Systematic review and cost-effectiveness evaluation of 'pill-in-the-pocket' strategy for paroxysmal atrial fibrillation compared to episodic in-hospital treatment or continuous antiarrhythmic drug therapy

Martin Saborido C, Hockenhull J, Bagust A, Boland A, Dickson R, Todd D

CRD summary
This review found no studies that assessed the effectiveness of pill-in-the-pocket. Studies that included relevant drugs for treating paroxysmal atrial fibrillation found that flecainide and propafenone had similar effectiveness relating to conversion to normal sinus rhythm up to eight hours. These conclusions should be interpreted cautiously, given the possibility of missing relevant studies and concerns over review methods.

Authors' objectives
This abstract only addresses the clinical effectiveness evaluation based on primary studies in the report.

To assess the effectiveness of 'pill-in-the-pocket' strategy for the treatment of paroxysmal atrial fibrillation in comparison with episodic in-hospital treatment or continuous antiarrhythmic drug therapy.

Searching
MEDLINE and OLDMEDLINE were searched from 1950 to July 2009 for published studies. Search terms were reported. HSRProj, ClinicalTrials.gov, mRCT, BioMed Central, International Clinical Trials Registry Platform and Clinical Study Results Database and NLM Gateway databases were searched for ongoing studies. Reference lists of relevant publications were screened.

Study selection
Randomised controlled trials (RCTs) that compared pill-in-the-pocket strategy (single oral dose) with episodic in-hospital treatment (propafenone, flecainide, beta-blockers, sotalol and amiodarone) or continuous prophylactic antiarrhythmic drug therapy (propafenone, flecainide, beta blockers sotalol and amiodarone) in patients with paroxysmal atrial fibrillation were eligible for inclusion. RCTs that provided data only on a subgroup of their recruited patients were excluded. The eligible secondary comparator was radiofrequency ablation. The review outcomes were mean time to conversion and conversion rates (both of which were measured from atrial fibrillation to normal sinus rhythm) and number of hospital visits.

None of the identified studies compared pill-in-the-pocket strategy with any other treatment. Twelve RCTs identified were relevant to the decision problem as these included relevant drugs for treating paroxysmal atrial fibrillation. Drugs assessed included flecainide, propafenone, digoxin-quinidine and sotalol administered orally or intravenously. Where reported, follow-up ranged from two to 89 hours in most studies; one study reported a mean follow-up of 15 months. Studies were conducted in a hospital setting and published between 1988 and 2004.

Two reviewers independently assessed studies for inclusion.

Assessment of study quality
The authors stated that no quality assessment was performed.

Data extraction
Data were extracted on the mean and standard deviation or event rates. Data were extracted by one reviewer and checked by a second.

Methods of synthesis
The included studies were narratively synthesised.
Results of the review
No studies met the pre-specified inclusion criteria. Twelve RCTs were included in the review as these trials included relevant drugs for treating paroxysmal atrial fibrillation, although they did not include pill-in-the-pocket strategy as an intervention. The total number of included patients was not reported.

Flecainide and propafenone had similar effectiveness relating to conversion to normal sinus rhythm up to eight hours (number of studies not stated). Two studies reported that intravenous flecainide was associated with higher conversion rates than oral flecainide and that oral flecainide and intravenous propafenone were associated with similar conversion rates. One study found that oral sotalol was not as efficacious as intravenous digoxin-quinidine.

Authors' conclusions
No studies were found that assessed the effectiveness of pill-in-the-pocket strategy. Studies that included relevant drugs for treating paroxysmal atrial fibrillation found that flecainide and propafenone had similar effectiveness relating to conversion to normal sinus rhythm up to eight hours and that flecainide was associated with higher conversion rates than oral flecainide.

CRD commentary
This review's inclusion criteria were clear. Limited sources were searched for published studies, so some relevant studies may have been missed. Several relevant databases were searched for ongoing studies. No attempts were made to find unpublished studies and this potentially introduced publication bias. The authors did not state whether language restrictions were applied to the search, which made it difficult to assess the risk of language bias. Sufficient attempts were made to minimise reviewer errors and biases in the processes of study selection and data extraction. A formal quality assessment was not undertaken. No studies met the pre-specified inclusion criteria. The authors identified a number of studies that were relevant to the decision problem. However, it should be noted that none of these studies included pill-in-the-pocket strategy as an intervention of interest. The authors did not investigate the level of clinical heterogeneity between trials. Therefore, it was unclear whether a narrative synthesis approach was appropriate.

Given the possibility of missing relevant studies and some concerns in the review methods, the authors' conclusions should be interpreted with caution.

Implications of the review for practice and research
Practice: The authors stated that there was insufficient evidence to support a recommendation for use of pill-in-the-pocket strategy strategy in patients with paroxysmal atrial fibrillation.

Research: The authors stated that further studies were required to investigate the effectiveness of pill-in-the-pocket strategy for treatment of paroxysmal atrial fibrillation. Further RCTs should identify outcomes of interest such as adverse events and recurrent atrial fibrillation episodes. Patient preferences should be considered in any future research designs.

Funding
NHS Health Technology Assessment Programme, UK.

Bibliographic details

PubMedID
20569652

DOI
10.3310/hta14310
Original Paper URL
http://www.hta.ac.uk/execsumm/summ1431.htm

Other URL
Link to record on HTA database:
http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?AccessionNumber=32010000252&amp;UserID=0
Link to record on NHS EED:
http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?AccessionNumber=22010001424&amp;UserID=0

Indexing Status
Subject indexing assigned by NLM

MeSH
Anti-Arrhythmia Agents /administration & dosage /economics /therapeutic use; Atrial Fibrillation /drug therapy /economics; Cost-Benefit Analysis; Drug Administration Schedule; Great Britain; Hospitalization /economics; Humans; Markov Chains; Models, Economic; Quality-Adjusted Life Years; Randomized Controlled Trials as Topic; State Medicine

AccessionNumber
12010005947

Date bibliographic record published
29/09/2010

Date abstract record published
12/10/2011

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.