TITLE: Antibiotic Prophylaxis for the Prevention of Bacteremia and Septicemia in Patients Undergoing Transrectal Ultrasound Biopsy: Clinical Effectiveness, Risk Factors, and Guidelines

DATE: 25 February 2011

RESEARCH QUESTIONS

1. What is the clinical effectiveness of antibiotic prophylaxis for the prevention of bacteremia and septicemia in patients undergoing transrectal ultrasound biopsy for suspected prostate cancer?

2. What is the clinical evidence for patient risk factors associated with bacteremia and septicemia following transrectal ultrasound biopsy for suspected prostate cancer?

3. What are the evidence-based guidelines regarding antibiotic prophylaxis for the prevention of bacteremia and septicemia in patients undergoing transrectal ultrasound biopsy for suspected prostate cancer?

KEY MESSAGE

Three of the included publications indicate a single dose of oral antibiotics is sufficient for antibiotic prophylaxis prior to transrectal ultrasound biopsy. Limited information was found regarding patient risk factors associated with infection from urological procedures.

METHODS

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 1, 2011), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI (Health Devices Gold), EuroScan, international health technology agencies, and a focused Internet search. The search was limited to English language articles published between January 1, 2006 and February 10, 2011. No filters were applied to limit the retrieval by study type. 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.

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.

Two systematic reviews of which one included a meta-analysis, three randomized controlled trials (RCTs), and two evidence-based guidelines were identified regarding antibiotic prophylaxis for the prevention of infections (bacteremia and septicemia specifically mentioned in some instances) in patients undergoing transrectal ultrasound (TRUS) biopsy for suspected prostate cancer. No relevant health technology assessments were identified. Additional articles of potential interest can be found in the appendix.

OVERALL SUMMARY OF FINDINGS

The results of the included systematic reviews\textsuperscript{1,2} were not consistent. The first review\textsuperscript{1} concluded that antibiotic prophylaxis did not decrease the incidence of bacteremia following TRUS biopsy. The second review\textsuperscript{2} determined there was moderate to high level evidence favoring antibiotic prophylaxis for patients undergoing prostate biopsy.

The RCTs\textsuperscript{3-5} reported little difference in post-procedure infection rates among all antibiotic strategies studied. Two studies\textsuperscript{5,4} concluded that a single prophylactic dose of antibiotics were as effective as a three day treatment course. These studies compared differing doses of ciprofloxacin\textsuperscript{3} and intramuscular ceftriaxone with differing doses on ciprofloxacin.\textsuperscript{4} The third study\textsuperscript{5} compared two day treatment with 300 mg tosufloxacin tosilate, and 200 mg levofloxacin twice daily for two days. The authors concluded the two regimes were equally effective.

The two included guidelines\textsuperscript{6,7} both recommend a single dose or day of treatment with antibiotic prophylaxis prior to TRUS biopsy. There is limited evidence to support one antibiotic regime over another, but the guidelines suggests fluoroquinolones, trimethoprim with or without sulfamethoxazole, and perhaps metronidazole are appropriate choices for prophylaxis.\textsuperscript{6,7} Risk factor for infection following urological surgery may include: advanced age, insufficient nutrition, immune issues, diabetes, pre-existing infection, smoking, or excess body weight.\textsuperscript{6}
REFERENCES SUMMARIZED

Health technology assessments
No literature identified.

Systematic reviews and meta-analyses


Randomized controlled trials


Guidelines and recommendations


See: Transrectal prostate biopsy (prophylaxis indicated in all patients), page 19
Summary available from:
http://www.guideline.gov/content.aspx?id=12210&search=prostate+transrectal

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APPENDIX – FURTHER INFORMATION:

Non-randomized studies


Clinical practice guidelines

See: 3. Antibiotic Prophylaxis, page 4