

Urologic Emergencies in a Low-Resource Setting: A 10-Year Review from South-Western Nigeria

A. A. Salako, T. A. Badmus, R. N. Babalola, M. C. Igbokwe, R. A. David, C. Onyeze, A. Laoye, I. A. Akinbola
Urology Unit, Department of Surgery, Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Nigeria

Abstract

Background: Emergency presentations are quite an important aspect of the urologic practice, and prompt attention is necessary to relieve symptoms, limit morbidity, and prevent mortality. Adequate knowledge of the pattern of emergency urologic presentations might aid rapid diagnosis and provide data for hospital and public health planning purposes. We present our experience with urologic emergencies in our hospital. **Objectives:** The objective was to describe the pattern of presentation and the peculiar challenges of urologic emergencies in a typical low-resource setting in South-Western, Nigeria. **Patients and Methods:** A retrospective review of all patients with urologic complaints who presented acutely to the accident and emergency department (AED) of our hospital, between January 2008 and December 2017, was done. Data were analyzed using the Statistical Package for Social Sciences version 20. **Results:** There were 1102 patients seen with urologic complaints, which constitute 3.2% of the total patients presenting to our AED over the 10-year period reviewed. Urinary retention (28.7%) and gross hematuria (19.5%) were the most common emergency urology presentations, whereas urethral injury was the most common mode of urologic trauma (59%). Over half (53%) of the patients with hematuria had a urologic malignancy. Prostate cancer was the leading urologic malignancy presenting to the AED. Testicular torsion and priapism were predominantly found in young male patients. There were 2.7% mortalities, with complicated prostate cancer, the leading cause (66.7%). Immediate causes of mortality were metastatic disease and urosepsis. **Conclusion:** Urologic emergencies are a probable cause of morbidity and mortality in our setting. Adequate knowledge of the pattern of patient presentation might aid diagnosis, improve outcomes, and provide data for hospital and public health planning purposes.

Keywords: Emergency, urine retention, haematuria, malignancy, mortality, urology

INTRODUCTION

Emergency presentations form an important mode of presentation of urology patients. They are important as they may point attention to a previously unnoticed urologic condition, may herald the progression of a known urologic diagnosis, or reveal patients at terminal stages of a disease, especially malignancies. Urologic emergencies can be life-threatening – early recognition and prompt treatment are desirable to prevent mortality and to improve quality of life.

In resource-poor settings like ours, access to optimal emergency care is frequently limited, which may, in turn, retard quality intervention and thus lead to poorer outcomes. The paucity of financial and human resources, inadequate support services, late presentation, and the need for out-of-pocket payment in the hospital, might further adversely affect the outcome of care.^[1] Socio-cultural constraints also mitigate against early presentation and many patients present late, often with

advanced disease or complications, which further makes their management challenging.^[2]

As there is a relative paucity of information on the varying patterns of emergency presentations in our setting, this review of acute urology presentation is an important discourse to increase awareness and provide important data for health planning, allocation of resources, and public health interventions in our environment.

Address for correspondence:

Dr. R. N. Babalola,
Department of Surgery, Urology Unit, Obafemi Awolowo University Teaching
Hospital, Ile-Ife, Nigeria.
E-mail: rereoluwa@yahoo.com

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PATIENTS AND METHODS

This was a retrospective review of all patients with urologic emergencies presenting to the adult Accident and Emergency Department (AED) of the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria between January 2008 and December 2017. Ile-Ife is a semi-urban city in Southwestern Nigeria with an estimated population of about 355,813 people as at 2015.^[3] The adult AED of our hospital is a 20-bedded unit where all adult medical, surgical, and gynecological emergencies are stabilized on initial presentation prior to transfer to the wards or theater.

The admission and discharge records of our AED were obtained from the Medical Records Department and details of all urologic patients seen during the period under review were retrieved. Data obtained included age, sex, and ethnicity, in addition to the outcome of the AED visit (whether the patient was transferred to the theater or to the wards, was discharged home from AED, or died while being resuscitated in the AED). This was recorded as appropriate into a proforma specially designed for the study. The data thus obtained were analyzed using the IBM Statistical Package for Social Sciences version 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY, USA: IBM Corp) and expressed as means and percentages.

RESULTS

Over the period under review, there were 17,933 adult males and 15,674 adult females presenting to our AED, making a total of 33,607 emergency admissions. Of these, 1102 were seen with urologic emergencies, representing 3.2% of the cases in the AED over the period reviewed. The urologic emergencies had a male: female ratio of 17:1. The patients' ages ranged between 18 and 105 years, with a median age of 62 years. Furthermore, the patients were mostly Yorubas (89.2%), the peak presentation was between the months of March and June, and the other details are summarized in Table 1 and Figure 1.

Acute urinary retention was the most common urologic emergency treated during the study period, accounting for 21.2% of urologic cases and 0.7% of all AED presentations. The causes of urologic emergencies in this study are shown in Table 2.

Benign prostate enlargement (BPE) was the most common primary urologic condition in the patients (303; 27.4%) followed by prostate malignancy (222; 20.1%) and urethral stricture (98; 8.8%). Patients with BPE had a mean age of 67.9 years, prostate malignancy – 72.5 years and urethral stricture – 61.8 years.

Urosepsis was responsible for urologic emergencies in 6.6% of cases. Acute prostatitis was the least common source of urinary sepsis in our study (0.9%).

Patients with testicular torsion had a mean age of 21.7 years, while those with priapism had a mean age of 27.3 years.

Table 1: Sociodemographic characteristics of the patients

Characteristics	Frequency (%)
Gender	
Male	1041 (94.5)
Female	61 (5.5)
Age group (years)	
<20	29 (2.6)
20-29	150 (1.3)
30-39	99 (8.9)
40-49	91 (8.2)
50-59	132 (12.0)
60-69	299 (27.1)
70-79	199 (18.1)
80-89	89 (8.1)
90-99	12 (1.1)
>100	2 (0.2)
Ethnicity	
Yoruba	960 (87.1)
Igbo	78 (7.1)
Hausa	14 (1.3)
Others	50 (4.5)
Total	1102 (100.0)

Table 2: Cases of emergency urology presentations in our hospital

Emergency presentation	Frequency (%)
Acute urinary retention	233 (21.2)
Gross hematuria	215 (19.5)
Urologic trauma	110 (10.0)
Urolithiasis	90 (8.2)
Chronic urinary retention	83 (7.5)
Testicular torsion	81 (7.4)
Urosepsis	73 (6.6)
Epididymo-orchitis	41 (3.7)
Fournier's gangrene	39 (3.5)
Priapism	29 (2.6)
Others	108 (9.8)
Total	1102 (100.0)

The urethral injury was the most common urologic injury at our center, accounting for 59% of all injuries, followed by bladder (24%), renal (8.1%), and testicular injuries (4.5%).

Of the 293 (26.5%) emergency patients who had malignancies, prostate malignancy was the leading cause of urologic emergency (222 patients, 75.8%) followed by bladder (59 patients, 20.1%) and then renal (12, 4.1%) malignancies.

Gross hematuria was seen in 215 patients, of which 123 (56.4%) has a suspected urologic malignancy, and only 35.3% had BPE. The association between hematuria and cancer was highest with bladder malignancies (77.6%).

Of the total number of urologic emergencies seen, 701 (63.6%) were discharged from the AED, 298 (27%) patients were

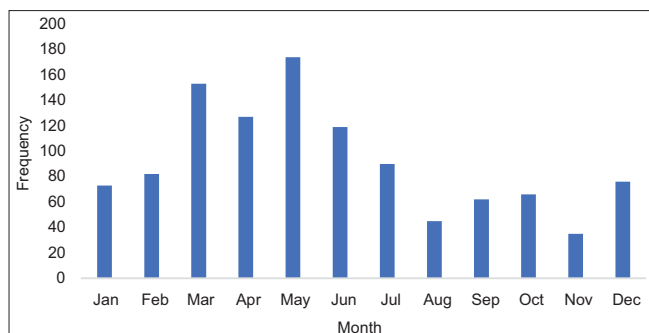


Figure 1: Chart showing presentation through the year

admitted for in-hospital urology care, while 73 (6.6%) were transferred to other specialties for the care of other medical conditions after their urologic problems have been successfully managed. There were 30 (2.7%) mortalities, with complications from malignancies being the leading causes of mortalities (90%), resulting from prostate, bladder, and renal malignancies in 66%, 16.7%, and 6.7%, respectively. Immediate causes of mortality, warranting the emergency presentation in these cancer-bearing patients, included disease progression often with metastatic disease, castrate resistance, urosepsis, and renal impairment.

DISCUSSION

Urologic emergencies accounted for 3.2% of all emergency presentations in our AED. This proportion might have been influenced by several factors, including the population of the study region, location, and the AED setup. For example, in Abuja, Nigeria's capital territory, Atim *et al.*^[4] recorded 92 urologic emergencies over an approximately 6-month period, which is higher than the average of about 110 patients/year which we encountered in our setting. This is, however, not surprising because ours is a semi-urban one, with a much lower population than Abuja. Furthermore, in Jaipur, India, Talreja *et al.*^[5] noted that 5.84% of all their surgical emergency admissions were urologic. In the current study, the fact that our AED combines surgical, medical, and gynecology patients, in addition to the demographics of both cities, might explain this difference.

It is also noted that the peak presentations were in the months of March to June, with lower presentations toward the end of the year. The reason for this is not entirely clear, but it might just be related to the sociocultural attitude of people avoiding the hospital around the latter months of the year/beginning of the new year, the usual festive periods (around November to February), only to later present with complications of the underlying/neglected urologic problems.

Urinary retention was the leading urologic emergency room (ER) complaint in this study, conforming with other reviews within our country and other parts of Africa. In Nigeria, acute urinary retention was constituted about a 3rd of urology emergency admissions in Zaria,^[6] and over half of the total

urologic emergencies seen in Abuja.^[4] Elsewhere in Africa, Kante, *et al.*^[7] reported urinary retention in up to 80% of the urologic emergencies seen in their ER in Guinea; while Fall *et al.*^[8] in Dakar, Senegal, and Diallo, *et al.*^[9] in Conakry, Guinea also reported similar patterns. In settings outside of the African continent, the pattern of urologic emergencies was however different, possibly as a result of regional differences in the epidemiology of urologic disease. For instance, Talreja *et al.*^[5] (India) reported that renal colic was more common than urinary retention in their cohort of patients, while in Matalya, Turkey, Cimen^[10] reported genitourinary infections and renal colics as their more prevalent emergencies.

Although the kidney has been said to be the most commonly injured urinary organ worldwide, especially in developed countries,^[11] the urethra was the most commonly injured structure in our review. Other studies in our country also share this view. For example, urethral injuries were the leading urologic injuries noted by Mbibu *et al.*,^[6] as well as by Salako *et al.*^[12] Differences in the mechanisms of injuries between developed and developing countries, based on varying human activities, might explain these variations. In addition, the limited advanced imaging modalities such as computed tomography (CT) scan in our environment for abdominal trauma might have made less renal injuries detected, especially the low-grade injuries which might be asymptomatic, self-limiting, and thus escape suspicion. It is also possible that those with higher grade renal injuries did not survive long enough to reach the AED, further reducing the documented incidence of renal injuries in our environment.

We noted an increase in the mean age of incidence of priapism (27.3 years), as a previous study close to two decades ago by Badmus *et al.*^[13] at our center had a mean age of 20.4 years in patients with priapism. A more recent study, by Ugwumba *et al.*,^[14] had a mean age of 30.5 years, comparable to our findings. It is possible that improved survival of sickle cell anemia in our sub-region,^[15] a strong predisposing condition to priapism, might have accounted for many more patients presenting at older ages.

This study showed a 2.7% AED mortality of our patients. This value is lower than the experience in other centers because it reflects only mortalities in the AED, and note necessarily the overall in-hospital mortality from urologic emergencies. Higher values of 14.6% were found by Ekeke *et al.*^[16] in South-South Nigeria, while Abdulkadir^[17] in Kano, Northern Nigeria, recorded an 8.17% mortality rate. There was a significant contribution of presentation with metastatic disease and urosepsis to mortality. Abdulkadir^[17] equally noted the strong association between urosepsis and mortality in their patients with urologic malignancies.

There are several factors that could have contributed to the morbidity and mortality encountered in our study. Being a referral center for peripheral hospitals, our center usually receives the very ill patients who are mostly at an advanced stage of their illness following disease progression at the

referring facilities. It has been shown from other studies in Nigeria that the mortality from prostate cancer (the leading cause of deaths in our study) is strongly related to late presentation in advanced disease.^[18-20] Insurance coverage in our setting is generally poor, and most patients have to pay out of pocket.^[21] While emergency treatment in our hospital does not require out-of-pocket payment in the first 24 h, the subsequent need for funds for continued care or for specialist care investigations might sometimes be challenging. Poor road network and transportation facilities may also hamper prompt presentation, especially for patients who reside in rural and remote communities. Furthermore, sociocultural and religious belief systems could possibly contribute to the late presentation as some patients would only seek medical attention as a last resort when complications might have set in.^[2]

Other general challenges of our health care system such as a weak system of pre-hospital care characterized by lack of trained paramedics and ambulance services; challenges with promptness and availability of some diagnostic laboratory, blood transfusion, and radiologic services; as well as sparse novel treatment options are also possible contributory factors to morbidity and mortality.

It is important to suggest possible solutions to some of these challenges in order to improve patient outcomes. First, it is important to educate the populace to identify red flag urologic complaints, such as hematuria and encourage early presentation. Patients who presented with metastatic disease, sepsis, and renal failure might have been salvaged if they had presented at earlier stages of the disease. Improvements in prehospital care are important and cannot be overemphasized to reduce mortalities. Provision of dedicated laboratory and radiology facilities within the AED will ensure prompt diagnosis and proper continuity of resuscitative care. In addition, improved theater, intensive care unit and organ support facilities (equipment and staffing), and functional CT/magnetic resonance imaging facilities will help to improve outcomes. Lastly, improved health insurance coverage will largely ease the financial burden of treatment for patients and their relatives. Patients would thus more likely present early and not when they have developed morbid complications.

CONCLUSION

Urologic emergencies form an important portion of emergency admission in a low-resource setting like ours. Efforts at early presentation, diagnosis, and prompt management of urologic malignancies; as well as prevention and treatment of complications such as renal impairment and urosepsis, will help reduce mortality. Challenges in the management of these patients in our setting have been highlighted and possible solutions are proffered. Hopefully, these will aid public health

interventions and health planning, leading to more judicious use of health facilities.

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Conflicts of interest

There are no conflicts of interest.

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