

Factors Affecting the Completion of Genitourinary Physical Examinations Prior to Urologic Consultation

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Background: Proper instruction during medical training regarding performing adequate physical examinations prior to urologic consultations greatly improves patient care. We evaluated the frequency of genitourinary (GU) physical examinations performed prior to urologic consultation to determine the influence of factors affecting the completion of these examinations.

Methods: Between January 2013 and December 2014, 1,596 consultations were requested by primary providers and completed by the urology department at a major tertiary care teaching institution. We reviewed patient medical records retrospectively and recorded the number of GU examinations performed prior to consultation. Patient demographics were evaluated for trends in the rates of examination. A total of 9 available urology residents saw at least one consult each.

Results: We identified a total of 1,596 urologic consultations during the study period, of which 233 of 407 (57.2%) (51 female and 182 male patients) received GU examinations prior to the urologic consult in the emergency department (ED) and 394 of 1,189 (33.1%) (118 female and 276 male patients) received GU examinations by the inpatient care team. Staff in the ED were 3.11 times more likely to perform a GU examination on a male patient than a female patient, and the inpatient teams were 1.48 times more likely to perform a GU examination on a male patient than a female patient. The likelihood of examination by either team was low in patients aged ≥ 65 years.

Conclusion: Prior to urologic consultation, GU examinations are inconsistently performed. This variability may affect patient care and could be the subject of a future study.

Keywords: *Inpatients, physical examination, referral and consultation, urology*

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INTRODUCTION

A comprehensive history and physical examination is a vital aspect of patient care. Despite patients' urologic concerns, the documentation of genitourinary (GU) examinations of patients for whom a urology consultation has been requested is often inconsistent, incomplete, or simply overlooked. The essentials of a diagnosis lay within the information obtained directly from the patient's bedside, yet as physicians progress into their specialties, this salient feature can be lost:

The medical history is the cornerstone of the evaluation of the urologic patient, and a well-taken history will frequently elucidate the probable diagnosis. . . . A complete and thorough physical examination is an essential component of the evaluation of patients who present with urologic disease. Although it is tempting to become dependent on results of laboratory and

radiologic tests, the physical examination often simplifies the process and allows the urologist to select the most appropriate diagnostic studies.¹

Few studies have evaluated whether comprehensive GU examinations are conducted prior to urologic consultations in a tertiary care treatment center. Existing studies are limited by small patient cohorts during short time intervals, making a broad analysis of the trends in examination challenging.² We sought to determine the occurrence of GU examinations performed on patients before a urologic consultation and to understand which factors influence whether GU examinations are performed. Because of the sensitive nature of GU examinations and the varying comfort level of practitioners in other specialties with the intricacies of such an examination, we hypothesized that both emergency department (ED) and primary inpatient treatment teams would defer a GU examination prior to

requesting a urologic consultation and that the likelihood of performing such an examination would be contingent on various demographic variables such as patient sex and age.

METHODS

We examined all consultation requests to the urology service between January 1, 2013 and December 31, 2014 (2 full years). Urologic consultations at our institution are ordered through an electronic medical record system (Epic, Epic Systems Corporation). Patients who require a consultation by the urology department are evaluated by the primary resident on call and presented to the patient's primary urologist or the staff urologist on call. This procedure applies to both the inpatient and ED patients who are seen by the urology service. Our institution has no unique urology consult service. The hospital studied is a major metropolitan tertiary care teaching institution in southeast Louisiana. The department of urology at this institution comprises 11 attending urologic surgeons and 3 advanced practice providers. Five residents (postgraduate year [PGY] 2 to PGY 5) are on service at any given time, and 9 of 9 possible urology residents saw at least one consult.

Institutional review board approval was obtained from Ochsner Health System, a part of Ochsner Clinic Foundation.

We performed a retrospective medical record review to compile a database of demographic and clinical information, including whether a GU examination was performed prior to the requested consultation (preconsult GU examination). For the purposes of this study, a GU physical examination included a genital examination and/or a digital rectal examination. We also included limited examinations relevant to the consultation; for example, documentation of costovertebral angle tenderness in the case of an obstructing ureteral stone or characteristics of urine in the case of gross hematuria or clot retention. Documentation of "urethral catheter in place" did not constitute an examination. The primary reasons for urologic consultation (as determined by record reviewers) and patient demographics were also recorded and reviewed. Patient age was categorized as 0-40 years, 41-64 years, and ≥ 65 years (reference group).

Statistical Analysis

We used frequencies for categorical variables to characterize the total patient sample and determine the proportion of primary reasons for consultation. Multivariate logistic regression analysis and the corresponding 95% confidence interval (CI) were used to determine the association between patient characteristics and preconsult GU examination based on location (ED vs inpatient), sex (male vs female), and age. Statistical significance was set at $P < 0.05$. The data were analyzed using SAS, v.9.4 (SAS Institute, Inc.).

RESULTS

A total of 1,596 urologic consultations were ordered during the study period. Patient age ranged from 19-102 years (mean 60.5 years), 66.1% (1,055) of patients were male, and 33.9% (541) of patients were female. The most common reasons for consultation of the 1,596 patients were other (503 [32%]), urinary retention (303 [19%]), urolithiasis

(188 [12%]), gross hematuria (178 [11%]), and hydronephrosis (152 [10%]). Table 1 shows the proportion of GU physical examinations stratified by evaluating team and primary reason for consultation. Examples of reasons for consults listed under other included urinary incontinence, phimosis, paraphimosis, and priapism.

Location

In the ED, a GU physical examination was documented for 57.2% of patients (233/407). For inpatients, a GU physical examination was documented for 33.1% of patients (394/1,189). More than 50% of patients with diagnoses of gross hematuria, traumatic Foley catheter, or urinary tract infection received a GU physical examination in the ED, whereas $< 36\%$ of patients with the same diagnoses received a GU physical examination by the inpatient team.

Sex

Overall, 43.4% of male patients (458/1,055) and 31.2% of female patients (169/541) had a preconsult GU examination. When subdivided by location, in the ED, 40.2% of females (51/127) and 65.0% of males (182/280) were examined prior to consultation by the urology service, totaling 57.2% (51 female and 182 male) of the 407 patients from the ED. For inpatients, 28.5% of females (118/414) and 35.6% of males (276/775) were examined prior to consultation, totaling 33.1% (118 female and 276 males) of the 1,189 patients from the inpatient teams. In the ED, males were 3.11 times more likely (95% CI, 1.99-4.87, $P < 0.0001$) to be examined than females prior to urologic consultation, while inpatient males were 1.48 times more likely than females (95% CI, 1.13-1.93, $P = 0.0038$) to receive a GU examination prior to urologic consultation.

Age

When patients were stratified by age, 49.4% (122/247) of patients 0-40 years, 39.7% (263/662) of patients 41-64 years, and 35.2% (242/687) of patients ≥ 65 years had a preconsult GU examination. In the ED, patients 0-40 years were 3.02 times more likely (95% CI, 1.69-5.39, $P = 0.0002$) and patients 41-64 years were 1.81 (95% CI, 1.14-2.88, $P = 0.012$) more likely to receive a preconsult GU examination than patients aged ≥ 65 years. Inpatients 0-40 years were 1.58 times more likely (95% CI, 1.09-2.32, $P = 0.017$) and inpatients 41-64 years were 1.32 times more likely (95% CI, 1.01-1.71, $P = 0.0418$) to receive a preconsult GU examination than inpatients ≥ 65 years. Table 2 shows the association between patient demographics and GU physical examination stratified by evaluating team.

DISCUSSION

Physicians are trained early in their education on the value of a physical examination, but the practice of performing and documenting a thorough GU examination appears to be limited.³ Reasons for this limitation could be widespread, including confidence or experience deficits.³ Additionally, prompt and thorough physical examination is a vital resource for diagnosis of various urologic conditions, such as testicular torsion, priapism, or penile fracture. A number of clinical diagnoses can be elucidated with a GU examination, including gross hematuria and hydroceles.

Table 1. Proportion of Genitourinary Physical Examinations (n=1,596) Stratified by Evaluating Team and Primary Reason for Consultation

Diagnosis	Emergency Department		Inpatient Team	
	n	%	n	%
Gross hematuria	29/47	61.7	46/131	35.1
Hydronephrosis	9/22	40.9	41/130	31.5
Renal mass	1/6	16.7	7/51	13.7
Scrotal swelling	8/8	100	18/30	60.0
Traumatic Foley catheter	5/7	71.4	16/53	30.2
Urinary incontinence	0/0	0.0	5/15	33.3
Urinary retention	20/42	47.6	64/261	24.5
Urinary tract infection	8/15	53.3	24/87	27.6
Urolithiasis	46/105	43.8	25/83	30.1
Other	107/155	69.0	148/348	42.5
Total	233/407	57.2	394/1,189	33.1

Delaying intervention by waiting for imaging before specialty service consultation could compromise patient outcomes.⁴

As we have become more reliant on laboratory values and various imaging modalities, we have become less reliant on physical examination findings in workup.¹ A 1993 study demonstrated that residents spend only 20% of their time in the hospital with patients and spend the majority of their time charting.⁵ This situation has changed very little, as another study from 2013 showed that residents spend most of their time reviewing records and entering orders.⁶

Reliability can be thought of as how often numerous clinicians examining the same patient will find a particular sign. Reliability is imperfect in regard to physical diagnosis, but most imaging studies are also deficient. Poor reliability of a physical sign can also undermine its accuracy. However, most diagnostic standards, including computed tomography, ultrasound, mammography, magnetic resonance imaging, and laboratory values, have significant deficiencies in reliability.⁷ An example can be demonstrated through the use of Wells pretest probability, which is determined by a collection of signs and symptoms a patient presents with and does not include any radiologic or laboratory tests. Studies have shown that Wells pretest probability has a greater reliability than ultrasonography for the diagnosis of deep vein thrombosis/pulmonary embolism.^{8,9} In the end, all instruments used for medical/surgical workup inherently include some form of subjectivity. To improve reliability in physical examinations, forming good practice habits so that physical examination techniques can be mastered and interobserver agreement can be improved is important, particularly among resident physicians, as they have been shown to continue and reinforce consultation skills that they develop during training.^{10,11}

Our study demonstrates that the preconsult GU examination rate is low, regardless of provider and of the sex and age of the patient. Older female inpatients are least likely to be examined prior to urologic consult, while young male patients in the ED are most commonly evaluated. It is not surprising that females are less likely to be evaluated with a

Table 2. Association Between Patient Demographics and Genitourinary Physical Examination Stratified by Evaluating Teams

Variable	Odds Ratio	95% Confidence Interval	P Value
Emergency Department			
Age, years			
0-40	3.02	1.69-5.39	0.0002
41-64	1.81	1.14-2.88	0.012
≥65 (reference)	1.00		
Sex			
Male	3.11	1.99-4.87	<0.0001
Female (reference)	1.00		
Inpatient Team			
Age, years			
0-40	1.58	1.09-2.32	0.017
41-64	1.32	1.01-1.71	0.0418
≥65 (reference)	1.00		
Sex			
Male	1.48	1.13-1.93	0.0038
Female (reference)	1.00		
Combined			
Age, years			
0-40	2.25	1.66-3.04	<0.0001
41-64	1.51	1.21-1.89	0.0003
≥65 (reference)	1.00		
Sex			
Male	1.87	1.496-2.348	<0.0001
Female (reference)	1.00		

urologic physical examination considering the physical and emotional issues that must be addressed when examining female genitalia, possible equipment constraints, the potential need for a chaperone or access to specific examination rooms with appropriate equipment, and longer examination times compared to patient interactions without initial GU examinations. These examinations can be a challenge for both the clinician and the patient, but techniques and guidelines are available to help abate such concerns.¹²

We believe that the low rate of preconsult GU examinations identifies an area for improvement in quality of care that needs to be addressed. Improvement could be achieved by including information regarding the need for and importance of GU examinations in the undergraduate medical education curriculum as well as in continuing education programs. Consultations are often indicative of complex patients who may represent a disproportionate burden on healthcare resources.¹³ Further research into the financial and safety aspects of incomplete consultations should be conducted with the aim of improving patient outcomes.

Despite the strong sample size of our study, some study limitations are important to consider. These include the retrospective nature of the study, the cross-sectional design, and the fact that the consulting physicians may not have documented examinations they performed. Because our study was done at a single academic institution, our findings are not generalizable to community hospitals.

CONCLUSION

Our study indicates that initial GU examinations were omitted in >60% of patients for whom urologic consultation was requested. Whether the variability of preconsult GU examinations directly affects patient care is unknown. Future studies could be aimed at determining whether the omission of preconsult GU examinations negatively affects quality of care.

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