term ( $\geq 12$  months) efficacy of PVI using 2G-CB in patients with perAF. METHODS We did a search in PubMed, Web of Science, Cochrane Library, and clinicaltrials.gov in December 2016 for studies of 2G-CB ablation for perAF. Studies reporting clinical success rates at a follow-up (FU) of  $\geq 12$  months were included. Success was defined as freedom from any atrial arrhythmia lasting  $> 30$  s after an initial blanking period of 3 months. Acute success and complication rates were also assessed. Data were analyzed applying random-effects model. RESULTS A total of 917 patients from 11 studies meeting study inclusion criteria were analyzed. After a mean FU of  $16.7 \pm 3.0$  months, 68.9% were free from recurrences [95% confidence interval (CI) 63.4-74.7%]. Overall acute success rate was 99.7% (95% CI 99.2-100%). Complications occurred in 5.5% (95% CI 2.4-9.6%). Vascular access complications were the most frequent 3.3% (95% CI 1.5-5.6%). The rate of phrenic nerve palsy/injury was 2.09% (95% CI 0.8-3.9%). No death, stroke or myocardial infarction was reported. CONCLUSION The 2G-CB seems to be safe and effective in the treatment of perAF in the mid-term.

### **53. Preoperative Use of Oral Beta-Adrenergic Blocking Agents and the Incidence of New-Onset Atrial Fibrillation After Cardiac Surgery. A Systematic Review and Meta-Analysis.**

**Author(s):** Thein, Paul Min; White, Kyle; Banker, Khyati; Lunny, Carole; Mirzaee, Sam; Nasis, Arthur

**Source:** Heart, lung & circulation; Oct 2017

**Publication Type(s):** Journal Article Review

**Abstract:**BACKGROUND Current epidemiological data suggests that postoperative atrial fibrillation or atrial flutter (POAF) causes significant morbidity and mortality after cardiac surgery. The literature for prophylactic

management of POAF is limited, resulting in the lack of clear guidelines on management recommendations. AIM To examine the efficacy of prophylactic rate control agents in reducing the incidence of new-onset POAF in patients undergoing elective cardiac surgery. METHODS Cochrane Central Register of Controlled Trials (CENTRAL), Embase, and Medline were systematically searched for blinded randomised controlled studies (RCT) evaluating adults with no history of atrial fibrillation randomised to a pharmacological agent (either beta blocker, calcium channel blocker or digoxin), compared to placebo. Utilising Cochrane guidance, three reviewers screened, extracted and the quality of the evidence was assessed. We used a random effects meta-analysis to compare a rate-control agent with placebo. RESULTS Five RCTs (688 subjects, mean age 61±8.9, 69% male) were included. Beta blocker administration prior to elective cardiac surgery significantly reduced the incidence of POAF (OR 0.43, 95% CI [0.30-0.61], I<sup>2</sup>=0%) without significant impact on ischaemic stroke (OR 0.49, 95% CI [0.10-2.44], I<sup>2</sup>=0%), non-fatal myocardial infarction (OR 0.76, 95% CI [0.08-7.44], I<sup>2</sup>=0%), overall mortality (OR 0.83, 95% CI [0.19-3.66], I<sup>2</sup>=0%), or length of stay (mean -0.96days 95% CI [-1.49 to -0.42], I<sup>2</sup>=0%). An increased rate of bradycardic episodes was observed (OR 3.53, 95% CI [1.22-10.23], I<sup>2</sup>=0%). CONCLUSION This review suggests that selective administration of prophylactic oral beta blockers prior to elective cardiac surgery is safe and may reduce the incidence of POAF.

#### **54. Effectiveness and safety of vitamin K antagonists and new anticoagulants in the prevention of thromboembolism in atrial fibrillation in older adults - a systematic review of reviews and the development of recommendations to reduce inappropriate prescribing.**

**Author(s):** Sommerauer, Christina; Schlender, Lisa; Krause, Mark; Weißbach, Sabine; Rieckert, Anja; Martinez, Yolanda V; Reeves, David; Renom-Guiteras, Anna; Kunnamo, Ilkka; Sönnichsen, Andreas

**Source:** BMC geriatrics; Oct 2017; vol. 17 ; p. 223

**Publication Type(s):** Journal Article Review

Available at [BMC Geriatrics](#) - from BioMed Central

Available at [BMC Geriatrics](#) - from Europe PubMed Central - Open Access

Available at [BMC Geriatrics](#) - from EBSCO (MEDLINE Complete)

#### **55. A multifaceted intervention to improve treatment with oral anticoagulants in atrial fibrillation (IMPACT-AF): an international, cluster-randomised trial.**

**Author(s):** Vinereanu, Dragos; Lopes, Renato D; Bahit, M Cecilia; Xavier, Denis; Jiang, Jie; Al-Khalidi, Hussein R; He, Wensheng; Xian, Ying; Ciobanu, Andrea O; Kamath, Deepak Y; Fox, Kathleen A; Rao, Meena P; Pokorney, Sean D; Berwanger, Otavio; Tajer, Carlos; de Barros E Silva, Pedro G M; Roettig, Mayme L; Huo, Yong; Granger, Christopher B; IMPACT-AF investigators

**Source:** Lancet (London, England); Oct 2017; vol. 390 (no. 10104); p. 1737-1746

**Publication Type(s):** Journal Article

Available at [LANCET](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** BACKGROUND Oral anticoagulation is underused in patients with atrial fibrillation. We assessed the impact of a multifaceted educational intervention, versus usual care, on oral anticoagulant use in patients with atrial fibrillation. METHODS This study was a two-arm, prospective, international, cluster-randomised, controlled trial. Patients were included who had atrial fibrillation and an indication for oral anticoagulation. Clusters were randomised (1:1) to receive a quality improvement educational intervention (intervention group) or usual care (control group). Randomisation was carried out centrally, using the eClinicalOS electronic data capture system. The intervention involved education of providers and patients, with regular monitoring and feedback. The primary outcome was the change in the proportion of patients treated with oral anticoagulants from baseline assessment to evaluation at 1 year. The trial is registered at ClinicalTrials.gov, number NCT02082548. FINDINGS 2281 patients from five countries (Argentina, n=343; Brazil, n=360; China, n=586; India, n=493; and Romania, n=499) were enrolled from 48 clusters between June 11, 2014, and Nov 13, 2016. Follow-up was at a median of 12.0 months (IQR 11.8-12.2). Oral anticoagulant use increased in the intervention group from 68% (804 of 1184 patients) at baseline to 80% (943 of 1184 patients) at 1 year (difference 12%), whereas in the control group it increased from 64% (703 of 1092 patients) at baseline to 67% (732 of 1092 patients) at 1 year (difference 3%). Absolute difference in the change between groups was 9.1% (95% CI 3.8-14.4); odds ratio of change in the use of oral anticoagulation between groups was 3.28 (95% CI 1.67-6.44; adjusted p value=0.0002). Kaplan-Meier estimates showed a reduction in the secondary outcome of stroke in the intervention versus control groups (HR 0.48, 95% CI 0.23-0.99; log-rank p value=0.0434). INTERPRETATION A multifaceted and multilevel educational intervention, aimed to improve use of oral anticoagulation in patients with atrial fibrillation and at risk for stroke, resulted in a significant

increase in the proportion of patients treated with oral anticoagulants. Such an intervention has the potential to improve stroke prevention around the world for patients with atrial fibrillation. FUNDING Bayer, Boehringer Ingelheim, Bristol-Myers Squibb, Daiichi Sankyo, and Pfizer.

#### **56. Challenges in comparing the non-vitamin K antagonist oral anticoagulants for atrial fibrillation-related stroke prevention.**

**Author(s):** Camm, A John; Fox, Keith A A; Peterson, Eric

**Source:** Europace : European pacing, arrhythmias, and cardiac electrophysiology : journal of the working groups on cardiac pacing, arrhythmias, and cardiac cellular electrophysiology of the European Society of Cardiology; Oct 2017

**Publication Type(s):** Journal Article

**Abstract:** The aim of this review is to provide context for meta-analyses interpreting data from phase III stroke prevention studies of non-vitamin K antagonist oral anticoagulants (NOACs) in patients with non-valvular atrial fibrillation (NVAf). Differences between the four phase III NOAC stroke prevention studies in patients with NVAf (ROCKET AF, ARISTOTLE, RE-LY, and ENGAGE AF), their potential impact on outcomes, and inter-study differences were evaluated, as well as the potential role of real-world evidence in evaluating NOACs in this setting. Study design differences included blinding strategy, dose-reduction options, and transition from blinded treatment to standard of care. There were small but relevant variations in the definition of AF used (RE-LY used the least precise definition); patient risk profiles (ROCKET AF patients had the highest risk); the primary safety outcome (a composite of major bleeding and clinically relevant non-major bleeding events in ROCKET AF vs. major bleeding in the others); and the definitions of stroke, major bleeding, and clinically relevant non-major bleeding events. In real-world studies, methodological variations and biases are amplified, making cross-study comparisons and meta-analyses problematic. Because of these methodological differences, meta-analyses of phase III studies need to be robust, and if outcomes of the reference (warfarin-treated) arms differ significantly, the basis of the meta-analysis is not strong. These key issues need to be taken into consideration for direct comparisons across studies, and for the interpretation of meta-analytic data.

#### **57. Efficacy and safety of triple versus dual antithrombotic therapy in atrial fibrillation and ischemic heart disease: a systematic review and meta-analysis.**

**Author(s):** Zhu, Wengen; Guo, Linjuan; Liu, Fadi; Wan, Rong; Shen, Yang; Lip, Gregory Y H; Hong, Kui

**Source:** Oncotarget; Oct 2017; vol. 8 (no. 46); p. 81154-81166

**Publication Type(s):** Journal Article

Available at [Oncotarget](#) - from Europe PubMed Central - Open Access

**Abstract:** The optimal antithrombotic regimen for patients with atrial fibrillation and ischemic heart disease remains unclear. Therefore, we aimed to compare the efficacy and safety of triple therapy (TT [an anticoagulant and 2 antiplatelet drugs]) with dual therapy (DAPT [2 antiplatelet drugs] or DT [an anticoagulant and a single antiplatelet drug]) in patients with atrial fibrillation and ischemic heart disease. We systematically searched the Cochrane Library, PubMed and Embase databases for all relevant studies up to August 2017. The overall risk estimates were calculated using the random-effects model. A total of 17 observational studies were included. Regarding the efficacy outcomes, no differences were observed between the triple therapy and the dual therapy for all-cause death, cardiovascular death, or thrombotic complications (i.e., acute coronary syndrome, stent thrombosis, thromboembolism/stroke, and major adverse cardiac and cerebrovascular events). Regarding the safety outcomes, compared with DAPT, TT was associated with increased risks of major bleeding (a relative risk of 1.96 [1.40-2.74]), minor bleeding (1.69 [1.06-2.71]) and overall bleeding (1.80 [1.23-2.64]). Compared with DT, TT was associated with a greater risk of major bleeding (1.65 [1.23-2.21]), but rates of minor bleeding (0.99 [0.56-1.77]) and overall bleeding (1.14 [0.76-1.71]) were similar. Overall, TT confers an increased hazard of major bleeding with no thromboembolic protection compared with dual therapy in patients with atrial fibrillation and ischemic heart disease.

#### **58. Left ventricular ejection fraction and left atrium diameter related to new-onset atrial fibrillation following acute myocardial infarction: a systematic review and meta-analysis.**

**Author(s):** Zeng, Rui-Xiang; Chen, Mao-Sheng; Lian, Bao-Tao; Liao, Peng-Da; Zhang, Min-Zhou

**Source:** Oncotarget; Oct 2017; vol. 8 (no. 46); p. 81137-81144

**Publication Type(s):** Journal Article

Available at [Oncotarget](#) - from Europe PubMed Central - Open Access

**Abstract:**Background New-onset atrial fibrillation (NOAF) occurs frequently in patients with acute myocardial infarction (AMI), and is associated with increased subsequent cardiovascular mortality. However, only a few studies directly evaluated the relationship of left ventricular ejection fraction (LVEF) or left atrium diameter (LAD) and NOAF following AMI. Materials and Methods MEDLINE®, EMBASE® and the Cochrane Library were carried out to find studies until January 2017. Pooled mean difference (MD) and 95% confidence interval (CI) were calculated to evaluate the value of LVEF and LAD in the prediction of NOAF after AMI. We performed sensitivity analyses to explore the potential sources of heterogeneity. Statistical analyses were carried out using the Revman 5.3. Result We included 10 qualifying studies comprising a total of 708 patients with NOAF and 6785 controls. Overall, decreased LVEF and increased LAD levels had a significant positive association with NOAF in patients with AMI. The MD in the LVEF levels between the patients with and those without NOAF was -4.91 units (95% CI: -5.70 to -4.12), test for overall effect z-score = 12.18 ( $p < 0.00001$ ,  $I^2 = 35\%$ ). Moreover, in a subgroup analysis, the MD for LAD and NOAF was 2.55 units (95% CI: 1.91 to 3.19), test for overall effect z-score = 7.80 ( $p < 0.00001$ ,  $I^2 = 57\%$ ). Conclusions Our meta-analysis demonstrated that both decreased LVEF and increased LAD levels were associated with greater risk of NOAF following AMI.

### **59. The Dx-AF study: a prospective, multicenter, randomized controlled trial comparing VDD-ICD to VVI-ICD in detecting sub-clinical atrial fibrillation in defibrillator patients.**

**Author(s):** Shurrab, Mohammed; Janmohamed, Amir; Sarrazin, Jean-François; Ayala-Paredes, Felix; Sturmer, Marcio; Williams, Randall; Toal, Satish; Lane, Chris; Thorpe, Kevin E; Healey, Jeff S; Crystal, Eugene

**Source:** Journal of interventional cardiac electrophysiology : an international journal of arrhythmias and pacing; Oct 2017; vol. 50 (no. 1); p. 57-63

**Publication Type(s):** Journal Article

**Abstract:**PURPOSE Atrial fibrillation (AF) is the most common cardiac dysrhythmia. Appropriate detection of AF and early initiation of oral anticoagulation therapy are critical to reduce the risk of stroke. Patients with implantable cardioverter defibrillators (ICD) are at high risk of developing AF. The purpose of the Dx-AF study is to demonstrate that a novel single-lead VDD-ICD system (Linux smart S DX) will facilitate adequate recognition of sub-clinical AF and ultimately stroke prevention with a comparable safety profile in comparison to VVI-ICD. METHODS AND RESULTS Dx-AF is a prospective, randomized controlled, open-label trial. Patients who are indicated to receive a single-chamber ICD will be randomized to a VDD-ICD (experimental group) or single-chamber ICD (control group). We have used a sample size of 355, which after generous allowance for loss-to-follow-up, yields a sample size of 378 patients at up to 13 Canadian sites. The trial will enroll patients with ischemic or non-ischemic cardiomyopathy, age > 50 years, LVEF < 50%, scheduled for primary or secondary prevention single-chamber ICD, with no ECG-documented history of AF or flutter. The primary (efficacy) outcome of this study will be the time to the first detected and confirmed episode of AF or atrial flutter lasting at least 6 min. The secondary (safety) outcome will be a composite outcome of serious device-related complications. The proposed follow-up period in this trial will be 36 months after randomization. CONCLUSIONS The Dx-AF Study should provide significant scientific evidence and guidance to an adequate ICD system choice and early AF detection/management hence improve clinical outcomes in a large patient population.

### **60. Non-vitamin K antagonist oral anticoagulants compared with warfarin at different levels of INR control in atrial fibrillation: A meta-analysis of randomized trials.**

**Author(s):** Carmo, João; Ferreira, Jorge; Costa, Francisco; Carmo, Pedro; Cavaco, Diogo; Carvalho, Salomé; Morgado, Francisco; Adragão, Pedro; Mendes, Miguel

**Source:** International journal of cardiology; Oct 2017; vol. 244 ; p. 196-201

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND The efficacy and safety of warfarin for stroke prevention in atrial fibrillation (AF) depend on the time in the therapeutic range (TTR) with an international normalised ratio (INR) of 2.0-3.0. This meta-analysis focused the relative efficacy and safety of non-VKA oral anticoagulants (NOAC) compared with warfarin at different thresholds of centre's TTR (cTTR). METHODS We searched PubMed, Embase, CENTRAL and websites of regulatory agencies, limiting searches to randomized phase 3 trials. Primary outcomes were stroke or systemic embolism (SSE) and major or non-major clinically relevant (NMCR) bleeding. We used a random-effects model to pool effect on outcomes according to different thresholds of cTTR. RESULTS Four TTR sub-studies with a total of 71,222 patients were included. The benefit of NOAC in reducing SSE compared with warfarin was significantly higher in patients at cTTR < 60% (HR 0.79, 95% CI 0.68-0.90) and at 60% to < 70% (0.82, 0.71-0.95) but not at ≥ 70% (1.00, 0.82-1.23) with a significant interaction for cTTR < 70% or ≥ 70% ( $p = 0.042$ ). The risk of major or NMCR bleeding was significantly lower with NOAC as compared with warfarin

in patients at all sub-groups (0.67, 0.54-0.83 for patients at cTTR<60% and 0.75, 0.63-0.89 at 60% to <70%) except for cTTR≥70% (HR 0.84, 0.64-1.11), but the interaction for cTTR<70% or ≥70% was not statistically significant (p=0.271).CONCLUSIONSThe superiority in efficacy of NOAC compared with warfarin for stroke prevention is lost above a cTTR threshold of approximately 70%, but the relative safety appears to be less modified by the centre-based quality of INR control.

### **61. The association between non-alcoholic fatty liver disease and atrial fibrillation: A meta-analysis.**

**Author(s):** Wijarnpreecha, Karn; Boonpheng, Boonphiphop; Thongprayoon, Charat; Jaruvongvanich, Veeravich; Ungprasert, Patompong

**Source:** Clinics and research in hepatology and gastroenterology; Oct 2017; vol. 41 (no. 5); p. 525-532

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND/OBJECTIVESThe association between non-alcoholic fatty liver disease (NAFLD) and atrial fibrillation (AF) has been suggested by recent epidemiological studies although the results were inconsistent. This meta-analysis was conducted to summarize all available data.METHODSA comprehensive literature review was conducted using MEDLINE and EMBASE database through May 2017 to identify all studies that reported the risk of AF among patients with NAFLD versus those without NAFLD. Effect estimates from each study were extracted and combined together using the random-effect, generic inverse variance method of DerSimonian and Laird.RESULTSOf 1009 studies, 5 studies (two cross-sectional studies and three cohort studies) with 238,129 participants met the eligibility criteria and were included in the meta-analysis. The risk of AF in patients with NAFLD was significantly higher than subjects without NAFLD with the pooled risks ratio of 2.06 (95% confidence interval, 1.10-3.85). The statistical heterogeneity was high with an I2 of 78%, which was the major limitation of this meta-analysis.CONCLUSIONSA significantly increased risk of AF among patients with NAFLD was demonstrated in this study.

### **62. Clinical scores for outcomes of rhythm control or arrhythmia progression in patients with atrial fibrillation: a systematic review.**

**Author(s):** Deng, Hai; Bai, Ying; Shantsila, Alena; Fauchier, Laurent; Potpara, Tatjana S; Lip, Gregory Y H

**Source:** Clinical research in cardiology : official journal of the German Cardiac Society; Oct 2017; vol. 106 (no. 10); p. 813-823

**Publication Type(s):** Journal Article

**Abstract:**Patients with atrial fibrillation (AF) are commonly managed with rhythm control strategy, but the natural history of this common arrhythmia leads itself to progression from paroxysmal to persistent or permanent AF, and recurrences are evident despite rhythm control treatments using cardioversion or catheter ablation. Numerous clinical factors have been associated with outcomes of rhythm control or arrhythmia progression in patients with AF. The more common factors have been used to formulate risk stratification scores, to help predict the outcomes of rhythm control treatments or AF progression. This review article provides an overview on the published clinical risk scores related to outcomes of rhythm control strategy or AF progression.

### **63. The Global Burden of Atrial Fibrillation and Stroke: A Systematic Review of the Clinical Epidemiology of Atrial Fibrillation in Asia.**

**Author(s):** Bai, Ying; Wang, Yan-Liang; Shantsila, Alena; Lip, Gregory Y H

**Source:** Chest; Oct 2017; vol. 152 (no. 4); p. 810-820

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDOur previous review reported great variability in the incidence and prevalence of atrial fibrillation (AF) in non-Western cohorts, especially from Asian countries; in recent years, epidemiologic studies on AF have been increasingly reported from Asia.METHODSThe goal of this updated systematic review was to present the current knowledge base of AF epidemiology in Asian countries since our previous review. We also explored AF incidence and the risk of stroke in AF by using a meta-analysis, with I2 testing the heterogeneity. Third, "real-world" antithrombotic drug use for ischemic stroke (IS) prevention associated with AF was studied.RESULTSA total of 58 articles from eight countries in Asia were included in the analysis. The summary annual incidence of AF was 5.38 (95% CI, 4.53-6.24; I2 = 99.5%; n = 10) per 1,000 person-years, and the IS annual risk in AF was 3.0% (1.60%-4.95%; I2 = 99.8%; n = 8) when meta-analysis was performed on hospital- and community-based studies. Hospital- and community-based AF prevalence ranged from 0.37% to 3.56% and 2.8% to 15.8%, respectively. IS prevalence in AF ranged from 1.9% to 6.0% and 0.36% to 28.3% in



community- and hospital-based studies. Warfarin use in Chinese subjects is relatively low (1.0%-4.1%) compared with Japanese subjects (49.1%-70.0%) in community-based studies. The rate of warfarin use was < 50% in hospital-based studies. CONCLUSION The incidence and prevalence of AF have increased in recent years, although great variability still exists in Asian countries. Variability in annual IS risk in patients with AF was apparent between hospital- and community-based studies. However, the rate of warfarin use was < 50% in hospital studies from Asian countries.

#### **64. Impact of atrial fibrillation on outcomes of patients treated by transcatheter aortic valve implantation: A systematic review and meta-analysis.**

**Author(s):** Mojoli, Marco; Gersh, Bernard J; Barioli, Alberto; Masiero, Giulia; Tellaroli, Paola; D'Amico, Gianpiero; Tarantini, Giuseppe

**Source:** American heart journal; Oct 2017; vol. 192 ; p. 64-75

**Publication Type(s):** Meta-analysis Journal Article Review

**Abstract:** BACKGROUND Conflicting data have been reported related to the impact of atrial fibrillation (AF) on the outcomes after transcatheter aortic valve implantation (TAVI). We aimed to assess the prognosis of TAVI-treated patients according to the presence of pre-existing or new-onset AF. METHODS Studies published between April 2002 and November 2016 and reporting outcomes of pre-existing AF, new-onset AF, or sinus rhythm in patients undergoing TAVI were identified with an electronic search. Pairwise and network meta-analysis were performed. Outcomes of interest were short- and long-term mortality, stroke, and major bleeding. RESULTS Eleven studies (11,033 individuals) were eligible. Compared to sinus rhythm, short-term and long-term mortality were significantly higher in new-onset AF (short-term OR 2.9,  $P=0.002$ ; long-term OR 2.3,  $P<0.0001$ ) and pre-existing AF groups (short-term OR 2.7,  $P=0.004$ ; long-term OR 2.8,  $P<0.0001$ ). Compared to sinus rhythm, new-onset AF increased the risk of stroke at early (OR 2.1,  $P<0.0001$ ) and late follow-up (OR 1.92,  $P<0.0001$ ), and the risk of early bleedings (OR 1.65,  $P=0.002$ ), while pre-existing AF increased the risk of late stroke (OR 1.3,  $P=0.03$ ), but not the risk of bleeding. Compared to pre-existing AF, new-onset AF correlated with higher risk of early stroke (OR 1.7,  $P=0.002$ ) and major bleedings (OR 1.7,  $P=0.002$ ). CONCLUSIONS AF is associated with impaired outcomes after TAVI, including mortality, stroke and (limited to new-onset AF) major bleedings. Compared to pre-existing AF, new-onset AF correlates with higher risk of early stroke and major bleedings. Improved management of AF in the TAVI setting, including tailored antithrombotic treatment strategies, remains a relevant need.

#### **65. ENDURALIFE-Powered Cardiac Resynchronisation Therapy Defibrillator Devices for Treating Heart Failure: A NICE Medical Technology Guidance.**

**Author(s):** Evans, James Michael; Cleves, Andrew; Morgan, Helen; Millar, Liesl; Carolan-Rees, Grace

**Source:** Applied health economics and health policy; Oct 2017

**Publication Type(s):** Journal Article Review

**Abstract:** ENDURALIFE™-powered cardiac resynchronisation therapy defibrillator (CRT-D) devices were the subject of an evaluation by the National Institute for Health and Care Excellence, through its Medical Technologies Evaluation Programme, for the treatment of heart failure. Boston Scientific (manufacturer) submitted a case for the adoption of the technology, claiming that it has a longer battery life resulting in a longer time to CRT-D replacement. Other claimed benefits were fewer complications associated with replacement procedures, fewer hospital admissions, less time spent in hospital and reduced demand on cardiology device implantation rooms. The submission was critiqued by Cedar, an external assessment centre. The submitted clinical evidence showed that ENDURALIFE-powered devices implanted during the period 2008-2010 were superior, in terms of longevity, to other devices at that time. Submitted economic evidence indicated that, because of a reduction in the need for replacement procedures, ENDURALIFE-powered devices were cost saving when compared to comparator devices. Cedar highlighted uncertainty of the applicability of the clinical evidence to devices marketed today. The Medical Technologies Advisory Committee noted that this was unavoidable due to the follow-up time required to study battery life. Clinical experts noted that increased battery life is an important patient benefit. However, centres use devices from multiple manufacturers to negate pressure on clinical services in the event of a major device recall. The clinical and economic evidence showed benefits to the patient, and further analysis requested by the committee suggested that ENDURALIFE-powered CRT-Ds may save between £2120 and £5627 per patient over 15 years through a reduction in the need for replacement procedures. ENDURALIFE-powered CRT-D devices received a positive recommendation in Medical Technologies Guidance 33.

### 66. The Genetic Counselor in the Pediatric Arrhythmia Clinic: Review and Assessment of Services.

**Author(s):** Helm, Benjamin M; Freeze, Samantha L; Spoonamore, Katherine G; Ware, Stephanie M; Ayers, Mark D; Kean, Adam C

**Source:** Journal of genetic counseling; Oct 2017

**Publication Type(s):** Journal Article

**Abstract:** There are minimal data on the impact of genetic counselors in subspecialty clinics, including the pediatric arrhythmia clinic. This study aimed to describe the clinical encounters of a genetic counselor integrated into a pediatric arrhythmia clinic. In the 20 months between July 2015 and February 2017, a total of 1914 scheduled patients were screened for indications relevant for assessment by a genetic counselor. Of these, the genetic counselor completed 276 patient encounters, seeing 14.4% of all patients in clinic. The most expected and common indications for genetic counselor involvement were related to suspicion for primary heritable arrhythmia conditions, though patients seen in this clinic display a wide range of cardiac problems and many additional indications for genetic evaluation were identified. Roughly 75% (211/276) of encounters were for personal history of confirmed/suspected heritable disease, including cardiac channelopathies, cardiomyopathies, ventricular arrhythmias, and congenital heart defects, and 25% (65/276) were for family history of disease, including long QT syndrome and sudden unexplained death. Overall, this study shows that about 1 in 7 patients seen in a pediatric arrhythmia clinic have indications that likely benefit from genetic counselor involvement and care. Similar service delivery models embedding genetic counselors in pediatric arrhythmia clinics should be encouraged, and this model could be emulated to increase patient access to genetic counseling services.

### 67. Antidepressants and the risk of arrhythmia in elderly affected by a previous cardiovascular disease: a real-life investigation from Italy.

**Author(s):** Biffi, A; Rea, F; Scotti, L; Mugelli, A; Lucenteforte, E; Bettiol, A; Chinellato, A; Onder, G; Vitale, C; Agabiti, N; Trifirò, G; Roberto, G; Corrao, G; Italian Group for Appropriate Drug prescription in the Elderly (I-GrADE)

**Source:** European journal of clinical pharmacology; Oct 2017

**Publication Type(s):** Journal Article

**Abstract:** **PURPOSE** The study aimed to fill existing knowledge gaps on the safety of antidepressant drugs (ADs) by estimating the risk of hospitalization for arrhythmia associated with use of selective serotonin reuptake inhibitors (SSRIs) and newer atypical ADs (NAAs) among elderly with previous cardiovascular (CV) events. **METHODS** The cohort was composed by 199,569 individuals aged  $\geq 65$  years from five Italian healthcare territorial units who were discharged for cardiovascular outcomes in the years 2008-2010. The 17,277 patients who experienced hospital admission for arrhythmia during follow-up were included as cases. Odds of current ADs use among cases (i.e., 14 days before hospital admission) was compared with (i) odds of current use of 1:5 matched controls (between-patients case-control) and with (ii) odds of previous use during 1:5 matched control periods (within-patient case-crossover). The risk of arrhythmia associated with ADs current use was modelled fitting a conditional logistic regression. A set of sensitivity analyses was performed to account for sources of systematic uncertainty. **RESULTS** Current users of SSRIs and NAAs were at increased risk of arrhythmia with case-control odds ratios (OR) of 1.37 (95% confidence interval, CI 1.18 to 1.58) and 1.41 (1.16 to 1.71) and case-crossover OR of 1.48 (1.20 to 1.81) and 1.72 (1.31 to 2.27). An increased risk of arrhythmia was associated with current use of trazodone (NAA) consistently in case-control and case-crossover designs. **CONCLUSION** Evidence that current use of SSRIs and NAAs is associated to an increased risk of arrhythmia among elderly with CV disease was consistently supplied by two observational approaches.

### 68. Low Prevalence of Inappropriate Shocks in Patients With Inherited Arrhythmia Syndromes With the Subcutaneous Implantable Defibrillator Single Center Experience and Long-Term Follow-Up.

**Author(s):** Rudic, Boris; Tülümen, Erol; Berlin, Veronika; Röger, Susanne; Stach, Ksenija; Liebe, Volker; El-Battrawy, Ibrahim; Dösch, Christina; Papavassiliu, Theano; Akin, Ibrahim; Borggreffe, Martin; Kuschyk, Jürgen

**Source:** Journal of the American Heart Association; Oct 2017; vol. 6 (no. 10)

**Publication Type(s):** Journal Article

Available at [Journal of the American Heart Association](#) - from Wiley Online Library Free Content - NHS

Available at [Journal of the American Heart Association](#) - from HighWire - Free Full Text

Available at [Journal of the American Heart Association](#) - from Europe PubMed Central - Open Access

**Abstract:**BACKGROUND Up to 40% of patients with transvenous implantable cardioverter-defibrillator (ICD) experience lead-associated complications and may suffer from high complication rates when lead extraction is indicated. Subcutaneous ICD may represent a feasible alternative; however, the efficacy of the subcutaneous ICD in the detection and treatment of ventricular arrhythmias in patients with hereditary arrhythmia syndromes has not been fully evaluated. METHODS AND RESULTS Patients with primary hereditary arrhythmia syndromes who fulfilled indication for defibrillator placement were eligible for enrollment. Between 2010 and 2016, 62 consecutive patients with primary hereditary arrhythmia syndromes, without indication for antibradycardia therapy, were enrolled in the study. Mean follow-up was  $31.0 \pm 14.2$  months. The study cohort comprised of 24 patients with Brugada syndrome, 17 with idiopathic ventricular fibrillation, 6 with long-QT syndrome, 1 with short-QT syndrome, 3 with catecholaminergic polymorphic ventricular tachycardia, 8 with hypertrophic cardiomyopathy, and 3 with arrhythmogenic right ventricular cardiomyopathy. Thirty-nine patients were implanted for secondary prevention. Twenty-two patients had a previous transvenous ICD implanted, but required revision because of infection or lead defects. A total of 20 spontaneous ventricular tachyarrhythmias requiring shock intervention occurred in 10 patients during follow-up. All episodes were terminated within the first ICD shock delivery with 80 J. Two patients had inappropriate therapies caused by oversensing following an uneventful implantation. No pocket-site infections and no premature revisions have occurred during follow-up. CONCLUSIONS Our study supports the use of the subcutaneous ICD for both secondary and primary prevention of sudden cardiac death as a reliable alternative to the conventional transvenous ICD.

### 69. Drugs and life-threatening ventricular arrhythmia risk: results from the DARE study cohort.

**Author(s):** Coughtrie, Abigail L; Behr, Elijah R; Layton, Deborah; Marshall, Vanessa; Camm, A John; Shakir, Saad A W

**Source:** BMJ open; Oct 2017; vol. 7 (no. 10); p. e016627

**Publication Type(s):** Journal Article

Available at [BMJ Open](#) - from HighWire - Free Full Text

Available at [BMJ Open](#) - from Europe PubMed Central - Open Access

**Abstract:**OBJECTIVES To establish a unique sample of proarrhythmia cases, determine the characteristics of cases and estimate the contribution of individual drugs to the incidence of proarrhythmia within these cases. SETTINGS Suspected proarrhythmia cases were referred by cardiologists across England between 2003 and 2011. Information on demography, symptoms, prior medical and drug histories and data from hospital notes were collected. PARTICIPANTS Two expert cardiologists reviewed data for 293 referred cases: 130 were included. Inclusion criteria were new onset or exacerbation of pre-existing ventricular arrhythmias, QTc  $>500$  ms, QTc  $>450$  ms (men) or  $>470$  ms (women) with cardiac syncope, all secondary to drug administration. Exclusion criteria were acute ischaemia and ischaemic polymorphic ventricular tachycardia at presentation, structural heart disease, consent withdrawn or deceased prior to study. Descriptive analysis of Caucasian cases (95% of included cases,  $n=124$ ) and culpable drug exposures was performed. RESULTS Of the 124 Caucasian cases, 95 (77%) were QTc interval prolongation-related; mean age was 62 years (SD 15), and 63% were female. Cardiovascular comorbidities included hypertension (53%) and patient-reported 'heart rhythm problems' (73%). Family history of sudden death (36%) and hypokalaemia at presentation (27%) were common. 165 culpable drug exposures were reported, including antiarrhythmics (42%), of which amiodarone and flecainide were the most common. Sotalol, a beta-blocking agent with antiarrhythmic activity, was also common (15%). 26% reported multiple drugs, of which 84% reported at least one cytochrome (CYP) P450 inhibitor. Potential pharmacodynamics interactions identified were mainly QT prolongation (59%). CONCLUSIONS Antiarrhythmics, non-cardiac drugs and drug combinations were found to be culpable in a large cohort of 124 clinically validated proarrhythmia cases. Potential clinical factors that may warn the prescriber of potential proarrhythmia include older women, underlying cardiovascular comorbidity, family history of sudden death and hypokalaemia.

### 70. The influence of sex and age on ventricular arrhythmia in a population-based registry.

**Author(s):** Styles, Kimberly; Sapp, John; Gardner, Martin; Gray, Christopher; Abdelwahab, Amir; MacIntyre, Ciorsti; Gao, Dongsheng; Al-Harbi, Mousa; Doucette, Steve; Theriault, Chris; Parkash, Ratika

**Source:** International journal of cardiology; Oct 2017; vol. 244 ; p. 169-174

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Post-hoc analyses of clinical trials and population-based studies have shown no difference in mortality between men and women, but often show that men are more likely to receive appropriate ICD therapy. We utilized a population-based registry to investigate the interaction of sex and age and the

occurrence of ventricular arrhythmia in an ICD population. **METHODS AND RESULTS** A total of 776 consecutive patients receiving an ICD for primary or secondary prevention in a provincial ICD registry were studied. No significant mortality difference was found between men and women (27.5% versus 23.7%,  $p=0.39$ ). Overall, men were more likely to receive appropriate ICD therapy compared to women (39.3% versus 26.7%,  $p=0.006$ ). The hazard ratio for appropriate therapy in men vs. women <60 years of age was 3.22, CI 95% (1.56-6.65),  $p=0.002$ , and the same comparison in men vs. women over the age of 60 showed no significant difference (HR 1.11, CI 95% [0.74-1.65],  $p=0.61$ ). This interaction between age and sex remained significant when adjusted for New York Heart Associated Class, ejection fraction, coronary artery disease and indication for ICD ( $p=0.02$ ). **CONCLUSIONS** This study demonstrates that the risk of appropriate ICD therapy increases as women are older, reaching similar risk as men in that age group. Further study of the mechanism of the interaction of age and sex as they modulate the occurrence of ventricular arrhythmia may be warranted.

### **71. The clinical efficacy and adverse reaction of wenxin granule and amiodarone for patient with atrial fibrillation: A meta-analysis**

**Author(s):** Wang C.; Wu W.; Wu H.; Li R.; Jiang N.; Qing L.; Peng R.; Wei W.; Jin Z.

**Source:** International Journal of Clinical and Experimental Medicine; Oct 2017; vol. 10 (no. 10); p. 14256-14265

**Publication Type(s):** Article

**Abstract:** Objective: To systematically evaluate the efficacy and adverse reaction of Wenxin Granule on rhythm control in patients with atrial fibrillation (AF) either as a sole or in combination with amiodarone. Method: The databases of Cochrane Central Register of Controlled Trials, PubMed, Embase, the Chinese Biomedicine Database (CBM), China National Knowledge Infrastructure (CNKI), Wanfang system database and Chongqing VIP Information (CQVIP) database were systematically searched for all relevant studies. The cut-off date for the electronic search was January 2016. All randomized controlled trials (RCTs) with enrolled patients of all ages with atrial fibrillation (AF) were included in the present study. The primary outcomes were the incidence of adverse events and the rate of rhythm control which was defined as the cardioversion and sinus rhythm maintenance in AF patients. For dichotomous outcomes, the rate of rhythm control and the incidence of adverse drug reaction were calculated as a relative risk (RR) with 95% confidence intervals (95% CI) in a fixed effects model. Result: A total of 15 trails (1,539 participants) were included in the meta-analysis. Compared with amiodarone, the group of Wenxin granule did not show statistical significance in rhythm control (RR: 0.91; 95% CI: [0.75, 1.09],  $P=0.30$ ) but lower adverse events (RR: 0.54, 95% CI: [0.32, 0.90],  $P=0.02$ ) while the group of Wenxin granule combined with amiodarone increased rate of sinus rhythm maintenance (RR: 1.34; 95% CI: [1.22, 1.47],  $P<0.01$ ) and did not increase the incidence of adverse events (RR: 0.51, 95% CI: [0.32, 0.80],  $P<0.01$ ). Trim and fill method was performed to correct the pooled effect for the funnel plot asymmetry (adjusted value of RR=1.172, 95% CI: [1.088, 1.264]). Conclusion: Wenxin granule as a sole or adjuvant agent on maintaining sinus rhythm in patients with AF was promising. However there were some methodological defects in the included studies. Further rigorously designed trials are needed to substantiate its clinical usage.

### **72. Comparison of ablation efficacy with cryoballoon or radiofrequency for the treatment of atrial fibrillation: A meta-analysis of randomized controlled trials**

**Author(s):** Zheng Y.; Chen H.-W.; Jia D.-Y.; Gu Q.; Peng H.-M.

**Source:** International Journal of Clinical and Experimental Medicine; Oct 2017; vol. 10 (no. 10); p. 14309-14320

**Publication Type(s):** Article

**Abstract:** Radiofrequency catheter ablation (RFCA) of pulmonary vein isolation (PVI) has been the standard strategy for treatment of atrial fibrillation (AF). Cryoballoon ablation (CBA) is also frequently adopted. Here, we conducted a meta-analysis of randomized controlled trials (RCTs) to compare the efficacy of CBA and RFCA in the treatment of AF. PubMed, EMBASE and Cochrane Library were searched up to May 2016, using Boolean operators as follows: (atrial fibrillation OR pulmonary vein isolation) AND (cryoballoon OR radiofrequency ablation). All RCTs directly comparing the efficacy between CBA and RFCA were retrieved. Eight out of 367 studies, involving 1849 patients, were included in this study. The fluoroscopic time was significantly lower in the RFCA group compared with the CBA group (mean difference 2.94; 95% confidence interval [95% CI]: 0.34 to 5.54,  $P=0.03$ ). However, no significant difference in total procedure time between these two groups by mean difference -11.2 (95% CI: -34.53 to 12.13,  $P=0.35$ ); Total complications were not significantly different between the two groups (relative risk [RR]: 1.21; 95% CI: 0.71 to 2.04,  $P=0.49$ ); however, almost all phrenic nerve palsies (PNP) occurred in the CBA group. The CBA group had similar proportion of patients free from AF as the RFCA group at the 12-month follow-up (RR: 1.02; 95% CI: 0.90 to

1.16,  $P=0.74$ ). Our analysis indicates that, compared with RFCA, CBA is not inferior in total procedure time and complications except for the longer fluoroscopic time. There were also similar proportions of patients free from AF in both groups at the one-year follow-up.

### **73. The effects of rhythm control strategies versus rate control strategies for atrial fibrillation and atrial flutter: A systematic review with meta-analysis and Trial Sequential Analysis**

**Author(s):** Sethi N.J.; Feinberg J.; Nielsen E.E.; Safi S.; Gluud C.; Jakobsen J.C.

**Source:** PLoS ONE; Oct 2017; vol. 12 (no. 10)

**Publication Type(s):** Review

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**Abstract:**Background: Atrial fibrillation and atrial flutter may be managed by either a rhythm control strategy or a rate control strategy but the evidence on the clinical effects of these two intervention strategies is unclear. Our objective was to assess the beneficial and harmful effects of rhythm control strategies versus rate control strategies for atrial fibrillation and atrial flutter. Methods: We searched CENTRAL, MEDLINE, Embase, LILACS, Web of Science, BIOSIS, Google Scholar, clinicaltrials.gov, TRIP, EU-CTR, Chi-CTR, and ICTRP for eligible trials comparing any rhythm control strategy with any rate control strategy in patients with atrial fibrillation or atrial flutter published before November 2016. Our primary outcomes were all-cause mortality, serious adverse events, and quality of life. Our secondary outcomes were stroke and ejection fraction. We performed both random-effects and fixed-effect meta-analysis and chose the most conservative result as our primary result. We used Trial Sequential Analysis (TSA) to control for random errors. Statistical heterogeneity was assessed by visual inspection of forest plots and by calculating inconsistency ( $I^2$ ) for traditional meta-analyses and diversity ( $D^2$ ) for TSA. Sensitivity analyses and subgroup analyses were conducted to explore the reasons for substantial statistical heterogeneity. We assessed the risk of publication bias in meta-analyses consisting of 10 trials or more with tests for funnel plot asymmetry. We used GRADE to assess the quality of the body of evidence. Results: 25 randomized clinical trials ( $n = 9354$  participants) were included, all of which were at high risk of bias. Meta-analysis showed that rhythm control strategies versus rate control strategies significantly increased the risk of a serious adverse event (risk ratio (RR), 1.10; 95% confidence interval (CI), 1.02 to 1.18;  $P = 0.02$ ;  $I^2 = 12\%$  (95% CI 0.00 to 0.32); 21 trials), but TSA did not confirm this result (TSA-adjusted CI 0.99 to 1.22). The increased risk of a serious adverse event did not seem to be caused by any single component of the composite outcome. Meta-analysis showed that rhythm control strategies versus rate control strategies were associated with better SF-36 physical component score (mean difference (MD), 6.93 points; 95% CI, 2.25 to 11.61;  $P = 0.004$ ;  $I^2 = 95\%$  (95% CI 0.94 to 0.96); 8 trials) and ejection fraction (MD, 4.20%; 95% CI, 0.54 to 7.87;  $P = 0.02$ ;  $I^2 = 79\%$  (95% CI 0.69 to 0.85); 7 trials), but TSA did not confirm these results. Both meta-analysis and TSA showed no significant differences on all-cause mortality, SF-36 mental component score, Minnesota Living with Heart Failure Questionnaire, and stroke. Conclusions: Rhythm control strategies compared with rate control strategies seem to significantly increase the risk of a serious adverse event in patients with atrial fibrillation. Based on current evidence, it seems that most patients with atrial fibrillation should be treated with a rate control strategy unless there are specific reasons (e.g., patients with unbearable symptoms due to atrial fibrillation or patients who are hemodynamically unstable due to atrial fibrillation) justifying a rhythm control strategy. More randomized trials at low risk of bias and low risk of random errors are needed. Trial registration: PROSPERO CRD42016051433. Copyright © 2017 Sethi et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### **74. Antithrombotic therapy strategies for atrial fibrillation patients undergoing percutaneous coronary intervention: A systematic review and network meta-analysis**

**Author(s):** Gong X.; Li J.; Zhang X.; Tian X.; Ma S.; Tang S.

**Source:** PLoS ONE; Oct 2017; vol. 12 (no. 10)

**Publication Type(s):** Article

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**Abstract:**Objective: The aim of this systematic review and network meta-analysis was to evaluate the comparative efficacy and safety of antiplatelet agents, vitamin K antagonist (VKA) and non-VKA oral anticoagulants (NOACs) in patients with atrial fibrillation (AF) undergoing percutaneous coronary intervention (PCI). Methods: PubMed, EMBASE, and the Cochrane Central Register of Controlled Trials were searched to identify clinical trials comparing antiplatelet drugs with VKA and NOACs or their combination in AF patients undergoing PCI with a mean/median follow-up of at least 12 months. A network meta-analysis was conducted to directly and indirectly compare the efficacy and safety of competitive antithrombotic regimens with a Bayesian random-effects model. Results were presented as relative risks (RRs) and 95% confidence intervals (CIs). Results: A total of 15 studies enrolling 13,104 patients were included. Among 5 regimens, rivaroxaban 15 mg daily plus P2Y12 inhibitor treatment demonstrated significant superiority over dual- and triple-antiplatelet therapies (DAPT, TT) in reducing thromboembolic events (0.64 [0.38, 0.95] and 0.68 [0.43, 0.98], respectively) but showed the maximum possibility of major bleeding risk, while VKA plus single antiplatelet therapy (SAPT) seemed the safest. Significantly less risk of major bleeding was seen in DAPT group than that in TT group (0.63 [0.39, 0.99]). Conclusions: The present study suggests that combination of VKA and SAPT is the best choice for AF patients undergoing PCI considering both efficacy and safety. Rivaroxaban 2.5 mg twice daily plus DAPT treatment owns the highest probability to be the optimal alternative to VKA plus SAPT for these patients.

### **75. Screening for Atrial Fibrillation in Patients $\geq 65$ Years Using an Automatic Blood Pressure Monitor in a Skilled Nursing Facility.**

**Author(s):** Wiesel, Joseph; Salomone, Thomas J

**Source:** The American journal of cardiology; Oct 2017; vol. 120 (no. 8); p. 1322-1324

**Publication Type(s):** Clinical Trial Multicenter Study Journal Article

Available at [American journal of cardiology](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:**Early detection of asymptomatic atrial fibrillation (AF) provides an opportunity to treat patients to reduce their risk of stroke. Long-term residents of skilled nursing facilities frequently have multiple risk factors for strokes due to AF and may benefit from screening for AF. Patients in a skilled nursing facility 65 years and older, without a history of AF and without a pacemaker or defibrillator, were evaluated using a Microlife WatchBP Home A automatic blood pressure monitor that can detect AF when set to a triple reading mode. Those with readings positive for AF were evaluated with a standard 12-lead electrocardiogram (ECG) or a 30-second single-channel ECG to confirm the presence of AF. A total of 101 patients were screened with an average age of 78 years, and 48 (48%) were female. Nine automatic blood pressure monitor readings were positive for possible AF. Of those, 7 (6.9%, 95% confidence intervals 3.0% to 14.2%) had AF confirmed with ECG. Only 2 (2%, 95% confidence interval 0.3% to 7.7%) were false-positive readings. One-time screening for AF using an automatic blood pressure monitor in a skilled nursing facility resulted in a high number of patients with newly diagnosed AF.

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