TITLE: Cardiac Imaging in Pre-Operative Patients: Clinical Effectiveness and Guidelines

DATE: 05 March 2015

RESEARCH QUESTIONS

1. What are the clinical benefits and harms of cardiac imaging in low-risk pre-operative patients?

2. What are the evidence-based guidelines for cardiac imaging in low-risk pre-operative patients?

KEY FINDINGS

One systematic review and two evidence-based guidelines were identified regarding the clinical effectiveness of cardiac imaging in pre-operative patients for low-risk surgeries.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2015, Issue 2), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI (Health Devices Gold), Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and February 18, 2015. Internet links were 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.
SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
<thead>
<tr>
<th>Population</th>
<th>Pre-operative patients for low-risk surgeries (any non-cardiac surgery)</th>
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| Intervention | Chest x-ray  
|            | Stress cardiac imaging  
|            | Non-invasive cardiac imaging  
|            | Echocardiograph |
| Comparator | No comparator |
| Outcomes | Clinical benefits and harms  
|           | Change in patient management  
|           | Guidelines |
| Study Designs | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and evidence-based guidelines |

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials and evidence-based guidelines.

One systematic review and two evidence-based guidelines were identified regarding the clinical effectiveness of cardiac imaging in pre-operative patients for low-risk surgeries. No relevant health technology assessments, meta-analyses, or randomized controlled trials were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

One systematic review and two evidence-based guidelines were identified regarding the clinical effectiveness of cardiac imaging in pre-operative patients for low-risk surgeries. No relevant health technology assessments or randomized controlled trials were identified.

A systematic review of the benefits and harms of routine pre-operative testing reported no clinically important difference in complication rates or rates of procedure cancellation among patients who were assessed with an electrocardiogram (ECG) prior to cataract surgery, but there was insufficient evidence for the effect of routine pre-operative testing in all other surgeries and populations studied.

The European Society of Cardiology and European Society of Anesthesiology guidelines for the perioperative cardiovascular management of patients scheduled to undergo non-cardiac surgery suggest that exercise ECG and non-invasive imaging techniques are suitable options for the detection of myocardial ischemia. However, routine pre-operative chest X-ray in the absence of specific clinical indications is not recommended for patients undergoing non-cardiac surgery. Non-invasive testing should be considered for patient counselling, modifications of perioperative management corresponding to type of surgery, anaesthetic technique, and long-
term prognosis. Resting echocardiography is not recommended for patients before intermediate or low-risk non-cardiac surgery, and pre-operative imaging stress testing is not recommended for asymptomatic patients undergoing low-risk surgery, irrespective of their clinical risk.

A guideline published by the Singapore Ministry of Health\textsuperscript{3} recommends that cardiac stress imaging may be considered for pre-operative screening in asymptomatic patients before non-cardiac surgery when functional status is poor or unknown, in patients who are undergoing vascular surgery or intermediate risk surgery who also have one or more clinical risk factors, and when the results of testing will change patient management. Cardiac stress imaging is not recommended for asymptomatic patients undergoing low-risk non-cardiac surgery or for patients undergoing intermediate-risk non-cardiac surgery who do not have any clinical risk factors.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials
No literature identified.

Guidelines and Recommendations

See: 3.6 Non-invasive testing, page 2392

See: 3.4.3 Cardiac Stress Imaging, pages 31–34

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APPENDIX – FURTHER INFORMATION:

Review Articles


Additional References
