



Complete Summary

GUIDELINE TITLE

ACR Appropriateness Criteria™ for diagnostic approach to renal trauma.

BIBLIOGRAPHIC SOURCE(S)

Sandler CM, Amis ES, Bigongiari LR, Bluth EI, Bush WH, Choyke PL, Fritzsche PJ, Holder LE, Newhouse JH, Segal AJ, Resnick MI, Rutsky EA. Diagnostic approach to renal trauma. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun; 215(Suppl): 727-31. [25 references]

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SCOPE

DISEASE/CONDITION(S)

Renal trauma

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Emergency Medicine
Nephrology
Radiology
Urology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of radiologic examinations in the differential diagnosis of renal trauma

TARGET POPULATION

Patients with renal trauma

INTERVENTIONS AND PRACTICES CONSIDERED

1. Abdomen/pelvis radiograph
2. Computed tomography abdomen/pelvis with oral, intravenous, and rectal contrast
3. Intravenous pyelogram
4. Abdominal ultrasound
5. Renal ultrasound
6. Renal perfusion scan
7. Abdominal angiography

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in the diagnosis of renal trauma

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of recent peer-reviewed medical journals, primarily using the National Library of Medicine's MEDLINE database. The developer identified and collected the major applicable articles.

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Delphi Method)
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed to reach agreement in the formulation of the Appropriateness Criteria. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by the participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty (80) percent agreement is considered a consensus. If consensus cannot be reached by this method, the panel is convened and group consensus techniques are utilized. The strengths and weaknesses of each test or procedure are discussed and consensus reached whenever possible.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria and the Chair of the ACR Board of Chancellors.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria™

Clinical Condition: Renal Trauma

Variant 1: Blunt abdominal trauma with microscopic hematuria/no suspicion of associated abdominal injury.

| Radiologic Exam Procedure | Appropriateness Rating | Comments |
|---|------------------------|----------|
| Abdominal/pelvis radiograph | 4 | |
| Computed tomography abdomen/pelvis with oral, intravenous and rectal contrast | 4 | |
| Intravenous pyelogram | 3 | |
| Abdominal ultrasound | 3 | |
| Renal ultrasound | 3 | |
| Renal perfusion scan | 1 | |
| Abdominal angiography | 1 | |
| <p><u>Appropriateness Criteria Scale</u></p> <p>1 2 3 4 5 6 7 8 9</p> <p>1=Least appropriate 9=Most appropriate</p> | | |

Variant 2: Blunt abdominal injury; suspicion of multisystem trauma, with hematuria.

| Radiologic Exam Procedure | Appropriateness Rating | Comments |
|---------------------------|------------------------|----------|
|---------------------------|------------------------|----------|

| | | |
|--|---|---|
| Abdominal/pelvis radiograph | 8 | |
| Computed tomography abdomen/pelvis with oral, intravenous and rectal contrast | 8 | |
| Intravenous pyelogram | 5 | |
| Renal scan | 4 | Not commonly used for initial trauma. |
| Abdominal angiography | 4 | Embolizing bleeders, avulsion of pedicle. |
| Abdominal ultrasound | 3 | |
| Renal ultrasound | 3 | |
| <u>Appropriateness Criteria Scale</u> 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate | | |

Summary

Assessment of the nature and extent of the renal injury is most important in those patients in whom there will be an attempt to avoid exploratory surgery. In hemodynamically stable patients being assessed for wide-impact blunt injury in a major trauma center where computed tomography is available immediately on a 24-hour basis, this goal can most efficaciously be met by abdominal and pelvic computed tomography. In institutions where there would be a significant delay in obtaining high quality computed tomography, it is perfectly acceptable to use diagnostic peritoneal lavage to assess the intraperitoneal viscera, and high dose urography, preferably with tomography, to assess the kidneys. In patients who suffer suspected anterior penetrating renal injury, computed tomography should be used as a first line study if radiographic assessment is desired. Similarly, computed tomography is the study of choice to evaluate the effect of limited posterior stab wounds.

The patient with suspected isolated blunt renal injury is perhaps the most controversial. Most such patients do not have evidence of multisystem trauma but are suspected of renal injury because of hematuria. Studies have demonstrated that the incidence of significant renal injury in this group of patients is low; those with microscopic hematuria alone do not need any radiologic evaluation and in the remainder, urography is probably the study of choice, since it is unlikely to overlook a significant injury. In all patients in whom urography suggests an abnormality, computed tomography should be performed for further assessment unless hemodynamic instability necessitates immediate surgery.

Anticipated Exceptions

In pregnant patients, ultrasound should be considered as a first line of study.

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate selection of radiologic procedures for diagnosis of renal trauma.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1996 (revised 1999)

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria™.

GUIDELINE COMMITTEE

ACR Appropriateness Criteria™ Committee, Expert Panel on Urologic Imaging

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Panel Members: Carl M. Sandler, MD; E. Stephen Amis, Jr., MD; Lawrence R. Bigongiari, MD; Edward I. Bluth, MD; William H. Bush, Jr., MD; Peter L. Choyke MD; Peggy Fritzsche, MD; Lawrence Holder, MD; Jeffrey H. Newhouse, MD; Arthur J. Segal, MD; Martin I. Resnick, MD; Edwin A. Rutsky, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It is a revision of a previously issued version (ACR Appropriateness Criteria™ for renal trauma. Reston [VA]: American College of Radiology (ACR); 1996 Sep. 8 p.).

The ACR Appropriateness Criteria™ are reviewed after five years, if not sooner, depending upon introduction of new and highly significant scientific evidence. The next review date for this topic is 2004.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [American College of Radiology \(ACR\) Web site](#).

Print copies: Available from ACR, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on March 25, 1999. The information was verified by the guideline developer on September 9, 1999. This summary was updated by ECRI on February 12, 2002. It was verified again by the guideline developer on March 25, 2002.

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