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Evaluation of urologic emergency cases applying to emergency service

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ABSTRACT

Introduction: Urological emergencies constitute a significant proportion of patients presenting to emergency services. In this study demographic data, clinical diagnosis and treatment options of urological emergency cases referred to Malatya Training and Research Hospital Emergency Service were evaluated retrospectively.

Materials and Methods: 18658, which were evaluated as urological emergency from 717624 patients who applied for Malatya Training and Research Hospital Emergency Service between March 2017 and March 2018 for any reason, were evaluated retrospectively. Demographic characteristics, such as age and gender of the patients, and medical treatments applied o clinics were evaluated.

Findings: 47.2% of the patients were male (mean age: 43.7), 52.8% were female (mean age: 39.9), 6.7% were children, 11.3% were 70 years or above. The number of patients who were diagnosed with genitourinary system infection was 8549. There were 4536 patients with acute renal colic, 67 patients with massive macroscopic hematuria. When 74 cases with genitourinary system trauma were evaluated, minor and major renal injuries were seen most frequently. 73 of the patients were surgically operated. A total of 5 (0.02%) patients with two major renal traumas, 2 Fournier gangrene and 1 gunshot injury to the scrotum region were referred to the secondary center after the first visit to the emergency center.

Conclusion: Urological emergencies that are frequently encountered in the emergency department should be evaluated quickly by the emergency physician and should be referred to a urology specialist. Having a detailed knowledge of the urological experience of the urologist and assessing the patient quickly and making the necessary intervention in the shortest time can be lifesaving.

Key words: Urology, emergency, diagnosis and treatment

Introduction

State hospital emergency services are one of the major units that a large proportion of patients refer to. A large number of patients with urological complaints are referred to emergency services for treatment. Diseases detected in urological patients who are referred to emergency services are often acute urinary retention, acute renal colic, acute scrotum, hematuria, genitourinary system infections, priapism and genitourinary system traumas [1,2]. Because of the crowdedness of the emergency department, diagnosis and treatment of patients with urological complaints are sometimes of vital importance. There are no large-scale epidemiological studies on the evaluation of urological emergency patients in our country. In this study demographic data, clinical diagnosis and treatment options of urological emergency cases referred to the Malatya Training and Research Hospital Emergency Service were evaluated retrospectively.

Materials and Methods

Our work has been approved by the local ethics committee. 18658 of 717624 patients who were evaluated as urological emergency and applied to Malatya Education and Research Hospital Emergency Service Between March 2017 and March 2018 for any reason were retrospectively screened. Demographic characteristics, such as age, sex, etc. and diagnosis of the patients and clinically applied treatments were evaluated.

Findings

18658 (2.59%) of 717624 patients who applied to emergency department due to any reason were urological. 47.2% of the cases were men (mean age: 43.7) and 52.8% were women (mean age: 39.9). Of the patients, 6.7% were children while 11.3% were above 70 years old. 8549 (80.31%) of the patients who were diagnosed as genitourinary system infection were female and 2073 (19.69%) were male. It was determined that 424 (4.02%) of these cases were hospitalized in the urology or infectious diseases clinics. There were 6685 patients with acute renal colic. Of these, 4536 (67.85%) were male and 2149 (32.15%) were female. Of these patients, 96 (1.43%) patients were admitted to the hospital for treatment. There were 67 patients with massive macroscopic hematuria and 54 (80.5%) of these patients were male and 13 (19.5%) were female. In this group, 12 (17.9%) patients were admitted to the hospital for treatment. In the 74 patients with genitourinary system trauma, minor renal and major renal injuries were the most common. 62 (83.7%) of the patients with genitourinary system trauma diagnosis were male, 12(16.3%)were female. It was determined that 13(17.5%) of the patients with genitourinary system trauma were treated and hospitalized. 545 patients (2.92%) were admitted to the hospital and treated when emergency urological events were taken into consideration. The distribution of urological cases according to clinical diagnosis in the emergency department at the indicated dates is detailed in Tables 1 and 2.73 (% 0.39) patients who applied to the emergency department underwent surgical

 Table 1. Distribution of clinical diagnoses of urological emergency cases.

Diagnosis	Number of patients	%
Genitourinary System Infections	10532	56.4
Acute Renal Colic	6685	35.8
Acute Urinary Retention	1244	6.7
Testicular Torsion	6	0.12
Orchiepididymitis	42	0.21
Massive Macroscopic Hematuria	67	0.35
Genitourinary System Injuries	74	0.38
Post-circumcision Bleeding	2	0.01
Scrotal Abscess	2	0.01
Urethral Stone	2	0.01
Fournier's Gangrene	2	0.01
TOTAL	18658	100

Table 2. Distribution of injury cases

Diagnosis	Number of patients	%
Minor Renal Injury	53	71.5
Scrotal Injury	2	2.77
Urethral Injury	2	2.77
Major Renal Injury	10	13.51
Bladder Injury	3	4.05
Penile fracture	4	5.4
TOTAL	74	100

Table 3. Distribution of cases undergoing surgical procedure.

Type of surgical procedures	Number of patients	%
Percutaneous Cystostomy	40	54.79
Post-circumcision Bleeding	2	2.74
Clot Evacuation	8	10.97
Testicular Detorsion	4	5.48
Scrotal Orchiectomy (Testicular Torsion)	2	2.74
Scrotal Abscess Drainage	2	2.74
Removal of Urethral Stone	2	2.74
Renal Exploration	4	5.48
Bladder Rupture Repair	3	4.1
Scrotal Incision Repair	2	2.74
Penile Fracture Repair	4	5.48
TOTAL	73	100

intervention. Forty (54.79%) patients who had acute urinary retention and could not have a ureteral catheter were performed percutaneous cystostomy. Apart from this, 2 (2.74%) patients underwent surgical interven-

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tion to stop the bleeding due to circumcision hemorrhage, 8 (10.97%) patients underwent clot evacuation due to acute clot retention, Four (5.48%) patients underwent surgical testicular detorsion due to testicular torsion, 2 (2.74%) patients underwent scrotal abscess drainage, 2 (2.74%) patients underwent endoscopic surgery for urethral stone causing acute urinary retention, 4 (5.48%) patients underwent renal exploration, 3 (4.1%) patients underwent renal exploration, 3 (4.1%) patients underwent scrotal incision repair and 4 (5.48%) patients had penile fracture repair (Table 3). A total of 5 (0.02%) cases (two major renal trauma, two Fournier gangrene, and one scrotal gunshot wound) were referred to the secondary center after the first visit to the emergency department.

Discussion

The most common urological diseases in patients in emergency department are acute urinary retention, acute renal colic, acute scrotum, hematuria, genitourinary system infections, priapism and genitourinary system traumas [1-5]. The most commonly encountered urologic emergencies in our study were consistent with the literature.

The most common urological diseases that are diagnosed and treated in emergency department are genitourinary system infections. Genitourinary system infections are commonly seen in adult women [2,6-8]. In our study, more than half of urological patients who applied emergency services had genitourinary system infections. Genitourinary system infections are more common in female gender [6,7]. In our study, 80.31% of the patients were female patients.

Although simple uncomplicated urinary tract infections can usually be improved by remote therapy, complicated urinary tract infections should be treated at the hospital [8,9]. While most of our patients had simple urinary tract infections, 4.02% of them received inpatient treatment.

Acute urinary retention is defined as the inability to remove urine for any reason. The most frequent intervention in acute urinary retention emergency group was urological emergency [7-12]. It is common in over sixty years of age and especially in male patients with benign prostatic hyperplasia. The risk of acute urinary retention increases with age. This risk is 2-3 times more above 80 years of age. Emergency treatment in acute urinal retention is to provide urine drainage [10-12]. In our study, 1244 (6.7%) patients were admitted to the emergency room because they could not urinate.

Patients with urethral strictures applying to the emergency department with an urgent need to urinate often found to have acute urinary retention. Urethral catheter insertion is contraindicated if there is a visible urethral injury in the iatrogenic or traumatic urethral injury. If blood is not seen in urethral meatus, a thin calibrated urethral catheter should be tried once and without forcing too much. If the urethral catheter cannot be inserted, the percutaneous cystostomy catheter should be done by a urologist [5,11-13]. Percutaneous cystostomy catheter placement was the most frequent emergency urological surgical procedure in our series (54.79%).

In the US, more than one million patients have been referred to the emergency departments due to acute renal colic within one year. In Europe, 7-9% of first aid emergency ambulance service calls are due to acute renal colic [14]. The risk of a human being having renal colic can range from one percent to one-tenth in his/her entire life [15-19]. Acute renal colic is most commonly seen in the 20-50 age group and male sex [5]. Acute renal colic treatment is often performed by an emergency physician [18-19]. In our study, it was determined that 6685 patients have acute renal colic, 4536 (67.85%) of these patients were male and 2149 (32.15%) were female. It was observed that the majority of the patients were treated at emergency service and 96 (1.43%) were hospitalized for treatment.

Macroscopic hematuria is an important and severe urological urgency that disturbs the patient and his / her relatives and causes the patient to have an urgent hospital admission. Massive hematuria is an intense and severe form of macroscopic hematuria. Occasionally massive hematuria leads to clot accumulation in the bladder and acute urinary retention associated with it [2]. There are many factors that cause hematuria. Hematuria needs to be assessed in the emergency department if it leads to clot retention and causes hematocrit depletion to disrupt vital signs [11,12]. In our study, 67 patients were admitted due to massive hematuria to the emergency department. In 8 of these patients, acute urinary retention was detected due to clot, and clot evacuation was performed under general or regional anesthesia.

The acute scrotum, which is also evaluated in a spectrum such as epididymo-orchitis, scrotal edema, and testicular torsion, has an important place in urological emergencies. Testicular torsion is often seen in adolescence. While acute epididymo-orchitis and scrotal edema improve with medical treatment and adjuvants, it is critical to intervene within hours or sometimes minutes in testicular torsion. Differential diagnosis should be made quickly in patients with an acute scrotum in the emergency department. [4,9,20-24]. In our study, the number of patients diagnosed with acute scrotum in the emergency department was 48, and testicular torsion was detected in 6 of these cases. Of the patients who had testicular torsion, four patients underwent surgical distortion, and two patients underwent scrotal orchiectomy because of necrotic foci during exploration.

Genitourinary system traumas constitute 10-15% of general body traumas that are referred to emergency services. It should be noted that although the most common injury is seen in kidneys, there may be injuries to other organs of the urinary system [25,26]. Ureteric injuries are very rare. Bladder and urethral injuries are usually accompanied by pelvic fractures. Sometimes iatrogenic bladder and urethral injuries can be seen. [4,25,27-29]. Penile fracture and scrotal region injuries are relatively rare [30-35]. In our study, it was seen that the most injured organ in the genitourinary traumas was the kidney (85,01%). The general approach to renal trauma is conservative treatment unless there is a hemodynamically disruptive injury or major vessel injury [27.29]. Only 2 of 10 (13.51%) patients with major renal injury underwent surgical intervention, and one of them underwent nephrectomy. In cases of bladder injuries (4.05%), primary repair and urethral catheterization were performed, and follow-up was chosen for urethral injuries (2.77%) after urethral catheterization. In 2 patients with scrotal injury (2.77%), primary repair was performed because the integrity of the scrotum was not impaired. In 4 cases with penile fracture (5.4%), the early primary repair was performed.

Circumcision hemorrhages are seen especially in

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clinics performing the frequent and large number of circumcision and after mass circumcision campaigns. In our study, 2 cases (2.74%) that had hemorrhage after circumcision had undergone primary bleeding control under local anesthesia. Scrotal abscess and Fournier gangrene are seen in patients with the comorbid disease, bedridden and in poor hygienic conditions. Although these patients are rarely encountered, they are frequently referred to emergency services. Diagnosis and treatment of this disease in a short time is sometimes vital [4,8,26,36-38]. In our study, two patients (2.74%) who had a scrotal abscess were treated with abscess drainage followed by antibiotherapy. Patients with Fournier gangrene were found to be referred to the secondary/tertiary center, taking into consideration the age and additional diseases.

As a result, urological emergency patients frequently apply to the emergency departments. Among these patients who applied, the majority of the cases are evaluated by medical treatment and outpatient clinic conditions. Besides, it should be noted that there may be those who need urgent surgical intervention. A careful and rigorous assessment and physical examination of the emergency department physician who sees the patient for the first time will lead the urologist correctly. This assessment is essential for the direct care of the patient's health and prevention of future problems.

Conflict of interest statement

The authors have no conflicts of interest to declare. **References**

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