

The Incidence of Acquired Urinary Tract Infections in Patients After Transurethral Resection of Bladder Tumors

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ORIGINAL PAPER

SUMMARY

Introduction: Transurethral resection (TUR) of bladder tumors is surgical treatment for visible tumors of the urinary bladder and is performed to remove the tumor and take samples for histopathological examination in order to determine the stage and tumor grade. Transurethral resection of prostate tumors (TURBT) is a surgical procedure that is performed daily at the Clinic for Urology, Clinical Center University of Sarajevo (CCUS). As for all other endoscopic urology procedure, typically urine must be sterile preoperatively. Patients with preoperative asymptomatic bacteriuria have a high risk of bacteremia and sepsis. In urological guidelines, antibiotic prophylaxis in TURBT is only given in cases of high risk patients, and necrotic tumors. **Methodology:** The study was conducted as a retrospective study which included patients underwent surgical treatment-TURBT and who underwent preoperative urine tests and postoperatively the clinical manifestation of UTI, urine cultures were isolated, and in case of the clinical indications also the blood culture. Included are only patients with preoperative sterile urine findings. The source of data was history of the disease. **Results:** From the 512 patients which underwent TURBT in 159 cases (31.0%) patients did not receive antibiotic prophylaxis and 353 (68.9%) patients received antibiotic prophylaxis. The first group of patients which did not receive antibiotic prophylaxis in 22 cases (14%) patients developed symptomatic urinary tract infection confirmed by urine culture and in 5 (3.1%) patient with blood culture was proven bacteraemia. In the second group of patients who received prophylactic antibiotic therapy in 78 cases (22%) patients developed a urinary infection and in 2 cases (0.57%) patients bacteremia was detected in blood culture. **Conclusion:** With regard to the set goals we have prove the incidence of urinary infection after performing TUR of bladder tumors in our Clinic.

Keywords: Urology Clinic Sarajevo, TURBT, urinary tract infection,

1. INTRODUCTION

Transurethral resection (TUR) of bladder tumors is surgical treatment for visible tumors of the urinary bladder and is performed in order to remove the tumor and take samples of tissue for histopathological examination to determine the stage and tumor grade (1, 2, 3). As for all other endoscopic urology procedures preoperative urine must be sterile, while in other cases it needs to be consider as the clinical indication. Patients with preoperative asymptomatic bacteriuria, have a high risk for emergence of bacteremia and sepsis. According to the urological guidelines, antibiotic prophylaxis in transurethral resection of prostate tumors (TURBT) is administered only in cases of high risk patients, such as: (very old age, obesity, malnutrition, cirrhosis, uremia, diabetes, burns, splenectomy, AIDS, immunosuppressive diseases, acute infections, use of corticosteroids, chemotherapeutic agents, transfusion of whole blood) and necrotic tumor. Prophylactic antimicrobial agents must cover the expected range of pathogens, and if during the surgery are identified additional infections, there is the need to apply additional antimicrobial medication. The expected causes of urinary tract infections after TURBT are Enterobacteriaceae and Enterococci, and a

recommended antibiotics are cephalosporines of the second and third generation, TMP+SMX, Aminopenicillin/BLL.

The first dose of prophylactic antibiotics is applied venously or muscullary, to a maximum of two hours before surgery, but not later than three hours after surgery. Clinically we distinguish symptomatic: with clinical manifestation and asymptomatic urinary infection. Asymptomatic bacteriuria is defined as the finding of two positive urine samples, taken at an interval of at least 24 hours, containing 10⁵ pathogens/ml. According to the international literature asymptomatic bacteriuria occurs in 30% of patients and represents a major reservoir for the spread of resistant bacteria within hospitals (4, 5).

2. METHODOLOGY

The study was conducted as a retrospective study which included patients underwent surgical treatment of TURBT, which preoperatively had urine findings, and postoperative clinical manifestation of urinary tract infection, urine culture were made, and in the case of clinical indications also the blood cultures. Included are only patients with preoperative sterile urine findings. Patients were hospitalized from 2-7 days as long as catheterization lasted. As

clinically manifest urinary tract infection, we consider a disease that is accompanied by fever and pain in the groin, demonstrated by a positive urine culture. Blood for blood culture samples were taken in patients whose body temperature exceeds 38°C. The source of data were history of illness. Number of patients involved in the study, taking into account the above criteria was 512.

3. RESULTS

The results are shown graphically.

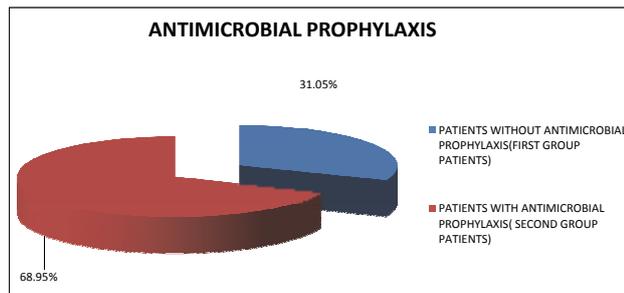


Figure 1. Antimicrobial prophylaxis

From a total of 512 patients undergoing TURBT, 159 (31.1%) patients did not receive antibiotic prophylaxis and 353 (68.9%) patients were treated with antibiotic prophylaxis.

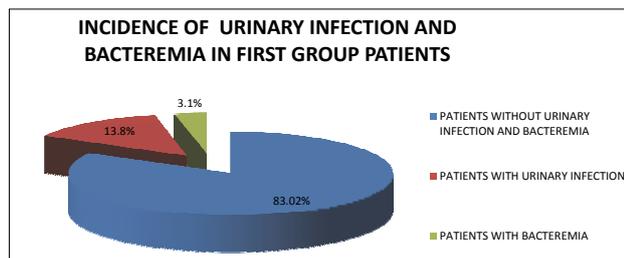


Figure 2. Incidence of urinary infection and bacteremia in first group patients

From a total of 159 patients who did not receive antibiotic prophylaxis, in 22 (13.8%) patients developed symptomatic urinary tract infection proven by urine culture, and in 5 (3.1%) patients, blood culture proven bacteraemia. From a total of 353 patients who received antibiotic prophylaxis, in 78 (22.1%) patients developed symptomatic urinary tract infection, and 2 (0.57%) bacteremia, blood culture proven.

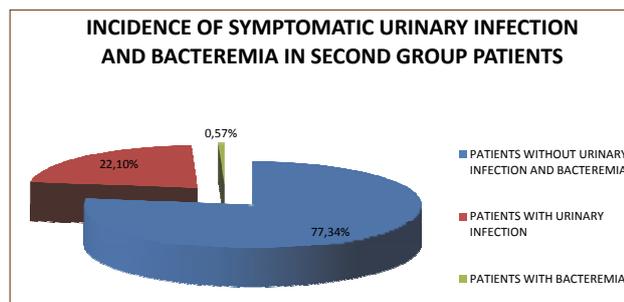


Figure 3. Incidence of symptomatic urinary infection and bacteremia in second group patients

4. DISCUSSION

In modern medical literature, the incidence of urinary infection after TURBT is a very variable and ranges from 2-39% (2, 4). In the literature there are many fewer studies dealing with urinary tract infection and antibiotic prophylaxis when performing TURBT, in relation to urinary tract infection and antibiotic prophylaxis when performing a TUR of the prostate (1, 4). Currently there are no exact statistics about the importance of urinary infection after TURBT, which is caused by bacterial colonization of the tumor tissue. It is believed that the mere manipulation during preoperative TURBT and has greater significance for the occurrence of urinary infection, but bacterial colonization of the tumor. The literature identifies the following recommendations for reducing the incidence of urinary infection after TURBT: if this is possible—preoperative sterile urine, antibiotic prophylaxis in high-risk patients and patients with large necrotic tumors, closed system of drainage katetra and the shorter duration kateterizacija.

5. CONCLUSION

TURBT is the common operational procedures at the Urology Clinic KCUS rare complications which include urinary tract infections. In a retrospective study which included 512 patients 159 patients (31.1%), which consisted of the first group was not under antibiotic prophylaxis while 353 (68.9%), comprising a second group of patients received antibiotic prophylaxis. In the first group of patients with symptomatic urinary tract infections developed in 22 (13.8%), and bacteremia in 5 (3.1%) patients. In the second group, symptomatic urinary tract infections developed in 78 patients (22.1%), and bacteremia in 2 (0.57%). Based on the results, the incidence of urinary tract infections was higher in the patients who received antibiotic prophylaxis, ie in patients with previously mentioned risk factors and the presence of necrotic tumor. Also, the number of patients with bakterijemijom was higher in the group of patients who did not receive antibiotic prophylaxis. Following current medical literature and instruction of contemporary urological guide on antibiotic prophylaxis, the incidence of symptomatic urinary infections after TURBT to our clinic in the frame of reference.

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