Complete Summary

GUIDELINE TITLE

Practice management guidelines for the evaluation of genitourinary trauma.

BIBLIOGRAPHIC SOURCE(S)

Holevar M, DiGiacomo JC, Ebert J, Luchette FA, Nagy K, Nayduch D, Sheridan R, Spirnak JP, Yowler C. Practice management guidelines for the evaluation of genitourinary trauma. Winston-Salem (NC): Eastern Association for the Surgery of Trauma (EAST); 2003. 56 p. [123 references]

COMPLETE SUMMARY CONTENT

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METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

- Renal trauma
- Ureteral trauma
- Bladder trauma
- Urethral trauma
- Renovascular trauma

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Critical Care
Emergency Medicine
Urology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To develop recommendations for diagnosing potential urinary tract injury through appropriate description of the indications, timing, and method of diagnostic imaging performed in patients with suspected urinary tract injury

TARGET POPULATION

Patients with injury to the genitourinary tract after blunt and penetrating trauma

INTERVENTIONS AND PRACTICES CONSIDERED

Renal Trauma

1. Clinical examination (Urine dipstick)
2. Computerized tomography (CT)
3. Intravenous pyelography (IVP)
4. Magnetic resonance imaging (MRI)
5. Ultrasonography (USG)
6. Renal angiogram

Ureteral Trauma

1. Urinalysis
2. Intravenous pyelography
3. Operative exploration
4. Spiral CT

Bladder Trauma

1. Standard CT
2. CT cystography
3. Routine intravenous pyelography or CT of the abdomen

Urethral Trauma

1. Urethrogram
2. Urological work-up

MAJOR OUTCOMES CONSIDERED

- Morbidity
- Complications of urinary extravasation
- Sensitivity and specificity of diagnostic studies

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A computerized search was undertaken using Medline with citations published between the years of 1966 and 2001. Using the search words "genitourinary", "renal", "kidney", "urethra", "renovascular", "trauma", "wounds", and "injury", and by limiting the search to citations dealing with human subjects and published in the English language, we identified over 3,200 articles. From this initial search, case reports, review articles, editorials, letters to the editor, pediatric series, and meta-analyses were excluded prior to formal review. Additional references, selected by the individual subcommittee members, were then included to compile the master reference list of 123 citations.

NUMBER OF SOURCE DOCUMENTS

123

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Class I

Prospective randomized controlled trials

Class II

Clinical studies in which the data was collected prospectively, and retrospective analyses which were based on clearly reliable data. Types of studies so classified include: observational studies, cohort studies, prevalence studies, and case control studies.

Class III

Studies based on retrospectively collected data. Evidence used in this class includes clinical series and database or registry review.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Articles were distributed among the subcommittee members for formal review. A data sheet was completed for each article reviewed which summarized the purpose of the study, hypothesis, methods, main results, and conclusions. The reviewers classified each reference by the methodology established by the Agency for Health Care Policy and Research (AHCPR) of the U.S. Department of Health and Human Services.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Level I

The recommendation is convincingly justifiable based on the available scientific information alone. This recommendation is usually based on Class I data; however, strong Class II evidence may form the basis for a Level I recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, low quality or contradictory Class I data may not be able to support a Level I recommendation.

Level II

The recommendation is reasonably justifiable by available scientific evidence and strongly supported by expert opinion. This recommendation is usually supported by Class II data or a preponderance of Class III evidence.

Level III

The recommendation is supported by available data but adequate scientific evidence is lacking. This recommendation is generally supported by Class III data. This type of recommendation is useful for educational purposes and in guiding future clinical research.

COST ANALYSIS

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

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guidelines are forwarded to the chairmen of the Eastern Association of Trauma ad hoc committee for guideline development. Final modifications are made and the document is forwarded back to the individual panel chairpersons.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of recommendation (I-III) and classes of evidence (I-III) are defined at the end of the "Major Recommendations" field.

Renal Trauma

Level I

There is insufficient Class I and Class II data to support any standards regarding evaluation of renal trauma.

Level II

1. Patients who require urologic imaging after blunt trauma include those with gross hematuria and those with microscopic hematuria in the face of hemodynamic instability. Microscopic hematuria can be reliably detected using urine dipstick, although different brands of dipstick may have different levels of sensitivity and specificity.
2. Computerized tomography (CT) has a higher sensitivity and specificity in the evaluation of blunt renal trauma as compared to intravenous pyelography (IVP) and is the diagnostic modality of choice in imaging patients with suspected blunt renal trauma.
3. Magnetic resonance imaging (MRI) equals CT in correctly grading blunt renal injuries and detecting the presence and size of perirenal hematomas. MRI differentiates intrarenal hematoma from perirenal hematoma more accurately and is able to determine recent bleeding in the hematoma by regional differences in signal intensity. Although MRI can replace CT in patients with iodine allergy and may be helpful in patients with equivocal findings on CT, it should be reserved for selected patients, due to increased cost and increased imaging time.

Level III

1. There is a correlation between degree of hematuria in blunt trauma and likelihood of significant intra-abdominal injury not related to the genitourinary system.
2. Negative ultrasound does not exclude renal injury.
3. There is no correlation between presence and amount of hematuria and extent of renal injury after penetrating trauma.
4. Limited one-shot IVP is of no significant value in assessing penetrating abdominal trauma patients prior to laparotomy, other than to determine the presence of a second kidney prior to nephrectomy.

5. CT should be the primary diagnostic study in penetrating trauma at risk for renal trauma. Renal hematoma area: total body area may be helpful in determining the grade of renal injury.
6. In penetrating renal trauma, after IVP or CT, renal angiogram is the second study of choice because it reliably stages significant injuries and offers the possibility of embolization.

Ureteral Trauma

Level I

There is insufficient Class I and Class II data to support any standards regarding evaluation of ureteral trauma.

Level II

There is insufficient Class II data to support any recommendations regarding evaluation of ureteral trauma.

Level III

1. Urinalysis, IVP, and operative exploration may miss ureteral injuries, requiring a high index of suspicion during celiotomy.
2. Delaying spiral CT for 5 to 8 minutes after contrast infusion may increase the sensitivity in detecting ureteral disruption from blunt trauma.

Bladder Trauma

Level I

There is insufficient Class I and Class II data to support any standards regarding evaluation of bladder trauma.

Level II

1. Routine CT of the abdomen alone (without cystography) is inadequate to detect bladder rupture, even when the Foley is clamped and bladder distended.
2. CT cystography is as accurate as conventional cystography in the detecting bladder rupture and may be used interchangeably with conventional cystography.
3. Gross hematuria, pelvic fluid, pelvic fractures (other than acetabular fractures) on CT should prompt conventional cystography or CT cystography. Drainage films and adequate distension of the bladder with contrast medium increases the sensitivity of cystography in the detection of bladder injuries.

Level III

There are no Level III recommendations for the evaluation of bladder trauma.

Urethral Trauma

Level I

There is insufficient Class I and Class II data to support any standards regarding evaluation of urethral trauma.

Level II

Urethral injury should be suspected when a pubic arch fracture exists and an urethrogram performed. The risk of urethral injury is increased when there is involvement of both the anterior and posterior pelvic arch.

Level III

1. Although blood at the urethral meatus, gross hematuria, and displacement of the prostate are signs of disruption and should prompt urologic work-up, their absence does not exclude urethral injury. Successful passage of a Foley does not exclude a small urethral perforation.
2. Although the female urethra is relatively resistant to injury, it should be suspected in patients with either vaginal bleeding or external genitalia injury or with severe pelvic fractures and incontinence problems.

Renovascular Trauma

Level I

There is insufficient Class I and Class II data to support any standards regarding evaluation of renovascular trauma.

Level II

There is insufficient Class II data to support any recommendations regarding of renovascular trauma.

Level III

There is insufficient Class III data to support any recommendations regarding evaluation of renovascular trauma.

Definitions:

Rating Scheme for Strength of Recommendations

Level I

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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate diagnosis of urinary tract injury
- Avoidance of morbidity subsequent to delayed recognition of urinary tract injury

POTENTIAL HARMS

Not stated

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

2003

GUIDELINE DEVELOPER(S)

Eastern Association for the Surgery of Trauma - Professional Association

SOURCE(S) OF FUNDING

Eastern Association for the Surgery of Trauma (EAST)

GUIDELINE COMMITTEE

EAST Practice Management Guidelines Workgroup

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Work Group Members: Michele Holevar, MD; J. Christopher DiGiacomo, MD; James Ebert, MD; Fred A. Luchette, MD; Kim Nagy, MD; Donna Nayduch RN; Rob Sheridan, MD; J. Patrick Spirnak, MD; Charles Yowler, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site.

Print copies: Available from the Eastern Association for the Surgery of Trauma Guidelines, c/o Fred Luchette, MD, Loyola University Medical Center, Department of Surgery Bldg. 110-3276, 2160 S. First Avenue, Maywood, IL 60153; Phone: (708) 327-2680; E-mail: fluchet@lumc.edu.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Utilizing evidence based outcome measures to develop practice management guidelines: a primer. Allentown (PA): Eastern Association for the Surgery of Trauma; 2000. 18 p. Electronic copies: Available from the Eastern Association for the Surgery of Trauma (EAST) Web site.

An excerpt is also available:

- Pasquale M, Fabian TC. Practice management guidelines for trauma from the Eastern Association for the Surgery of Trauma. J Trauma 1998 Jun;44(6):941-56; discussion 956-7.

Print copies: Available from EAST Guidelines, c/o Fred Luchette, MD, Loyola University Medical Center, Department of Surgery Bldg. 110-3276, 2160 S. First Avenue, Maywood, IL 60153; Phone: (708) 327-2680; E-mail: fluchet@lumc.edu.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 21, 2004. The information was verified by the guideline developer on August 5, 2004.

COPYRIGHT STATEMENT

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