DOI: https://doi.org/10.53350/pjmhs2216524

ORIGINAL ARTICLE

To Determine the Efficacy of Antibiotic Prophylaxis in patients Undergoing Flexible Cystoscopy

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ABSTRACT

Background: Flexible cystoscopy is a commonly performed intervention in urology practice. It has both diagnostic and therapeutic value and has an added advantage of being used as an outpatient procedure. However one of the common complication associated with it, is the development of Urinary tract infection (UTI) because of its minimally invasive nature.
Aim: To determine the efficacy of antibiotic prophylaxis in patients undergoing flexible cystoscopy.
Methods: A randomized control study was performed in total 144 patients selected for flexible cystoscopy. Patients were divided into Group A (Antibiotic group) and Control Group B. Group A received a single dose of Levofloxacin 500mg one hour before procedure, while no antibiotic prophylaxis was given to Group B. Primary outcome was development of UTI, which was assessed by subjective symptoms of UTI, results of urine culture and routine urine examination at 1st week after the procedure
Results: After 1 week of procedure, 5 patients (6.9%) in Group A and 7 patients (9.7%) in Group B developed UTI. 3 patients (4.1%) in Group A and 6 patients (8.3%) in Group B developed asymptomatic bacteriuria after 1 week. 64 patients (88.9%) in Group A and 59 patients (81.9%) in Group B did not develop UTI after 1 week of procedure
Conclusion: Prophylactic use of antibiotics before flexible cystoscopy has no effect in reducing the frequency of post procedure urinary tract infections
Keywords: Urinary Tract Infection UTI), Cystoscopy, Antibiotic prophylaxis

INTRODUCTION

Flexible cystoscopy is one of the commonly used diagnostic urological procedures done on outpatient basis. Principally diagnostic, but can be used therapeutically for taking small biopsies, small tumors can be fulgurated, JJ stents can be removed and placed using flexible cystoscope[1]. It is usually tolerated well by patients however its main complications is development of Urinary Tract Infection (UTI)[2].

UTI is the inflammatory phenomenon of the urothelium to bacterial entry in the urinary tract. This response is characterized by a variety of symptoms like increased urinary frequency, dysuria, fever, urgency and suprapubic pain. The rate of UTI following flexible cystoscopy ranges from 2.7-35%[3]. The most common organisms responsible for causing UTI are Escherichia coli and members of Enterobacteriaceae family[4].

In order to minimize the risk of UTI, antibiotics are used preoperatively for procedures involving the urinary tract however wide variation exist regarding its use[5].According to urological guidelines(European Urological Association) if a patient has sterile urine then flexible cystoscopy can be performed without any prophylactic antibiotic cover[6.7]. According to one study the incidence of UTI after flexible cystoscopy in control group was found to be 10% compared with 11.1% in intervention group who received a single dose of prophylactic antibiotic before procedure[2]. Similarly another study showed incidence of UTI to be 3% in control group compared with 0.7% in intervention group and no significant difference was found[7]

Routine use of antibiotic prophylaxis in every patient undergoing flexible cystoscopy has led to development of resistant strains of bacteria[8] leading towards the use of broad spectrum antibiotics. Moreover it has increased the cost of treatment on patient and health care facility without a convincing evidence that antibiotic prophylaxis is necessary in order to decrease the incidence of UTI after flexible cystoscopy.

This study was conducted to establish the role of antibiotic prophylaxis in patients undergoing flexible cystoscopy and its efficacy in reducing post procedure UTI.

MATERIALS AND METHODS

A randomized control study was performed in 144 patients who underwent flexible cystoscopy. Patients were divided into Group A (Antibiotic Group) and Control Group B. Group A received a single dose of Levofloxacin 500mg one hour before procedure, while no antibiotic prophylaxis was given to Group B. Primary outcome was development of UTI, which was assessed by subjective symptoms of UTI, results of urine culture and routine urine examination at 1st week after the procedure. Data input and interpretation was done using SPSS version 20.0. Mean±Standard Deviation was calculated for continuous variables like age. Frequency (percentage) was calculated at 1st week post-operatively for categorical variables like indication for flexible cystoscopy (Hematuria, lower urinary tract symptoms, and surveillance of Bladder Cancer), gender and efficacy. Permission for this research was granted by Institutional Ethical Review Board.

Received on 11-10-2021
Accepted on 20-04-2022

RESULTS

One hundred and forty four patients took part in the study and were randomized into two study groups as defined previously. All flexible cystoscopies were performed in KRL hospital, Urology department as outpatient procedure from 1st November, 2016 to 30th April, 2017.The male to female ratio in Group A was 59/13 and 55/17 in Group B. The mean age in Group A was 37.9±13.01 and in Group B was 39.25±13.86. After 1 week of procedure, 5 patients (6.9%) in Group A and 7 patients (9.7%) in Group B developed UTI. This was assessed by the results of urine cultures and subjectives symptoms of UTI. 3 patients (4.1%) in Group A and 6 patients (8.3%) in Group B developed asymptomatic bacteriuria after 1 week. This group has positive urine cultures but did not develop any symptoms of UTI. 64 patients (88.9%) in Group A and 59 patients (81.9%) in Group B did not develop UTI after 1 week of procedure. This group had negative culture and did not develop any symptoms of UTI (Table 1). Results between two groups were compared using the Chi square test. The results showed that no statistical difference was found regarding efficacy of antibiotics between two groups

Table 1:

UTI Status	Frequency	%age
Group A (n=72)		
Positive	5	6.9
Negative	64	88.9
Asymptomatic Bacteriuria	3	4.2
Group B (n=72)		
Positive	7	9.7
Negative	59	81.9
Asymptomatic Bacteriuria	6	8.3

DISCUSSION

Flexible cystoscopy is generally carried out as an outpatient procedure under local anesthesia and generally considered safe however it is associated with various complications like UTI, pain and hematuria[7]. The risk of UTI following flexible cystoscopy is 2.7 to 3.5%[8].

In order to reduce this risk and prevent the patient from development of UTI, many studies were conducted to establish the role of preoperative antibiotics in preventing UTI after flexible cystoscopy. However no single consensus exists regarding the role of prophylactic antibiotics before flexible cystoscopy[9].

In patients with sterile urine and in those not having risk factors, prophylactic antibiotics are not needed according to European Urological Association[10]. Routine use of prophylaxis in every patient even with sterile urine and no risk factors resulted in development of resistant strains of bacteria and increased cost of treatment. Moreover no consensus exist regarding which type of antibiotic, dosage, mode of administration and duration of treatment should be used for prophylaxis[11-12]. Therefore one must be aware of most frequent bacteria involved in causing UTI and the knowledge of culture and sensitivities of antibiotics commonly prescribed is also necessary[13].

This study was conducted to establish the role of antibiotic prophylaxis in patients undergoing flexible cystoscopy and its efficacy in reducing post procedure UTI.

After 1 week of procedure 64 patients out of 72(88.9%) in Group A, who received prophylactic antibiotics did not develop UTI however it was seen that 59 patients out of 72(81.9%) in Group B also did not develop UTI after 1 week of procedure. The results were compared and no significant statistical difference was found between two groups.

CONCLUSION

The routine use of antibiotic prophylaxis in every patient before flexible cystoscopy does not reduces the frequency of post procedure UTI. Thus on the basis of these findings it is concluded that it is unnecessary to prescribe prophylactic antibiotics before flexible cystoscopy as most of the patients remained UTI free even without any prophylaxis.

Conflict of interest: Nil

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