Rationalising the use of investigation for urinary tract infections: Analysis of 700 patients and proposal for a diagnostic algorithm.

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Abstract

Aims: To evaluate the diagnostic yield of investigations performed on patients with a history of urinary tract infections (UTI). Methods: A retrospective review was conducted on patients who underwent cystoscopy and imaging for a history of UTI between 2014-2019 in a single UK teaching hospital. Data was collected on demographics, cystoscopy and radiological findings requiring further management. The cohort was stratified by age, gender, and a confirmed history of recurrent UTI (rUTI). The subsequent algorithm was re-tested in a second cohort to validate its use. Results: 700 patients were included in the primary analysis, 427 female and 273 males. 331 meet the criteria of rUTI. The median age was 64y(18-97). Imaging abnormalities were equally frequent in males 6.3%(15/241) and females 8%(30/380) and the majority noted in patients aged [?]55y, 30/45(66.7%). Amongst those who did not meet the definition of rUTI, abnormal imaging was identified in 5-7% regardless of age group and gender. Cystoscopy abnormalities (n=24) were twice more likely in males, 5.5%(15/273) than females, 2%(9/427). 88%(21/24) were identified in patients [?]55y. There were no positive findings in women <55y. Applying baseline imaging but confining cystoscopy to those aged [?]55y and men with a confirmed history of rUTI would have saved 44% of procedures, missed no abnormalities with an overall diagnosis detection rate of 9.8%(69/700). This algorithm was validated in a separate cohort of 63 patients; applying it would have saved 46%(29/63) of cystoscopies with a positive diagnostic rate of 9.5% and no missed findings. Conclusion: To our knowledge this is one of the largest studies reporting the outcomes of investigations for UTI and rUTI. Our result suggests that imaging is a useful baseline assessment, but cystoscopy should be limited to specific subgroups. We propose and validate a simple decision algorithm to manage investigations for referrals for UTI in secondary care.

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