TITLE: Outpatient Anticoagulation Clinics for the Therapeutic Monitoring of Patients on Warfarin and Low Molecular Weight Heparins: Clinical and Cost-Effectiveness and Guidelines for Use

DATE: 10 December 2008

RESEARCH QUESTIONS:

1. What is the clinical effectiveness of anticoagulation clinics for the therapeutic monitoring of patients receiving warfarin and low molecular weight heparins?

2. What is the cost-effectiveness of anticoagulation clinics for the therapeutic monitoring of patients receiving warfarin and low molecular weight heparins?

3. What are the guidelines regarding anticoagulation clinics for the therapeutic monitoring of patients receiving warfarin and low molecular weight heparins?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, The Cochrane Library (Issue 4, 2008), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international HTA agencies, and a focused Internet search. Results include articles published between 2003 and November 2008, and are limited to English language publications only. Filters were applied to limit the retrieval to systematic reviews, health technology assessments (HTAs), meta-analyses, guidelines, economic studies, and randomized controlled trials (RCTs). Internet links are provided where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.
RESULTS:

HTIS reports are organized so that the higher quality evidence is presented first. Therefore, HTA reports, systematic reviews, and meta-analyses are presented first. These are followed by economic evaluations, RCTs, controlled clinical trials, observational studies, and evidence-based guidelines.

One HTA, four economic evaluations, and three RCTs were identified regarding the clinical and cost-effectiveness of anticoagulation clinics for the therapeutic monitoring of patients receiving warfarin and low molecular weight heparins. No relevant systematic reviews, meta-analyses, controlled clinical trials, or guidelines were identified.

OVERALL SUMMARY OF FINDINGS:

Results from one HTA found self-management to be at least as effective as outpatient management for maintaining the quality of anticoagulation therapy but more effective than usual care provided by family doctors. Furthermore, two RCTs found outpatient clinics and self-management to be similarly effective for international normalized ratio (INR) control. Another RCT reported that INR values are better controlled in anticoagulation clinic patients than in patients who visit their family physician for anticoagulation management.

Pooled data from one HTA found that compared with usual care or anticoagulation clinics, self-monitoring was associated with significantly fewer thromboembolic events. However there was no significant risk difference for major bleeding events between self-monitoring and usual care. Two studies found no statistically significant differences for hemorrhagic or thromboembolic event rates amongst patients managed by outpatient clinics versus inpatient management and patients managed by family physicians. When compared to patients in an outpatient clinic, another RCT found lower rates of both major complications and minor hemorrhages in the self-management group.

Several studies indicate that the costs associated with outpatient anticoagulation clinics are lower than those associated with usual care. Sullivan et al. found that costs of an anticoagulation management service were reduced by US$2100 when compared to usual care. You et al. concluded that the care provided by anticoagulation clinics in Hong Kong was more cost-effective than usual care for patients receiving warfarin therapy. Anderson et al. calculated the per-patient-per-month cost of outpatient management (taking into account personnel, lab tests, and anticoagulation drug costs) to be US$51.25. A HTA showed that patient self-management is unlikely to be more cost-effective than anticoagulation clinics.

In summary, there is some evidence that outpatient anticoagulation clinics may provide better anticoagulation control when compared with management by family physicians. Self-management of anticoagulation therapy and anticoagulation clinics appear to be equally effective for anticoagulation control. However, available evidence is conflicting for improvements in clinical outcomes including thromboembolic events and major bleeds associated with the use of anticoagulation clinics versus other anticoagulation management strategies. The costs associated with outpatient anticoagulation clinics appear to be lower than those associated with usual care and self-management.
REFERENCES SUMMARIZED:

Health technology assessments

effectiveness and cost-effectiveness of different models of managing long-term oral
anticoagulation therapy: a systematic review and economic modelling. *Health Technol
Assess* 2007;11(38). Summary available:

Systematic reviews and meta-analyses

No literature identified

Economic analyses and cost information

Low-molecular-weight heparin, bemiparin, in the outpatient treatment and secondary
prophylaxis of venous thromboembolism in standard clinical practice: the ESFERA Study.

management services for patients with atrial fibrillation and at high risk of stroke in the US.
*Pharmacoeconomics* 2006;24(10):1021-33. PM:17002484

4. Anderson RJ. Cost analysis of a managed care decentralized outpatient pharmacy
anticoagulation service. *J Manag Care Pharm* 2004;10(2):159-65. PM:15032565

management for patients on chronic warfarin therapy: a Markov model analysis. In: *NHS
Economic Evaluation Database (NHSEED)* [database online]. York (UK): University of
Structured abstract available:
http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?View=Full&ID=22004000067
(accessed 25 Nov 2008)
PM:14652644

Randomized controlled trials

Comparing self-management of oral anticoagulant therapy with clinic management: a

7. Gadisseur AP, Breukink-Engbers WG, van der Meer FJ, van den Besselaar AM, Sturk A,
Rosendaal FR. Comparison of the quality of oral anticoagulant therapy through patient
self-management and management by specialized anticoagulation clinics in the
PM:14638565

quality of oral anticoagulant management by anticoagulation clinics and by family
Guidelines and recommendations
No literature identified

PREPARED BY:
Michelle Clark, BSc, Research Assistant
Charlene Argáez, MLIS, Information Specialist
Health Technology Inquiry Service
Email: htis@cadth.ca
Tel: 1-866-898-8439
APPENDIX – FURTHER INFORMATION:

Guidelines – International


Observational studies


Review articles

Note: see, Patient Self-Management, page 1639

Additional references
