TOOLS FOR PRACTICE #324 | October 3, 2022

TOOLS FOR PRACTICE

PEER

Is booking an urgent UTI appointment the best sign of a UTI?

CLINICAL QUESTION

What helps in diagnosing symptomatic uncomplicated urinary tract infections (UTI) in adult women?

BOTTOM LINE

Individual symptoms and leukocytes on urinalysis generally add little to diagnosis. Presence of nitrites increases the probability of UTI, but their absence means little. About 60% of women presenting to primary care with possible UTI have a UTI (before any history, physical or testing). A single urine culture likely misses cases, meaning prevalence is even higher.

EVIDENCE

- Prevalence of UTI: In primary care, 49%-79% women presenting with possible UTI have a UTI depending on criteria for positive culture.[1] Others found average prevalence of 55%, 59%, 40-60%.[2-4]
- UTI symptoms: 4 systematic reviews[1,3-5] (4-16 studies, 948-3711 women) in family practice or emergency departments. The largest[1] in primary care pooled data with 16 studies and 3711 patients:
    - Frequency: Positive likelihood ratio (LR+)=1.09 and Negative Likelihood Ratio (LR-)=0.58
    - Dysuria and urgency similar: LR+= 1.17-1.22, LR-= 0.61-0.7
    - Others found similar[3-5] with highest LR+=2.3 for any symptom.[4]

    - Therefore, clinician elicited symptoms are not very helpful.
- Urine dip (urinalysis): 6 systematic reviews[2-4,6-8] (4-43 studies, 948-12,554 women). The largest pooling primary care data[3] (11 studies, 2813 patients):
    - Leukocytes (≥1+):[3] LR+=1.4 and LR-=0.44
        - Others[2,4,6,7] found LR- similar but LR+=1.0-4.9.
        - Overall, leukocytes not very helpful.
    - Nitrite (≥1+):[3] LR+=6.5 and LR-=0.58
        - Others[2,4,6,7] found LR- similar and LR+=1.5-29 (highly inconsistent).
        - Overall, nitrites are helpful 'ruling-in' when positive; not helpful "ruling-out" if negative.
    - Blood (≥1+):[4] LR+=2.1 and LR-=0.3
- Many limitations, examples include no pooling,[4,6] differing (10^2-10^8) colony forming units as culture gold standard,[2,6,7] older than 30 years,[8] and differing populations/asymptomatic patients.[7]

CONTEXT

- Urine culture is an imperfect 'gold' standard (likely misses cases). Examples:
    - Of 220 symptomatic women, 80% had a positive culture but 96% were *E. coli* positive on Polymerase Chain Reaction (PCR).[9]
    - Of 42 untreated symptomatic women with initially negative cultures, 31% had a positive culture within 6 weeks.[10]
- Likelihood ratios provide more information than sensitivity/specificity.
    - LR+ for making diagnosis: ≥10 very helpful, 5-9.9 good, 2-4.9 moderate help and <2 provides little help.
    - LR- for ruling-out diagnosis: ≤0.1 very helpful, 0.11-0.2 good, 0.21-0.5 moderate help and >0.5 provides little help.

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