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Prospective Assessment of Urologic Consultations at a Tertiary Care Referral Center

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Abstract

Urologic consultation is an essential service provided by urology divisions. We examined urology call coverage diagnoses, acuity and management at an academic tertiary care referral center. Data was prospectively collected for all urologic consultations over a 3 month period. Patient age, consultation location, diagnosis, level of acuity, encounter time, and management was recorded. Eight attending physicians, three residents and one physician assistant provided coverage. 869 telephone encounters were documented, and 857 had analyzable data. Average age was 60.1 years. There were 85 pediatric calls (10%). Urgent encounters involved 19% of patients; 81% were considered elective. Stones, infection and urinary retention were the most common diagnoses. 93% of encounters involved patients from our institution or the urology faculty practice. Of 857 encounters, 180 (21%) required patient contact, while 677 (79%) were managed over the telephone. Average phone call length was 8 minutes, and 569 (84%) calls were under 10 minutes. Face-to-face encounters lasted 43 minutes on average. Procedures were needed in 63 (35%) encounters: bladder catheterization in 27 (43%), transurethral surgery in 20(32%), and ureteroscopy in 16 (25%). Management of these procedures was split between the inpatient floor in 32 (51%), and operating room in 31 (49%). Our data show that the majority of consults in an academic tertiary care referral center involve common non-emergent conditions, usually manageable over the telephone in a reasonable period of time. Clinical data describing the experience "on-call" informs residency curriculum development and defines hospital urologic coverage needs.

Keywords: Urologic consultation; Diagnosis

Introduction

Urologic consultation is an important aspect of residency training and an essential service provided by urologists. While the types of consultations provided may differ depending on characteristics of the institution and patient population, profiling the spectrum of urologic disease encountered by trainees assists in the planning of residency curricula and improves patient outcomes through procedural education [1].

There is little data in the literature regarding urologic consultation, though limited descriptions focused on pediatrics and catheter-related injuries can be found [1,2]. The majority of the literature on consultations comes from the fields of allergy/immunology, and pediatrics [3-7]. It is our assertion that objective data describing the clinical experience "on-call" and on the consult service would allow more focused curriculum planning by reflecting patient problems that residents and faculty will have to address. The anticipation is that such a data-driven curriculum will improve patient care through improving staff preparedness for common consultation scenarios. In order to better document the nature of urological consultations in a tertiary care academic hospital, we prospectively examined urology physician call coverage and consultations at our institution over a 3 month period.

Materials and Methods

Over a three month period (Jan-March 2012) we prospectively collected data for every "on-call" urologic encounter at Maine Medical Center (MMC) – a 637- bed, tertiary care, non-profit hospital in Portland, Maine. "On-call" was defined as a 24 hour coverage period. Telephone encounters from outside institutions were also captured. The patient's age, location, diagnosis, level of acuity, and management were recorded by the eight attending physicians, three residents and one physician assistant who provided coverage.

Pediatric cases were considered under the age of 18. Emergent encounters required on site urologic assessment within 30 minutes. Non-urgent encounters required assessment within 30 minutes to 24 hours. Data was recorded on cards by each call provider at the time a consult request was placed. These cards were then returned to a dedicated urologic administrator who extracted data into a Microsoft Excel database (Excel 2003, Version 11.0.5612.0). Statistical analysis was also performed in Microsoft Excel.

Our institution performed a similar assessment of "after-hours" telephone call needs in 2003 [8]. The 2003 data were compared to the current data.

Results

We recorded 869 encounters, of which 857 had analyzable data (Table 1). There were 784 adult calls (90%). The average patient age was 60.1 years (standard deviation 19.4 years). There were 85 pediatric calls (10%) with a mean age of 3.9 years (standard deviation 4.64 years). Emergent encounters involved 19% of patients and 81% were considered non-urgent.

No. Age (%)		
	younger than 18	85 (10)
	older than 18	784 (90)
Mean +/- SD Age (yrs)		
	younger than 18	3.9 ± 4.64
	older than 18	60.1 ± 19.4
No. Urgency level (%)		
	Emergent encounters	165 (19)
	Non-urgent	704 (81)

Table 1: Characteristics of analytic cohort.

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240 (28%) of the consult requests were first evaluated in the emergency department. 402 (47%) were from patients already admitted to the hospital. This included various services (internal medicine, family medicine, orthopedics, pediatrics, obgyn). The remaining calls 215 (25%) came from urology clinic patients in the community

Urinary calculi, infection and urinary retention were the most common diagnoses (Figure 1). "Other" accounted for 9% of the calls and included trauma, bladder symptoms, wound questions, and prostate/testis symptoms. Ninety-three percent of all encounters involved patients at MMC or established patients of the MMC urology faculty practice.

Of all encounters, 180 (21%) required direct patient contact and 677 (79%) were managed by telephone consultation (Table 2). The mean phone call length was 8 minutes with a standard deviation of 5.6 min.

569 (84%) calls were under ten minutes. Face-to-face encounters lasted an average of 43 minutes (standard deviation 25.1 minutes).

Procedures were needed in 63 (35%) patient contacts: bladder catheterization in 27 (43%), transurethral surgery in 20 (32%) and ureteroscopy in 16 (25%). Thirty-two procedures (51%) were performed at the bedside with the remaining 31 (49%) requiring intervention in an operating room setting.

For a comparison of urologic consultation trends over time we compared our data to a previous study of urologic after-hour telephone calls performed at our institution in 2003 [8]. Notably the current study included all calls received during a 24 hour period, whereas our 2003 study only included after hours calls. Similar to the current study the most common consultation diagnosis from 2003 was urinary calculi, followed by lower urinary tract symptoms. Comparing our current study to our 2003 study, 79% vs. 68% were managed over the phone, 84% vs. 95% of calls lasted less than 10 minutes, and 35% vs. 27% required procedural interventions.

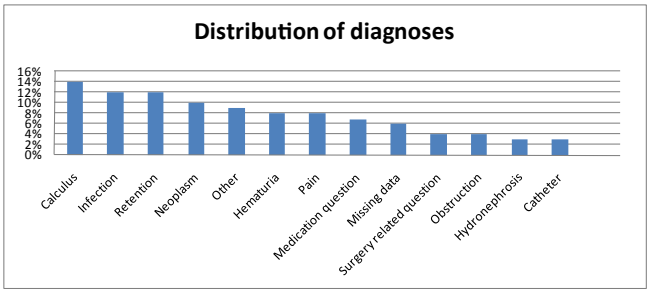

Figure 1: Distribution of diagnoses.

No. Type of patient contact (%)		
	face to face encounter	180 (21)
	telephone call	677 (79)
Mean Phone call duration ± SD (min)		8 ± 5.6
No. Phone call duration (%)		
	< 10 min	569 (84%)
	> 10 min	108 (16%)
Mean Face to face encounter duration ± SD (min) 43 ± 25.1		
No. Procedures (%)		
	bladder catheterization	27 (43)
	transurethral surgery	20 (32)
	ureteroscopy	16 (25)
No. Location of procedure (%)		
	bedside	32 (51)
	operating room	31 (49)

Table 2: Characteristics of consults.

Comments

In this study, we analyzed the reasons for urologic consultation, diagnoses encountered during consultation, duration of interaction with the patient, and types of interventions and procedures in an academic urology service at a tertiary care referral center over a three month period.

Our data show that the majority of encounters involved common non-emergent conditions that can be managed by telephone consultation alone or with outpatient follow-up. The most commonly encountered diagnoses were calculi, retention, hematuria, and catheter-related issues. Bedside procedures and operative interventions were rarely required.

Strength of our report is its large sample size (857 encounters) with near complete capture of all urological consultations that occurred over a three month period. In both the 2003 and 2012 data sets, the most common reasons for urology consultation at our institution were renal calculi, infection and urinary retention. This demonstrates a stable trend over time in types of consults, and degree of consult acuity. Given the stability of these findings, we believe this data can be used to support the incorporation of focused residency training in the management of these issues. In addition, with the large majority of calls being handled by telephone consultation, residents may benefit from simulation training in telephone assessment and management.

Our study has several limitations. We relied on attending physicians, resident physicians and a physician assistant to completely and accurately enter all encounter data fields. The study was conducted during a hospital wide transition from paper to electronic medical records, and therefore retrospective chart review to establish data accuracy was not readily feasible. Additionally, we relied on the entering physician to classify the topic of the encounter. Given the potential for crossover between related diagnoses (i.e. retention, pain, other/lower urinary tract symptoms), personal bias could be introduced when the recorder selected the primary reason for consultation. Other limitations include the short time period of our investigation raising the possibility of seasonal variation.

Despite the above limitations, the findings from our study provide important information on the day to day activity of urologists at a tertiary care referral center. This information can help develop resident curricula to prepare trainees for clinical problems they will encounter. Based on the prevalent conditions identified, we have developed an "on-call boot-camp" for our incoming urology residents to facilitate their transition from general surgery internship into urology residency training. The topics covered better prepare them for the diagnostic and therapeutic challenges of taking call, and issues relevant to telephone management of urologic issues.

In addition to informing the development of educational curricula, data from this study can also be used to better characterize and quantify the use of urologic consultations and telephone coverage in a tertiary care referral center. Such information can inform hospital call coverage needs as well as form the basis for discussions regarding physician contract negotiations involving call coverage. This may also be of further interest to hospital systems and payors given that incentivizing physicians to provide high quality telephone consultations has been shown to be cost effective with demonstrable improvements in quality of care [9,10].

Conclusions

The majority of consults at our academic tertiary care referral center involve common non-emergent conditions that can often be managed via telephone consultation and ongoing outpatient follow-up. Our data show that the encounters which residents are required to triage while on-call most commonly involve calculi, retention, hematuria and catheter-related issues. Using this information, we have developed a focused curriculum for trainees to better prepare them for this aspect of their residency.

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