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Paper Alert

Urologists and Advanced Practice Providers Evaluating Hematuria

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Well over 60% of the counties in the United States lack a practicing urologist [1]. This problem is growing as our population ages and has a greater need for urologic care. There are many proposed solutions including loan forgiveness programs to graduating urology residents who have built up large debts for their education to practice in rural and underserved communities, reducing the time in training required for foreign medical graduates to gain board certification so they may practice in such communities, programs educating primary care physicians in basic aspects of evaluating and managing common urologic conditions to potentially reduce or delay referrals to urologists, and having advanced practice providers (APPs) work with urologists (or independently) seeing both return and new patients with common urologic conditions to initiate appropriate evaluation, and at times treatment. Thus, it is relevant that Hyman, et al. reviewed differences (and similarities) between urologists and APPs in evaluating a very common urologic problem, hematuria [2]. They used data from commercial health insurance claims (IBM MarketScan Commercial and Medicare databases [3]) to examine 3 and 6-month outcomes between October, 2015 and December, 2020 for quality and cost of care. Hematuria was chosen not only because it is a very common condition seen by urologists, but also because there are clear guidelines for its evaluation and management endorsed by several societies (e.g. the American Urological Association [*AUA*] [4] and the American College of Physicans [5]).

The methodology included defining hematuria diagnoses and type of visit through International Classification of Disease, tenth revision (ICD-10) and Current Procedural Terminology codes. Hematuria was classified as Gross, Microscopic or Unspecified, and age and sex (male or female) of patients were defined. Charlson Comorbidity Index (0, 1, 2, 3, $\geq$ 4.) was determined by the presence of at least one claim in the year before the diagnosis of hematuria in order to adjust for baseline health, and baseline health expenditures (in that prior year) were calculated as the sum of all payments.

Physicians in the MarketScan database are listed by specialty (e.g. urologists), but for APPs, who frequently move from one specialty to another (e.g. primary care, emergency medicine) which often see patients with hematuria, a way of identifying those primarily working in urology during the time of interest had to be developed (APPs are listed by their degree – Nurse Practitioner (NP) or Physician Assistant (PA) – but not by their practice subspecialty). Thus, to assign the urology specialty to an APP, the most common diagnosis codes in outpatient professional claims by urologists were identified and matched to APPs who had similar common diagnosis codes (e.g. "Benign prostatic hyperplasia with lower urinary tract symptoms"). The outcomes of interest evaluated were receipt of a cystoscopic procedure, relevant imaging study, bladder biopsy procedure, hospitalization, and bladder cancer diagnosis

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within 6 months of the initial visit. Out-of-pocket spending (defined as the sum of coinsurance, copayments, and deductibles) and total payments were calculated.

Over 97% of patients with a hematuria diagnosis ($N = 58{,}236$) were initially seen by 6,914 unique urologists, and 2.8% ($N = 1{,}687$) by 532 unique urologic APPs. The authors found that nearly 44% of patients seen by urologists underwent cystoscopy within 6 months of their initial visit while 34% seen by APPs did. Also, imaging, bladder biopsy, and bladder cancer diagnosis all occurred later with patients seen by APPs, usually on the order of 1–4 weeks. However, by 6 months there were no differences between urologists, NPs, or PAs in the risk that patients would be diagnosed with bladder cancer. The total healthcare payments and out-of-pocket costs (as defined above) were similar between urologists and NPs but higher with PAs compared with urologists.

More patients seen by urologists were diagnosed with bladder cancer (3.5% vs 2.6% for APPs, $p = 0.032$) and on average the diagnosis was achieved 2 weeks earlier than with patients originally seen by APPs, which may reflect scheduling issues and the need for consultation for cystoscopy and surgery if an APP saw the patient first. In general, however, APPs saw patients who were significantly younger ($p < .001$) and more often female (62% for APPs vs 51% for urologists, $p < 0.001$) than urologists did, likely contributing to the higher proportion of bladder cancer cases initially seen by urologists.

While the authors went through considerable effort to analyze these data, it is reassuring that despite slightly longer times to diagnostic procedures and imaging, that the ultimate diagnosis of bladder cancer was similar between those (urologists vs APPs) who initiated the evaluation. Partially this is because only 3.5% of all patients with hematuria (even with eliminating a variety of preconditions) had bladder cancer as the diagnosis, so confidence intervals crossed 0 between the groups of providers.

The authors point out limitations in their analyses, the most obvious of which is the empirical method they used to identify urologic APPs, and appropriately suggest the need for a specialty identifier for APPs in claims data. They also note that their data antedated the new AUA guidelines on hematuria evaluation, which are far more risk adjusted than prior iterations [4]. Moreover, they acknowledge that patient risk factors for bladder cancer (e.g. smoking status, occupational exposures, etc.) were not available in the data base. As they mention, it is quite possible that urologists took on the higher risk patients and sped them through the evaluation.

However, there are several characteristics of hematuria that the database does not include – such as the frequency (recurrence) of hematuria, its degree (beyond Gross or Microscopic), its severity and related symptoms (e.g. clot retention, dysuria). These factors may influence the urgency of a urologic referral (and impact who sees the patient first and the speed of the evaluation) but could not be analyzed for. Moreover, the presence of conditions which can cause hematuria acutely such as urolithiasis, subclinical trauma, acute glomerulonephritis, urinary infections, etc., and what their relative distribution between initial visit with urologists and APPs was, may have been in the database but was not reported by the authors. Finally, when defining out-of-pocket costs, more than just medical expenses need to be considered, including distance traveled, means of transportation, time off from work for patients and their families, etc., which the database does not contain.

Despite the obvious limitations of using claims data, the authors have taken on a critical question – are APPs providing the same quality and value of care as urologists for common urologic conditions? Specialty specific training of APPs is not remotely as well regulated or in depth as it is for urology residents and urologists despite more urologic work being taken on by APPs, so our understanding of their performance is critical for improving urologic care and access for all patients.

CONFLICT OF INTEREST

The author has no conflicts of interest to report.

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