INAHTA Briefs

Issue 2006/82

Title **CT and MRI for Selected Clinical Disorders: A Systematic Review of Clinical Systematic Reviews**

Agency **CADTH, Canadian Agency for Drugs and Technologies in Health**
Suite 600, 865 Carling Ave, Ottawa, ON K1S 5S8, Canada;
Tel: +1 613 226 2553, Fax: +1 613 226 5392; publications@cadth.ca, www.cadth.ca

Reference CADTH Technology Report, Issue 59, October 2005. ISBN 1-894978-88-9 (print), 1-894978-88-7 (electronic). Full text: www.cadth.ca/media/pdf/322_ctmri_tr_e.pdf

Aim

To summarize the evidence from systematic reviews (SRs) reporting on the clinical effectiveness of computed tomography (CT) and magnetic resonance imaging (MRI) in investigating specific clinical conditions of the chest, cardiovascular, neurological, and urological systems.

Conclusions and results

Forty-eight articles were included, reporting on 49 SRs that examined CT and MRI for 11 clinical conditions.

Based on studies of the diagnostic accuracy of CT and MRI as compared with traditional gold standard investigations, promising evidence was found for applications in carotid artery disease, peripheral vascular disease, pulmonary embolism, renal artery stenosis, and stroke. Findings were more cautious for cerebral aneurysms, coronary artery disease, and lung cancer screening, while SR evidence was sparse regarding the use of these technologies for investigating headaches, head injuries, and seizures. No SR evidence was found for cerebral arteriovenous malformations or urolithiasis. Evidence of effectiveness from recent systematic reviews indicates that CT and MRI technologies can improve diagnostic certainty in some medical conditions. In other conditions, the evidence was less than compelling, or not available. There was no evidence that CT and MRI technology has an effect on patients' health or management.

Recommendations

Not applicable.

Methods

Published literature from 2000 to November 2004 was identified and retrieved using a well-defined search strategy. References were included if they were SRs, covered the 13 conditions of interest, and examined CT and MRI technologies for investigating these conditions. Two authors independently applied selection criteria in screening. From the included references, information was extracted into evidence tables and analyzed. In addition, all included references were assessed for quality using two separate tools, one developed by Oxman and Guyatt and the other, examining diagnostic imaging efficacy, by Fryback and Thornbury.

Further research/reviews required

Further research could examine the evidence for using CT and MRI to investigate other clinical conditions and focus on various specialized investigative uses of these technologies, eg, CT angiography (CTA), MR angiography (MRA), and therapeutic uses. CT and MRI technology has advanced rapidly, and findings from the systematic reviews identified may not be sufficiently contemporary to be useful for clinicians and decision makers.

Written by Foerster V, Murtagh J, Lentle BC, Wood RJ, Reed MH, Husereau D, and Mensinkai S, CADTH, Canada

ISSN 1654-501X