

Indications justifying the use of imaging for diagnosing patients with primary or secondary headache

English summary

Une production de l'Institut national
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This is the English summary of the guidance entitled Indications justifiant le recours à l'imagerie pour le diagnostic des patients présentant une céphalée primaire ou secondaire published in July 2019.

The complete version of this guidance (in French) is available on the website of INESSS in the Publications section.

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SUMMARY

Introduction

Seeking to improve access to diagnostic examinations and the appropriateness of their use, the Ministère de la Santé et des Services sociaux (MSSS) asked the Institut national d'excellence en santé et en services sociaux (INESSS) to produce reports containing recommendations on clinical situations where diagnostic imaging is frequently used and costly, and for which the rates of inappropriate examinations are likely high.

The appropriateness of using imaging to diagnose headaches in particular could be revised to optimize the use of imaging equipment and services. Currently, in Quebec, head imaging represents close to 30% of all examinations, and a large proportion of the imaging requisitions have to do with headaches. Headache is one of the main reasons for family physician, neurologist and emergency department visits. Approximately 90% of patients consulting for headaches in primary care concern primary headaches and 10%, secondary headaches. In general, most headaches are diagnosed only with a clinical examination and the medical history, with limited use of imaging or laboratory tests. A physical and neurological examination can detect most signs leading to suspicion of secondary headache.

The purpose of this report is to support clinicians, especially primary care clinicians, in their decision to use or not use diagnostic imaging in headache patients (adults and children). Recommendations have been developed from the best scientific evidence and expert consensus. Clinical decision support tools supplement the indications for imaging presented in this report.

The clinical scenarios examined in this report concern only the diagnosis of headache in adults and children. The other patient management aspects, such as treatment and clinical follow-up, are not discussed.

Methods

A systematic search of radiology guidance documents, clinical practice guidelines (CPGs) and systematic reviews (SRs) was conducted to identify recommendations concerning the use of imaging in cases of headache. The criteria for selecting guidelines and guidance documents were as follows: 1) published between 2013 and 2018; 2) original production; 3) based on a systematic analysis of the literature; 4) involving an interdisciplinary group of health professionals; and 5) containing recommendations developed through a formal expert consensus process or during consensus conferences. The guidelines and guidance documents identified were evaluated using the AGREE II instrument, and the quality of the SRs was assessed using the R-AMSTAR tool.

The recommendations made in this report were developed from a systematic extraction and an analysis of the compiled data and were subsequently validated by expert consensus.

Results

Five guidance documents from the United States, France, the United Kingdom, Australia and Canada were used to perform a comparative analysis of the recommendations. In addition, 3 CPGs and 29 SRs containing details on the latest evidence were identified. Clinical signs and symptoms indicative of a secondary cause of headache potentially detectable with imaging and likely to influence clinical management of patients were selected.

This 'red flag' approach is based on maximizing sensitivity (minimizing false negatives). In other words, nearly all patients with a secondary pathology detectable by imaging will have one or more red flags. Conversely, a large number of patients will not have any detectable secondary pathology, even if there is a red flag.

Fourteen clinical situations were selected for adults and seven for children. The members of the expert panel helped validate the recommendations, especially in cases where evidence was not available or where there was no consensus in the literature.

Conclusions

The recommendations developed have the potential to increase the appropriateness of diagnostic imaging use in cases of headache, which accounts for a large proportion of the imaging examinations performed in Québec. Reducing the number of investigations with low diagnostic value could lead to an improvement in access to imaging and in the patients' quality of life and, ultimately, to lower costs for the health care system.

Decision support tools have also been developed to facilitate the implementation of the recommendations.

Recommendations

1. INESSS recommends not using imaging to investigate chronic primary headaches where there are no abnormalities on clinical or neurological examination, or to reassure a patient.
2. INESSS recommends that the use of imaging to investigate a secondary cause of headache be guided by the presence of red flags (presented in the section on [clinical indications](#)) in the following categories:

Main categories of red flags in adults

- Headache that intensifies or changes significantly
- Acute, sudden and intense headache
- Headache associated with substance use
- Headache accompanied by a coagulopathy or the use of an anticoagulant
- Headache in a pregnant or postpartum patient
- Headache associated with recent head injury or trauma
- Headache accompanied by neurological signs or intracranial hypertension
- Headache attributable to an intracranial infection
- Headache in a patient with immunodeficiency or a history of cancer
- New headache in a patient 50 years of age or older
- Positional headache
- Headache associated with physical activity or cough
- Headache associated with facial pain

Main categories of red flags in children

- Atypical, progressive or treatment-refractory headache
- Headache associated with recent head injury or trauma
- Headache accompanied by neurological signs or intracranial hypertension
- Headache attributable to an intracranial infection
- Acute, sudden and intense headache
- Headache in a patient with sickle cell anemia or attributable to a Chiari malformation type I

3. INESSS recommends that the suspected secondary pathology and/or the signs and symptoms justifying the use of imaging (red flags) be specified on every imaging requisition for patients with headaches.

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