

DIAGNOSTIC TEST UNIT

Diagnosis of Urinary Tract Infection

Objectives:

By the end of this module, the participant will be able to critically appraise an article about a diagnostic test. Specifically, the participant will be able to:

1. Assess the risk of bias in an article about a diagnostic test
2. Calculate and interpret likelihood ratios (LRs)
3. Determine the applicability of a diagnostic test to patient care

Assignment:

1. Read the clinical scenario
2. Compose a well-built clinical question about the diagnostic problem
3. Complete a literature search using the headings from your clinical question and bring the results of your search to the session
4. Read the Users' Guides to the Medical Literature reference articles (see below)
5. Complete the Users' Guides to the Medical Literature worksheet
6. Determine the applicability of this diagnostic test to the care of the patient in the clinical scenario

Clinical Scenario:

You are the internist on-call and have been asked by the emergency room physician to see a 64-year old woman presenting with a 3-day history of urinary frequency, worsening confusion, and a fall earlier that evening. She has a past medical history of diabetes, hypertension, previous ischemic stroke, seizures, and mild cognitive impairment. The patient's carbamazepine dose was adjusted from 400mg/day to 600mg/day two weeks before presentation. On examination, she is disoriented, has a temperature of 37.9 degrees Celsius, and is hemodynamically stable. The physical examination is otherwise non-contributory.

Initial investigations reveal an elevated capillary blood glucose of 20 mmol/L. A urine sample has been sent for bacterial culture and the urinalysis is testing positive for the presence of nitrites on dipstick. The rest of the urinalysis, as well as a complete blood count and serum chemistry, are unremarkable.

You are hesitant to start the patient on antibiotics for treatment of a urinary tract infection because you are not convinced of the diagnosis on history and physical examination, nor by the positive nitrites on urinalysis.

However, the medical student you are supervising asks: “I thought positive nitrites were diagnostic of a urinary tract infection shouldn’t we be starting this patient on antibiotics?”

You realize that you are not aware of the diagnostic properties of nitrites on urinalysis. A PubMed search for the MeSH terms “urinary tract infections”, “nitrites”, and “emergency service, hospital” turns up the attached article by Leman that looks pertinent.

Enclosed Materials:

1. Leman P. Validity of urinalysis and microscopy for detecting urinary tract infection in the emergency department. *European Journal of Emergency Medicine* 2002;9:141-147.
2. Guyatt G, Drummond R, *Users’ Guides to the Medical Literature: A Manual for Evidence Based Clinical Practice*, 3rd Edition (JAMA). New York, NY: The McGraw-Hill Companies, Inc, 2015. Chapter 16, Diagnostic Tests (419 – 438).
3. Worksheet for the evaluation of an article on Diagnostic Tests.