

Microhematuria in Postmenopausal Women: Adherence to Guidelines in a Tertiary Care Setting

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Purpose: In 2012 the AUA (American Urological Association) released a revision of the asymptomatic microscopic hematuria guidelines. Our study objectives were to assess adherence to these guidelines and describe the prevalence of urinary tract malignancy in postmenopausal women at our institution.

Materials and Methods: This is a cross-sectional analysis of women older than 55 years evaluated at the Division of Urogynecology or Urology from August 2012 to August 2014 for a diagnosis of asymptomatic microscopic hematuria. Women who underwent evaluation for 3 or more red blood cells per high power field on microscopic urinalysis were considered to have true asymptomatic microscopic hematuria. Those evaluated after a dipstick test with blood who had fewer than 3 red blood cells per high power field on urinalysis or no urinalysis were considered positive dipstick. Demographics, laboratory values, imaging results and cystoscopy findings were extracted from electronic medical records.

Results: Our study population included 237 women with a mean \pm SD age of 67.1 ± 8.3 years. In our overall population 169 of 237 women (71.3%) had true asymptomatic microscopic hematuria, 48 (20.3%) had a positive dipstick test and 20 (8.4%) underwent evaluation in the setting of urinary tract infection. We detected 3 urinary tract malignancies (1.4%). One kidney cancer was identified in a 56-year-old current smoker with a urine dipstick result of 1+ blood. Bladder cancer was detected in a 58-year old smoker with 6 red blood cells per high power field on urinalysis and in a 64-year-old nonsmoker with 42 red blood cells per high power field on urinalysis.

Conclusions: In postmenopausal women evaluated for asymptomatic microscopic hematuria the overall prevalence of urinary tract malignancy was low at 1.4%. Of our population 28.7% underwent evaluation without meeting guideline criteria for asymptomatic microscopic hematuria. This demonstrates an opportunity to improve adherence to existing guidelines to provide high quality care and avoid unnecessary expensive testing.

Key Words: urinary tract, hematuria, morphological and microscopic findings, postmenopause, practice guideline

THE prevalence of AMH ranges from 2% to 30% depending on the definitions used, and the age and gender of the population studied.¹ AMH is

clinically significant as it may be a sign of underlying urinary tract malignancy, including bladder and upper tract urothelial cancer. However

Abbreviations and Acronyms

AMH = asymptomatic MH
MH = microscopic hematuria
rbc/hpf = red blood cells per high power field
UTI = urinary tract infection

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there is often controversy regarding which patients should be investigated and whether similar guidelines should be used for male and female patients.^{2,3} In 2012 the AUA revised the AMH guidelines to maximize detection rates of urinary tract malignancies but unfortunately the guidelines do not explicitly address gender specific recommendations.¹ In summary the guidelines propose a thorough evaluation of any patient with 3 or greater rbc/hpf in 1 properly collected urinary specimen in the absence of an obvious benign cause.¹ They recommend cystoscopy for all patients older than 35 years as well as upper tract imaging with multiphasic computerized tomography urography. Since microhematuria may be intermittent even when caused by malignancy, the guidelines specifically now require only 1 positive urine sample as opposed to the 2001 guidelines, which required AMH in 2 of 3 samples.⁴

These recommendations may be appropriate in some patient populations but postmenopausal women pose a unique challenge. Bladder cancer is 3 to 4 times less common in females than in the equivalent male population⁵ while the prevalence of microhematuria is as high as 20.1% in postmenopausal women, presumably due to factors such as pelvic organ prolapse or vaginal atrophy.⁶ The AUA guidelines are vague as to how to consider these potentially confounding conditions in postmenopausal women. Many clinicians pursue full AMH evaluations even when vaginal prolapse and atrophy are present, possibly leading to unnecessary expensive testing and undue patient concern.

Furthermore, data show that in the primary care community few patients with appropriately diagnosed AMH undergo complete evaluations.⁷ However, there are limited data on adherence of the urological community to the AUA diagnostic criteria before initiating an AMH evaluation.

The objective of this study was to describe adherence to AUA AMH guidelines by urology and urogynecology providers in a population of postmenopausal women at a tertiary care center. Additionally we sought to assess the prevalence of urinary tract malignancy in our population of postmenopausal women.

MATERIALS AND METHODS

After receiving institutional review board approval we performed a cross-sectional analysis of postmenopausal women evaluated for AMH at Duke University Medical Center. We used our electronic medical records to identify women who were evaluated at the Division of Urogynecology or Urology for ICD-9 codes 599.71 (gross hematuria), 599.7 (hematuria), 599.70 (hematuria, unspecified) and 599.72 (microscopic hematuria) from August 2012 to August 2014. For purposes of our analysis we only included women 55 years old or older. After medical

records were reviewed women with gross hematuria were excluded from analysis. The AMH diagnosis was assigned by the clinician based on a urine specimen sent from the initial office visit or based on referral diagnosis for a new patient consultation.

Demographics, medical and surgical histories, laboratory results, cystoscopy findings, and imaging results were extracted from the medical record. For our study the degree of hematuria was ascertained from the first positive urinalysis if multiple positive urinalyses were found. The AUA recommends further evaluation for AMH, defined as 3 or more rbc/hpf on microscopic urinalysis, when benign causes such as UTI have been excluded. Women who underwent evaluation based on these guidelines were considered to have true AMH. Those who were evaluated after a dipstick test with any blood and a negative microscopic urinalysis (fewer than 3 rbc/hpf) or no microscopic urinalysis were considered to have a positive dipstick test. We also assessed for concomitant UTI based on urine culture at the time of urinalysis or dipstick analysis. A complete evaluation was defined according to the AUA AMH guidelines as cystoscopy and upper tract imaging via multiphase computerized tomography urography.

Data were analyzed with SPSS®, version 22.0. Results are presented as the mean and SD for continuous normally distributed variables, and the median and full range for continuous, not normally distributed variables. Categorical variables are presented as the count and percent.

RESULTS

During our 2-year study period we identified 348 hematuria diagnoses in women older than 55 years. After excluding those with gross hematuria our study population included 237 women with mean age of 67.1 ± 8.3 years. The majority of women were white (74.7%), nonsmokers (57.4%) and overweight (mean body mass index 28.1 ± 5.9 kg/m²). Irritative voiding symptoms, defined as self-reported urinary urgency, frequency or nocturia, were reported in 107 of 237 patients (45.1%) while 36 (15.2%) met 1 definition of recurrent UTI, including 1) current antibiotic prophylaxis use, 2) 2 or more documented positive urine cultures in the last 6 months, or 3) 3 or more positive urine cultures in the last year.⁸ Oral or vaginal estrogen was used by 62 of the 237 patients (27.0%).

Only 150 women (63.3%) underwent a full genitourinary examination documenting vaginal tissue quality and the presence of prolapse. Of these 150 patients 90 (60.0%) had objective atrophy. In this group there was no prolapse in 134 patients (89.3%) and only 17 (11.3%) had stage II or greater prolapse on examination.

The 228 women who underwent microscopic urinalysis at some point in the evaluation had a mean \pm SD of 10.9 ± 14.8 rbc/hpf (range 0 to 117). Of the 228 patients 40 (17.5%) had fewer than 3 rbc/hpf,

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