**Supplementary materials**

Supplementary Table 1. PRISMA checklist.

| **Section and Topic**  | **Item #** | **Checklist item**  | **Location where item is reported**  |
| --- | --- | --- | --- |
| **TITLE**  |  |
| Title  | 1 | Identify the report as a systematic review. | Page 1 |
| **ABSTRACT**  |  |
| Abstract  | 2 | See the PRISMA 2020 for Abstracts checklist. | Page 1 |
| **INTRODUCTION**  |  |
| Rationale  | 3 | Describe the rationale for the review in the context of existing knowledge. | Page 1 |
| Objectives  | 4 | Provide an explicit statement of the objective(s) or question(s) the review addresses. | Page 1 |
| **METHODS**  |  |
| Eligibility criteria  | 5 | Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses. | Page 2 |
| Information sources  | 6 | Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted. | Page 2 |
| Search strategy | 7 | Present the full search strategies for all databases, registers and websites, including any filters and limits used. | Page 2 |
| Selection process | 8 | Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process. | Page 2 |
| Data collection process  | 9 | Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process. | Page 2 |
| Data items  | 10a | List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect. | Page 2 |
| 10b | List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information. | Page 2 |
| Study risk of bias assessment | 11 | Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process. | Page 2,5 |
| Effect measures  | 12 | Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results. | Page 5 |
| Synthesis methods | 13a | Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)). | Page 2 |
| 13b | Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions. | Page 2,5 |
| 13c | Describe any methods used to tabulate or visually display results of individual studies and syntheses. | Page 3-5 |
| 13d | Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used. | Page 5 |
| 13e | Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression). | Page 5 |
| 13f | Describe any sensitivity analyses conducted to assess robustness of the synthesized results. | Page 5 |
| Reporting bias assessment | 14 | Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases). | Page 5 |
| Certainty assessment | 15 | Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome. | Page 5 |
| **RESULTS**  |  |
| Study selection  | 16a | Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram. | Page 2,5-6 |
| 16b | Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded. | Page 6 |
| Study characteristics  | 17 | Cite each included study and present its characteristics. | Page 3-4,6 |
| Risk of bias in studies  | 18 | Present assessments of risk of bias for each included study. | Page 6,8 |
| Results of individual studies  | 19 | For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots. | Page 3-4 |
| Results of syntheses | 20a | For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies. | Page 6,8 |
| 20b | Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect. | Page 7-10 |
| 20c | Present results of all investigations of possible causes of heterogeneity among study results. | Page 8,10 |
| 20d | Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results. | Page 8 |
| Reporting biases | 21 | Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed. | Page 6,8 |
| Certainty of evidence  | 22 | Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed. | Page 6 |
| **DISCUSSION**  |  |
| Discussion  | 23a | Provide a general interpretation of the results in the context of other evidence. | Page 10-12 |
| 23b | Discuss any limitations of the evidence included in the review. | Page 12 |
| 23c | Discuss any limitations of the review processes used. | Page 12 |
| 23d | Discuss implications of the results for practice, policy, and future research. | Page 12 |
| **OTHER INFORMATION** |  |
| Registration and protocol | 24a | Provide registration information for the review, including register name and registration number, or state that the review was not registered. | Page 12 |
| 24b | Indicate where the review protocol can be accessed, or state that a protocol was not prepared. | Page 12 |
| 24c | Describe and explain any amendments to information provided at registration or in the protocol. | Page 12 |
| Support | 25 | Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review. | Page 12 |
| Competing interests | 26 | Declare any competing interests of review authors. | Page 12 |
| Availability of data, code and other materials | 27 | Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review. | Page 12-13 |

Supplementary Table 2. Full search strategies for published studies.

|  |
| --- |
| Pubmed |
| (((((("Radiofrequency Ablation"[Mesh]) OR (Ablation, Radiofrequency)) OR (Radio Frequency Ablation)) OR (Ablation, Radio Frequency)) OR (Radio-Frequency Ablation)) OR (Ablation, Radio-Frequency)) AND ((((((((((((((((((((((((((((("Atrial Fibrillation"[Mesh]) OR (Atrial Fibrillations[Title/Abstract])) OR (Fibrillation, Atrial[Title/Abstract])) OR (Fibrillations, Atrial[Title/Abstract])) OR (Auricular Fibrillation[Title/Abstract])) OR (Auricular Fibrillations[Title/Abstract])) OR (Fibrillation, Auricular[Title/Abstract])) OR (Fibrillations, Auricular[Title/Abstract])) OR (Persistent Atrial Fibrillation[Title/Abstract])) OR (Atrial Fibrillation, Persistent[Title/Abstract])) OR (Atrial Fibrillations, Persistent[Title/Abstract])) OR (Fibrillation, Persistent Atrial[Title/Abstract])) OR (Fibrillations, Persistent Atrial[Title/Abstract])) OR (Persistent Atrial Fibrillations[Title/Abstract])) OR (Familial Atrial Fibrillation[Title/Abstract])) OR (Atrial Fibrillation, Familial[Title/Abstract])) OR (Atrial Fibrillations, Familial[Title/Abstract])) OR (Familial Atrial Fibrillations[Title/Abstract])) OR (Fibrillation, Familial Atrial[Title/Abstract])) OR (Fibrillations, Familial Atrial[Title/Abstract])) OR (Paroxysmal Atrial Fibrillation[Title/Abstract])) OR (Atrial Fibrillation, Paroxysmal[Title/Abstract])) OR (Atrial Fibrillations, Paroxysmal[Title/Abstract])) OR (Fibrillation, Paroxysmal Atrial[Title/Abstract])) OR (Fibrillations, Paroxysmal Atrial[Title/Abstract])) OR (Paroxysmal Atrial Fibrillations[Title/Abstract])) AND (((((((((((((((((((((((((((((((((((((((("Anti-Arrhythmia Agents"[Mesh]) OR (Agents, Anti-Arrhythmia[Title/Abstract])) OR (Anti Arrhythmia Agents[Title/Abstract])) OR (Anti-Arrhythmia Drugs[Title/Abstract])) OR (Anti Arrhythmia Drugs[Title/Abstract])) OR (Drugs, Anti-Arrhythmia[Title/Abstract])) OR (Anti-Arrhythmics[Title/Abstract])) OR (Anti Arrhythmics[Title/Abstract])) OR (Antiarrhythmia Agents[Title/Abstract])) OR (Agents, Antiarrhythmia[Title/Abstract])) OR (Antiarrhythmic Drug[Title/Abstract])) OR (Drug, Antiarrhythmic[Title/Abstract])) OR (Antiarrhythmic Drugs[Title/Abstract])) OR (Drugs, Antiarrhythmic[Title/Abstract])) OR (Anti-Arrhythmia Agent[Title/Abstract])) OR (Agent, Anti-Arrhythmia[Title/Abstract])) OR (Anti Arrhythmia Agent[Title/Abstract])) OR (Anti-Arrhythmia Drug[Title/Abstract])) OR (Anti Arrhythmia Drug[Title/Abstract])) OR (Drug, Anti-Arrhythmia[Title/Abstract])) OR (Antiarrhythmia Agent[Title/Abstract])) OR (Agent, Antiarrhythmia[Title/Abstract])) OR (Antiarrhythmia Drug[Title/Abstract])) OR (Drug, Antiarrhythmia[Title/Abstract])) OR (Anti-Arrhythmic[Title/Abstract])) OR (Anti Arrhythmic[Title/Abstract])) OR (Antiarrhythmia Drugs[Title/Abstract])) OR (Drugs, Antiarrhythmia[Title/Abstract])) OR (Cardiac Depressants[Title/Abstract])) OR (Depressants, Cardiac[Title/Abstract])) OR (Cardiac Depressant[Title/Abstract])) OR (Depressant, Cardiac[Title/Abstract])) OR (Myocardial Depressant[Title/Abstract])) OR (Depressant, Myocardial[Title/Abstract])) OR (Myocardial Depressants[Title/Abstract])) OR (Depressants, Myocardial[Title/Abstract])) OR (Antifibrillatory Agents[Title/Abstract])) OR (Agents, Antifibrillatory[Title/Abstract])) OR (Antifibrillatory Agent[Title/Abstract])) OR (Agent, Antifibrillatory[Title/Abstract]))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab]) NOT (animals[mh] NOT humans[mh])))) AND (((((("Recurrence"[Mesh]) OR (Recurrences[Title/Abstract])) OR (Recrudescence[Title/Abstract])) OR (Recrudescences[Title/Abstract])) OR (Relapse[Title/Abstract])) OR (Relapses[Title/Abstract]))) |
| **WOS** |
| (((TS=(auricular fibrillation OR Atrial Fibrillations OR Fibrillation, Atrial OR Fibrillations, Atrial OR Auricular Fibrillation OR Auricular Fibrillations OR Fibrillation, Auricular OR Fibrillations, Auricular OR Persistent Atrial Fibrillation OR Atrial Fibrillation, Persistent OR Atrial Fibrillations, Persistent OR Fibrillation, Persistent Atrial OR Fibrillations, Persistent Atrial OR Persistent Atrial Fibrillations OR Familial Atrial Fibrillation OR Atrial Fibrillation, Familial OR Atrial Fibrillations, Familial OR Familial Atrial Fibrillations OR Fibrillation, Familial Atrial OR Fibrillations, Familial Atrial OR Paroxysmal Atrial Fibrillation OR Atrial Fibrillation, Paroxysmal OR Atrial Fibrillations, Paroxysmal OR Fibrillation, Paroxysmal Atrial OR Fibrillations, Paroxysmal Atrial OR Paroxysmal Atrial Fibrillations )) AND TS=(Anti-Arrhythmia Agents OR Agents, Anti-Arrhythmia OR Anti Arrhythmia Agents OR Anti-Arrhythmia Drugs OR Anti Arrhythmia Drugs OR Drugs, Anti-Arrhythmia OR Anti-arrhythmias OR Anti arrhythmias OR Antiarrhythmia Agents OR Agents, Antiarrhythmia OR Antiarrhythmic Drug OR Drug, Antiarrhythmic OR Antiarrhythmic Drugs OR Drugs, Antiarrhythmic OR Anti-Arrhythmia Agent OR Agent, Anti-Arrhythmia OR Anti Arrhythmia Agent OR Anti-Arrhythmia Drug OR Anti Arrhythmia Drug OR Drug, Anti-Arrhythmia OR Antiarrhythmia Agent OR Agent, Antiarrhythmia OR Antiarrhythmia Drug OR Drug, Antiarrhythmia OR Anti-Arrhythmic OR Anti Arrhythmic OR Antiarrhythmia Drugs OR Drugs, Antiarrhythmia OR Cardiac Depressants OR Depressants, Cardiac OR Cardiac Depressant OR Depressant, Cardiac OR Myocardial Depressant OR Depressant, Myocardial OR Myocardial Depressants OR Depressants, Myocardial OR Antifibrillatory Agents OR Agents, Antifibrillatory OR Antifibrillatory Agent OR Agent, Antifibrillatory)) AND TS=(radiofrequency ablation OR Ablation, Radiofrequency OR Radio Frequency Ablation OR Ablation, Radio Frequency OR Radio-Frequency Ablation OR Ablation, Radio-Frequency )) AND AB=(randomized controlled trial OR Randomized OR Placebo OR Random OR randomised ) |
| **Embase** |
| ('atrial fibrillations':ab,ti OR 'fibrillation, atrial':ab,ti OR 'fibrillations, atrial':ab,ti OR 'auricular fibrillation':ab,ti OR 'auricular fibrillations':ab,ti OR 'fibrillation, auricular':ab,ti OR 'fibrillations, auricular':ab,ti OR 'persistent atrial fibrillation':ab,ti OR 'atrial fibrillation, persistent':ab,ti OR 'atrial fibrillations, persistent':ab,ti OR 'fibrillation, persistent atrial':ab,ti OR 'fibrillations, persistent atrial':ab,ti OR 'persistent atrial fibrillations':ab,ti OR 'familial atrial fibrillation':ab,ti OR 'atrial fibrillation, familial':ab,ti OR 'atrial fibrillations, familial':ab,ti OR 'familial atrial fibrillations':ab,ti OR 'fibrillation, familial atrial':ab,ti OR 'fibrillations, familial atrial':ab,ti OR 'paroxysmal atrial fibrillation':ab,ti OR 'atrial fibrillation, paroxysmal':ab,ti OR 'atrial fibrillations, paroxysmal':ab,ti OR 'fibrillation, paroxysmal atrial':ab,ti OR 'fibrillations, paroxysmal atrial':ab,ti OR 'paroxysmal atrial fibrillations':ab,ti) AND ('anti-arrhythmia agents':ab,ti OR 'agents, anti-arrhythmia':ab,ti OR 'anti arrhythmia agents':ab,ti OR 'anti-arrhythmia drugs':ab,ti OR 'anti arrhythmia drugs':ab,ti OR 'drugs, anti-arrhythmia':ab,ti OR 'anti arrhythmics':ab,ti OR 'antiarrhythmia agents':ab,ti OR 'agents, antiarrhythmia':ab,ti OR 'antiarrhythmic drug':ab,ti OR 'drug, antiarrhythmic':ab,ti OR 'antiarrhythmic drugs':ab,ti OR 'drugs, antiarrhythmic':ab,ti OR 'anti-arrhythmia agent':ab,ti OR 'agent, anti-arrhythmia':ab,ti OR 'anti arrhythmia agent':ab,ti OR 'anti-arrhythmia drug':ab,ti OR 'anti arrhythmia drug':ab,ti OR 'drug, anti-arrhythmia':ab,ti OR 'antiarrhythmia agent':ab,ti OR 'agent, antiarrhythmia':ab,ti OR 'antiarrhythmia drug':ab,ti OR 'drug, antiarrhythmia':ab,ti OR 'anti arrhythmic':ab,ti OR 'antiarrhythmia drugs':ab,ti OR 'drugs, antiarrhythmia':ab,ti OR 'cardiac depressants':ab,ti OR 'depressants, cardiac':ab,ti OR 'cardiac depressant':ab,ti OR 'depressant, cardiac':ab,ti OR 'myocardial depressant':ab,ti OR 'depressant, myocardial':ab,ti OR 'myocardial depressants':ab,ti OR 'depressants, myocardial':ab,ti OR 'antifibrillatory agents':ab,ti OR 'agents, antifibrillatory':ab,ti OR 'antifibrillatory agent':ab,ti OR 'agent, antifibrillatory':ab,ti) AND ('radiofrequency ablation':ab,ti OR 'ablation, radiofrequency':ab,ti OR 'radio frequency ablation':ab,ti OR 'ablation, radio frequency':ab,ti OR 'radio-frequency ablation':ab,ti OR 'ablation, radio-frequency':ab,ti) AND ('randomized controlled trial':ab OR randomized:ab OR placebo:ab OR random:ab OR randomised:ab) |
| **CNKI** |
| (主题:房额(精确)) AND(主题: 心房动(精确)) AND (主题:心房纤额(精确)) AND(主题:非瓣膜性房额(精确)) AND (主题: 持续性房(精确))AND (主题:阵发性房(精确)) AND ((主题:抗心律失常药(精确)) AND(主题:抗心律失常药物(精确)) AND (主题: 胺酮(精确))AND(主题:普罗帕酮(精确))) AND ((主题: 消融(精确)) AND (主题: 射频消融(精确))AND(主题:导管消融(精确)) AND(主题 环肺静脉隔离消融(精确))AND(主题: 环肺静脉消融(精确)) ) AND ( (摘要: 随机对照) AND (摘要: 随机) AND (摘要: RCT) ) |
| **Wanfang Database** |
| 主题:(房颤 or 心房颤动 or 非瓣膜性房颤 or 阵发性房颤 or 持续性房颤 or 心房纤颤) and 主题:(抗心律失常药 or 抗心律失常药物 or 胺碘酮 or 普罗帕酮) and 主题:(消融 or 射频消融 or 导管消融 or 环肺静脉隔离消融 or 环肺静脉消融) and 摘要:(随机对照 or 随机 or RCT) |
| **CBM** |
| (("房颤"[常用字段:智能] OR "心房颤动"[常用字段:智能] OR "心房纤颤"[常用字段:智能] OR "阵发性房颤"[常用字段:智能] OR "持续性房颤"[常用字段:智能] OR "非瓣膜性房颤"[常用字段:智能])) AND ("随机对照"[常用字段:智能] OR "随机"[常用字段:智能] OR "RCT"[常用字段:智能]) AND ("消融"[常用字段:智能] OR "导管消融"[常用字段:智能] OR "射频消融"[常用字段:智能] OR "环肺静脉隔离消融"[常用字段:智能] AND "环肺静脉消融"[常用字段:智能]) AND ("抗心律失常药"[常用字段:智能] OR "抗心律失常药物"[常用字段:智能] OR "胺碘酮"[常用字段:智能] OR "普罗帕酮"[常用字段:智能]) |
| **CSTJ** |
| (房颤 OR 心房颤动 OR 心房纤颤 OR 非瓣膜性房颤 OR 持续性房颤 OR 阵发性房颤 AND 抗心律失常药 OR 抗心律失常药物 OR 胺碘酮 OR 普罗帕酮) AND (消融 OR 射频消融 OR 导管消融 OR 环肺静脉隔离消融 OR 环肺静脉消融) AND (随机对照 OR 随机 OR RCT) |

WOS, Web of Science; CNKI, China National Knowledge Infrastructure; CBM, China Biology Medicine; CSTJ, China Science and Technology Journal.