
Emergency at the Urinary Tract Infections

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Abstract

Urinary tract infections are the most common bacterial infection in humans and one of the most common reasons for visiting family physicians. They are more common in women than in men. Although the majority of them presents harmless infections (especially in women), they can also speak in favor of more serious illness and also lead to various complications.

Introduction

An emergency is commonly defined as any condition perceived by the prudent layperson-or someone on his or her behalf-as requiring immediate medical or surgical evaluation and treatment [1]. On the basis of this definition, the American College of Emergency Physicians states that the practice of emergency medicine has the primary mission of evaluating, managing, and providing treatment to these patients with unexpected injury and illness.

So what does an emergency physician (EP) do? He or she routinely provides care and makes medical treatment decisions based on real-time evaluation of a patient's history; physical findings; and many diagnostic studies, including multiple imaging modalities, laboratory tests, and electrocardiograms. The EP needs an amalgam of skills to treat a wide variety of injuries and illnesses, ranging from the diagnosis of an upper respiratory infection or dermatologic condition to resuscitation and stabilization of the multiple trauma patient.

Furthermore, these physicians must be able to practice emergency medicine on patients of all ages. It has been said that EPs are masters and mistresses of negotiation, creativity, and disposition. Clinical emergency medicine may be practiced in emergency departments (EDs), both rural and urban; urgent care clinics; and other settings such as at mass gathering incidents, through emergency medical services (EMS), and in hazardous material and bioterrorism situations.

In healthcare delivery, we attempt to meet the health and medical needs of the community by providing a place for individuals to seek preventative medicine, care for chronic medical conditions, emergency medical treatment, and rehabilitation from injury or illness [2]. While a healthcare institution serves the community, this responsibility occurs at the level of the individual. Each individual expects a thorough assessment and treatment if needed, regardless of the needs of others. This approach is different than that practiced by emergency managers, whose goal is to assist the largest number of people with the limited resources that are available. As such, emergency management principles are focused on the needs of the population rather than the individual. When either planning for a disaster or operating in a disaster response mode, the hospital should be prepared at some point to change its focus from the individual to the community it serves and to begin weighing the needs of any individual patient versus the most good for the most patients with scarce resources. Moving from the notion of doing the most for each individual to doing the best for the many is a critical shift in thinking for healthcare institutions considering a program of comprehensive emergency management. While the initial planning for emergencies by hospitals is focused on maintaining operations and handling the care needs of actual or potential increased numbers of patients and/or different presentations of illness or injury than is traditionally seen, there is also the need to recognize that at some point during a disaster, act of terrorism, or public health emergency there may be an imbalance of need versus available resources. At this point the approach to delivering healthcare will need to switch from a focus on the individual to a focus on the population. This paradigm shift is one of the core unique aspects of hospital emergency management that allows the hospital to prepare to maximize resources in disasters and then to know when to switch to a pure disaster mode of utilizing its limited and often scant resources to help the most people with the greatest chance of survival.

The healthcare delivery system is vast and comprised of multiple entry points at primary care providers, clinics, urgent care centers, hospitals, rehabilitation facilities, and long-term care facilities. The point of entry for many individuals into the acute healthcare system is through the emergency department (ED). Since the late 1970s, the emergency medical services (EMS) system has allowed victims of acute illness and injury to receive initial stabilization of life-threatening medical conditions on the way to the emergency department. Among the many strengths of the ED is the ability to integrate two major components of the healthcare system: prehospital and definitive care. The emergency department maintains constant communications with the EMS system and serves as the direct point of entry for prehospital providers into the hospital or trauma center. Emergency physicians represent a critical link in this process by anticipating the resources that ill and injured patients will need upon arrival at the ED, and initiating appropriate life-saving medical care until specialty resources become available. In this context, the healthcare system is an emergency response entity.

Patient Conditions

In most emergencies there is no time to disclose the necessary information for an informed consent [3]. Here the providers simply act according to what they think will be in the best interests of the patient. These

situations frequently happen in hospital emergency rooms and when emergency medical personnel arrive on the scene of an accident or sudden illness.

The emergency exception to informed consent is often quite obvious, but this is not always so. It does not apply, for example, when personnel taking care of somebody in an emergency happen to know what the patient wants. In such a situation they would not do what they think is best for the patient but what they know the patient wants.

It is important to note that the emergency exception that allows physicians to do what they think is best for the patient without obtaining informed consent from the patient or proxy has one major restriction; namely, they cannot do what they think is best if it is otherwise than what they know the patient or proxy wants. Sometimes, for example, emergency department personnel might know from previous admissions that a particular patient from a local nursing home desires only palliative care. If that patient arrives by ambulance at the same emergency department, it is hard to see how it would be morally reasonable for physicians to take aggressive measures to keep the patient alive when, even though there is no time to obtain consent for orders not to attempt resuscitation or not to intubate, they know he or she or a proxy has decided not to have aggressive life-sustaining measures performed.

Patients accessing emergency care services can present with complaints that are extremely diverse, and the way doctors, nurses and paramedics elicit information from patients predominantly focusses on obtaining biomedical details [4]. In some cases, this approach is warranted, as the urgent need to identify signs and symptoms of life-threatening illness or injury is paramount. Yet, 90% of patients accessing emergency services are not critically ill or injured but seek help and advice. In addition to seeking advice, patients may also be anxious, frightened, intoxicated, misusing drugs or have unhealthy lifestyles. They may have psychosocial reaction to physical disease or vice versa - physical illness such as irritable bowel syndrome, asthma, tension headache can be triggered by psychosocial factors. The effects and interpretation of illness will trigger a different response to the individual depending on their view and experiences. All these factors will have different needs and concerns and it is important to elicit these concerns within a consultation. However, it has been found that nurses working in emergency care disregard the potential for anxiety and the need for support and reassurance in patients who are not severely ill or injured. In addition, where communication skills of junior doctors working in emergency departments have been researched, they are found to use approaches considered to be more physician/illness orientated than patient-centred. By way of similarities of patient presentations in the pre-hospital setting, this could equally be assumed for paramedic practice.

Urinary Tract Infections

Urinary tract infections (UTIs) are one of the most frequently encountered infectious processes diagnosed by emergency physicians (EPs) [5]. The epidemiology of UTIs varies with sex and age.

- It is estimated that women have about a 50% lifetime occurrence rate for a UTI.
- The prevalence of UTIs in febrile infants is about 5%, while in the geriatric population the prevalence approaches 20%.

• While the diagnosis of UTI is relatively straightforward, the treatment and ultimate disposition of patients depends on special circumstances such as extremes of age, pregnancy, treatment failures, and underlying medical conditions.

Classically the signs and symptoms of lower UTIs are dysuria, frequency, urgency, hesitancy, hematuria, and suprapubic pain. Upper UTIs (pyelonephritis) typically present with fever, chills, flank pain, nausea, vomiting, anorexia, and associated costovertebral angle (CVA) tenderness. Some studies have shown that up to 50% of women with classical lower UTI symptoms have silent kidney involvement. In women, a history of vaginal discharge should always be elicited, and a pelvic exam, if indicated, will allow one to rule out PID, cervicitis, or vaginitis as the cause of dysuria. Males with dysuria and discharge should undergo a urethral swab, which should be sent for gonorrhea and chlamydia cultures.

In older patients the symptoms and signs of UTI may be atypical and difficult to distinguish from other urinary diseases [6]. Older adults with UTI are more likely to present to the ED with altered mental status rather than fever or classic urinary symptoms; however, when present, acute dysuria is more specific for UTI than urinary frequency or urgency. Atypical presentations also abound in older patients with pyelonephritis, but fever and chills are more consistently present. Another important symptom of UTI could be the pain in the suprapubic area, the flank, or the back, which in the non-cooperative patient could be suggested by agitation, irritability, and increased confusion (delirium) with increased incidence of falls. Even if incontinence could be a risk factor for UTI, it may also represent a symptom of the disease. When UTI evolves into sepsis or septic shock, typical symptoms- like hypotension, tachycardia, tachypnoea, anorexia, respiratory distress, and abdominal tenderness- may occur but can be delayed or onset abrupt.

Approach

The emergency department (ED) is a challenging environment for patients, families, and medical personnel [7]. Many challenges result from our practice's principles: available at any time for any patient with any complaint. Patients who come to the ED are not familiar with us personally, yet must feel confident about our abilities to help them during their time of greatest concern. Their needs may be as straightforward as an excuse note for work or a prescription refill in the middle of the night, or as complex as an acute illness or injury, an exacerbation of a chronic condition, or a cry for help if depressed or suicidal. Even providing reassurance about a child's fever to a concerned parent is a critical function of emergency physicians (EPs).

Qualities successful EPs exhibit include intelligence, sensitivity, humility, insight, proficiency making decisions with and acting on limited information, and the ability to multi-task. Being skillful negotiators, working well with individuals having different backgrounds and ethnicities, and advocating strongly for patients at all times are essential qualities. In addition to these traits, EPs must be experts in trauma and medical resuscitation of adults and children, and in sharing news with patients and family members about the outcomes of these events.

The majority of patients use the ED infrequently. Many may be experiencing this setting for the first time. Patients' lack of familiarity with this environment, fear, stress, waiting times, painful procedures, and overall discomfort often preclude them from having a positive experience. These are only some of the issues that patients contend with in the ED.

EPs confront numerous challenges when taking care of patients presenting to the ED. Perhaps the greatest challenge is the spectrum of diseases which EPs must be able to identify. Rather than having to know only the first 15 minutes of an illness, EPs must be familiar with all stages of all illnesses, often presenting in atypical fashion. In addition, time pressures inherent to providing emergency care, the lack of existing relationships with patients, unfamiliarity with their medical history, and the inability to review patients' medical records challenge EPs daily. EPs must rapidly and simultaneously evaluate, diagnose and treat multiple patients with multiple conditions, often with limited information, without confusing subtle nuances between patients. They must be insightful, anticipatory, and prepared to act and react to prevent morbidity and, when possible, mortality. Considering worse case scenarios is fundamental to EM practice. Most importantly, EPs must be comfortable providing detailed, often devastating information in a concise yet understandable manner to patients and family members who may have different cultural backgrounds.

It is indeed a privilege to be in a position to offer care to patients during what is likely to be their time of greatest need. Approaching patients sensitively, recognizing their apprehension, pain, concerns, and perhaps shame is critical to our mission. This is true no matter how trivial a patient's problem may seem. Often, patients consult with EPs to seek approval about their desire to leave a spouse, to get an opinion regarding a physician's recommendation for surgery, or to receive confirmation that they are making the right decision about a parent, child, or loved one. Serving in this capacity, without judgment, is not only appropriate but also essential.

Pain

Severe unilateral flank pain that comes and goes in waves and that radiates towards the groin is typical of ureteric colic, where the symptoms correlate with the passing of a kidney stone from the renal pelvis into the ureter [8]. Pain is very common, with other features including haematuria, nausea, vomiting, urinary symptoms (frequency, dysuria) and testicular or penile pain. Pain is thought to result when the stone becomes lodged in the ureter, with flank pain thought to result from upper urinary tract obstruction and groin or pelvic pain arising from obstruction at the lower ureters or vesicoureteric junction (VUJ).

Risk factors for nephrolithiasis include personal and family history of stone disease (up to 30% of patients with kidney stones have a recurrence within 5 years), urinary tract infections, inadequate hydration, persistently acidic urine (e.g. with chronic diarrhoea and gout) and increased oxalate absorption from the gut.

In the ED, the key to dealing with a patient who has suspected ureteric colic is to confirm the diagnosis and assess for complications. Confirmation of the diagnosis can be achieved through either a low-dose CT-KUB (kidneys, ureters and bladder) or ultrasound of the urinary tracts; while CT-KUB carries a radiation exposure risk, it has a much higher sensitivity than ultrasound and is generally the test of choice. Ultrasound should be used in pregnant women and is a good method of identifying hydronephrosis, but may miss small stones. The complications of kidney stones include urinary tract obstruction and infection, and therefore, renal function and urinalysis should always be checked.

Diagnosis

Urinary tract infections (UTIs) are common complaints in emergency medicine practice [9]. In 2005, 1.8 million patients in US emergency departments (EDs) were diagnosed with a UTI, and almost 5% of patients

had a genitourinary complaint. UTIs are relatively uncommon in young men but do affect older men and are often associated with disorders of the prostate. The most common way to diagnose UTI in the emergency department (ED) is either a urine dip or laboratory urinalysis. The dipstick urine test measures leukocytes, nitrite, blood, protein, and pH, while a urinalysis quantifies cell counts such as white blood cells, red blood cells, and squamous cells. The diagnosis of UTI can be difficult in the ED because of the inconsistent relationship between the clinical symptoms, bacteruria, and pyuria. In addition, because the criterion standard test (a clean-catch or catheterized specimen urine culture) cannot be completed in the ED because it can take 2-3 days to grow, emergency physicians must diagnose and treat UTIs without criterion standard testing. Distinguishing sexually transmitted diseases (STDs), other vaginal infections, and UTIs can be a challenge because of overlapping symptoms and signs.

The diagnostic mainstay of a UTI is the urinalysis (UA) [5]. A UA from a properly obtained midstream, clean-catch specimen is as accurate as that of a catheterized specimen, except in debilitated patients, patients of extreme ages, or the morbidly obese. For such patients, a catheterized specimen may be necessary.

Most cases of uncomplicated UTIs do not necessitate a urine culture. But there are several important risk factors for complicated UTI in which urine cultures should be obtained. These include:

- All children, adult males, and debilitated elderly
- Immunosuppressed patients (HIV, steroid use, solid organ transplant patients)
- Pregnant women
- Treatment failures, recurrent UTIs, or previous antimicrobial therapy within 2 wk
- Hospitalized (or recently) patients
- Patients with chronic indwelling catheters or recent instrumentation
- Acute pyelonephritis
- Patients with preexisting anatomic urologic abnormalities or urinary tract obstruction
- Patients with serious medical diseases (DM, sickle cell anemia, cancer)

Responsibility of the Physicians

The aim is to provide excellence in emergency department (ED) care by cultivating the following desirable habits [10]:

- Listen to the patient.
- Exclude the differential diagnoses ('rule out') and refine the possible diagnosis ('rule in') when assessing any patient, starting with potentially the most life- or limb-threatening conditions, and never trivializing.
- Seek advice and avoid getting out of depth by asking for help.
- Treat all patients with dignity and compassion.

- Make sure the patient and relatives know at all times what is happening and why, and what any apparent waits are for.
- Maintain a collective sense of teamwork, by considering all ED colleagues as equals whether medical, nursing, allied health, administrative or support services.
- Consistently make exemplary ED medical records.
- Communicate whenever possible with the general practitioner (GP).
- Know how to break bad news with empathy.
- Adopt effective risk management techniques.

The duty of care is a physician's obligation to provide treatment according to an accepted standard of care [11]. This obligation usually exists in the context of a physician-patient relationship but can extend beyond it in some circumstances. The physician-patient relationship clearly arises when a patient requests treatment and the physician agrees to provide it. However, creation of this relationship does not necessarily require mutual assent. An unconscious patient presenting to the ED is presumed to request care and the physician assessing such a patient is bound by a duty of care. The Emergency Medical Treatment and Active Labor Act (EMTALA) requires ED physicians to assess and stabilize patients coming to the ED before transferring or discharging them. Such an assessment presumably creates the requisite physician-patient relationship.

When caring for a patient, a physician is obligated to provide treatment with the knowledge, skill, and care ordinarily used by reasonably well-qualified physicians practicing in similar circumstances. In some jurisdictions, these similar circumstances include the peculiarities of the locality in which the physician practices. This locality rule was developed to protect the rural practitioner who was sometimes deemed to have less access to the amenities of urban practices or education centers. However, the locality rule is being replaced by a national standard of care in recognition of improved information exchange, ease of transportation, and the more widespread use of sophisticated equipment and technology.

Establishing the standard of care in a given case requires the testimony of medical experts in most circumstances, unless the breach alleged is sufficiently egregious to be self-evident to the lay jury member—for example, amputating the wrong limb or leaving surgical implements in the operative field. A physician specializing in a given field will be held to the standard of other specialists in the same field, rather than to the standard of nonspecialists.

To be eligible to receive federal funds such as Medicare and Medicaid, hospitals with an emergency department must offer emergency and stabilizing treatment services to the public without bias or discrimination [12]. The Emergency Medical Treatment and Active Labor Act is a comprehensive federal law that obligates hospitals offering emergency services to do so without consideration of a patient's ability to pay. It's important to note that this obligation does not apply to inpatients or non-emergent conditions. The absence of bias in the delivery of care should not be misunderstood to suggest all hospitals must provide all medical services, but rather the services they choose to offer must be delivered without bias to the individual patient.

A hospital and its entire staff owe a duty of care to patients admitted for treatment [13]. Following an emergency call, the ambulance service has a duty to respond and provide care. Accident & Emergency (A & E)

departments have a duty of care to treat anyone who present themselves and are liable for negligence if they send them away untreated. Hospitals without an A&E facility will display signs stating the location of the nearest A&E department. This ensures that the hospital could not be held negligent if a patient presented and required emergency treatment as the hospital or its staff had never assumed a duty of care. Once a patient is handed over, a duty of care is created between the patient and the practitioner and this cannot be terminated unless the patient no longer requires the care or the carer is replaced by another equally qualified, competent person. It is therefore extremely important that practitioners are aware of their local policies, professional standards and their scope of practice to avoid becoming liable for litigation by putting a patient at risk, delivering ineffective care or breaching their duty of care.

Conclusion

Urinary tract infection is frequent, painful and, in most cases, easily cured. However, it is important to recognize the symptoms at a time and catch themselves in early stages before the bacteria reach to the kidneys. Urinary tract infection appear when the bacteria attacks the organs of the urinary tract - the urinary tract, the bladder, the urethra and the kidneys and begins to multiply. The mentioned bacteria usually come from the digestive tract and enter the urethra. This inner tube drains urine from our bladder during urination. Infection usually begins in the urethra and acts back through the urinary tract. Most urinary tract infections are discovered and treated when the bladder inflammation has already occurred. However, some urinary tract infections can be traced back through the urinary tract, which conducts urine from the kidney to the bladder, causing kidney infection.

Bibliography

1. Jones, T. R. (2011). Approach to the Emergency Department Patient. In Stone, C. K. & Humphries, R. L. (eds), *Current Diagnosis And Treatment Emergency Medicine*, Seventh Edition. The McGraw-Hill Companies, New York, USA, (p. 1).
2. Reilly, M. J. & Markenson, D. S. (2011). Introduction to Hospital and Healthcare Emergency Management. In Reilly, M. J. & Markenson, D. (eds), *Health Care Emergency Management - Principles and Practice*. Jones & Bartlett Learning, Sudbury, USA, (pp. 5-6).
3. Devettere, R. J. (2010). *Practical Decision Making in Health Care Ethics - Cases and Concepts*, Third Edition. Georgetown University Press, Washington, USA, (pp. 83-84).
4. Gubbins, K. & Nixon, V. (2013). Consultation and Communication Skills. In Nixon, V. (ed). *Professional Practice in Paramedic, Emergency and Urgent Care*. John Wiley & Sons, Ltd, Chichester, UK, (p. 23).
5. Lee, C., Henderson, S. O. & Grassl, S. (2006). Genitourinary Emergencies. In Henderson, S. O. (ed), *Emergency Medicine*. Landes Bioscience, Georgetown, USA, (pp. 136-137).
6. Petrino, R., Tua, A. & Salvi, F. (2018). Urinary Tract Infections in Older Patients. In Nickel, C. & Bellou, A.; Conroy, S. (eds). *Geriatric Emergency Medicine*. Springer International Publishing, Cham, Switzerland, (p. 238).

7. Garmel, G. M. (2005). Approach to the emergency patient. In Mahadevan, S. M., Garmel, G. M. (eds), *An Introduction to Clinical Emergency Medicine*. Cambridge University Press, Cambridge, UK, (p. 3).
8. Shamil, E., Ravi, P. & Mistry, D. (2018). *100 Cases in Emergency Medicine and Critical Care*. CRC Press, Taylor & Francis Group, Boca Raton, USA, (p. 232).
9. Pines, J. M., Carpenter, C. R., Raja, A. S. & Schuur, J. D. (2013). *Evidence-Based Emergency Care - Diagnostic Testing and Clinical Decision Rules*, Second Edition. Wiley-Blackwell, John Wiley & Sons, Ltd., Chichester, UK, (pp. 255- 256).
10. Brown, A. F. T. & Cadogan, M. D. (2011). *Emergency Medicine - Diagnosis and Management, Sixth Edition*. Hodder Arnold, London, UK, (p. 446).
11. Eckerline, jr., Ch. A. & Brantley, J. C. (2011). Legal Aspects of Emergency Care. In Stone, C. K. & Humphries, R. L. (eds). *Current Diagnosis And Treatment Emergency Medicine*, Seventh Edition. The McGraw-Hill Companies, New York, USA, (p. 45).
12. Wollf, A. (2016). Types of Emergency Departments. In Solheim, J. (ed), *Emergency Nursing - The Profession, The Pathway, The Practice*. Sigma Theta Tau International, Indianapolis, USA, (p. 162).
13. Latcham, K. (2013). Professional and Legal Issues. In Nixon, V. (ed), *Professional Practice in Paramedic, Emergency and Urgent Care*. John Wiley & Sons, Ltd, Chichester, UK, (p. 135).