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A Research Article

ANTIBIOTIC PROPHYLAXIS BEFORE CYSTOSCOPY IN FEMALE PATIENTS: A PROSPECTIVE COMPARATIVE STUDY

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Abstract:

Objective: To compare the outcome of single oral dose of ciprofloxacin verses no prophylaxis before minor cystoscopic procedures (diagnostic cystoscopy, check cystoscopy and removal of double J stent) in female patients.

Methodology: A total of 180 female patients were prospectively assessed. All patients had documented "no growth" on pre-procedure urine culture. Ninety female patients were randomized as Group A (No prophylactic antibiotics) and Group B (single oral dose of ciprofloxacin). Postoperatively all patients were observed for 4 hours in-hospital and then on telephone for first 3 days of procedure. Parameters including, burning micturition, fever, hematuria flank pain and urinary retention were recorded.

Results: Overall the median age was 52.4 years (23-74 years), the mean age in group A was 52+6.1 years and in group B was 49.2+7.4 years. There was no statistically significant difference in both groups. In terms of co-morbidities, there was no statistical significant difference in both groups. Majority of our cystoscopy indications were ureteral stent removal, diagnostic cystoscopy and check cystoscopy for surveillance of bladder tumor, both groups were statistically comparable ($p=0.09$). Post-procedure, majority of patients from both groups remained asymptomatic (group A = 80%, group B = 83%). Dysuria was reported by 17.7% of group A patients and 15.5% of group B patients, statistically it was comparable in both groups. Only 3 patients had culture proven urinary tract infections.

Conclusion: There is no difference in patients proceeding for day care cystoscopy procedures with or without taking prophylaxis. Double J stents removal, diagnostic cystoscopy and check cystoscopy can safely be performed without antibiotic prophylaxis. Dysuria can happen up to 17% of patients without prophylaxis.

Key Words: Antibiotic Prophylaxis, Cystoscopy.

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INTRODUCTION:

Diagnostic and therapeutic cystoscopy is the vital tool in office urology practice both in male and female populationⁱ. It is standard of practice for the evaluation of hematuriaⁱⁱ. In female indications are almost similar to maleⁱⁱⁱ. periodic check cystoscopy for assessment of bladder tumor recurrence and progression, stent removal and evaluation of refractory lower urinary tract symptoms. Prophylactic antibiotics for cystoscopy is still debatable and variable throughout the world^{iv}. Many studies report no absolute benefit in prophylactic antibiotics and prevention of postoperative UTI^v, on other hand there is possible overuse of antibiotics and development of antimicrobial resistance^{vi, vii}. Another concern regarding prophylaxis is non-applicability of protocols or guideline recommendations^{viii, ix}. Oral ciprofloxacin is well known drug and studied as prophylaxis for many endo-urological procedures^x. In our study we rationalized the use of prophylaxis and its possible benefits in terms of procedure relate UTI.

MATERIAL AND METHOD:

Setting: Jeejal Mau Hospital Hyderabad.

Duration of Study: January 2019 to August 2020.

A total of 180 female patients were prospectively assessed for urinary tract infection after cystoscopy. All patients had documented “no growth” on pre-procedure urine culture. One hundred and eighty female patients were equally randomized between Group A (No prophylactic antibiotics) and Group B (single oral dose of ciprofloxacin 500mg). Randomization was performed with balloting on the day of procedure. Patients already on antibiotics, hypersensitivity with quinolones and culture proven UTI were excluded from the study. For the study purpose, cystoscopy for simple indications (cystoscopy with ureteral stent removal, refractory

LUTs and check cystoscopy) were recruited. Cystoscopy was performed in operation theater in lithotomy position with standard preparation of povidone solution. Topical anesthesia with 4% lidocaine solution was installed in urinary bladder for 5 minutes. All female patients had 20Fr rigid cystoscopy with 0.9% normal saline irrigation. Urinary bladder was emptied at the end of the procedure with cystoscope sheath. Postoperatively all patients were observed for 4 hours in-hospital and discharged. Telephonic follow-up was made for first 3 days of procedure. Parameters including, burning micturition, fever, hematuria flank pain and urinary retention were recorded. All patients having symptoms of dysuria were requested for urine culture and antibiotics were started according to sensitivity. Statistical analysis was carried on SPSS version 21. A student t-test and chi square test were applied and p value of <0.05 were considered as statistically significant.

RESULTS:

Overall, the median age was 52.4 years (23-74 years), the mean age in group A was 52+6.1 years and in group B was 49.2+7.4 years. There was no statistically significant difference in both groups. In terms of co-morbidities, there was no statistically significant difference in both groups. Majority of our cystoscopy indications were double J stent removal and diagnostic cystoscopy and both groups were statistically comparable (p=0.09) Table # 1. Post-procedure, majority of patients from both groups remained asymptomatic (group A = 80%, group B =83%). Dysuria was reported by 17.7% of group A patients and 15.5% of group B patients, statistically it was comparable in both groups. Only 3 patients had culture proven urinary tract infections Table # 2. All 3 cultures grew E. coli bacteria.

Table # 1. Patient's Age, Co-morbidity and Indications of Cystoscopy.			
	Group A, n=90 (No prophylaxis)	Group B, n=90 (Single Oral Ciprofloxacin)	p values
Age (mean)	52+6.1	49.2+7.4	p=0.09
HTN	19 (21.1%)	17 (18.8%)	p=0.08
Diabetes	8 (8.8%)	9 (10%)	
Diagnostic Cystoscopy	26 (28.8%)	30 (33.3%)	p=0.09
Check Cystoscopy	25 (27.7%)	17 (18.8%)	
Removal of DJ Stent	39 (43.3%)	43 (47.7%)	

Table # 2. Post-Procedure Infection			
	Group A, n=90 (No Prophylaxis)	Group B, n=90 (Single Oral Ciprofloxacin)	p values
Asymptomatic	72 (80%)	75 (83%)	p=0.09
Dysuria only	16 (17.7%)	14 (15.5%)	
Dysuria + Culture +ve UTI	2 (2.2%)	1 (1.1%)	
Sepsis	0	0	###

DISCUSSION:

The cystoscopy is now a routine diagnostic and therapeutic tool, available in urology offices. It gives fast and accurate diagnosis of underlying urethral, prostatic and bladder pathology. As with its invasive nature, it carries risk of morbidity and urinary tract infections encompasses the significant bulk of hospital acquired infections^{xi}. To minimize the hospital acquired infections, every institute follow the local guidelines and protocols and on a larger scale internationally recommended guideline^{iv, xii}. On the other hand, many institutes avoid routine use of prophylactic antibiotics to save the cost, overuse of antibiotics and prevention of bacterial resistant to antibiotics^{ix}. In our part of the world stone is the endemic disease^{xiii} and with various indications ureteral stent placement is common phenomenon^{xiv}, in comparison Worldwide indications of cystoscopy are different^{xv, xvi}. Majority of our patients had cystoscopy with removal of ureteral stent. Other common indication in our study were diagnostic cystoscopy for refractory LUTS and check cystoscopy. Anatomically due to short length of urethra, female population can safely tolerate rigid cystoscopy^{xiii}. In our study population none of the patient was cancelled or converted to spinal or general anesthesia. Quinolones are widely studied antibiotics for the prophylaxis in urological surgeries^{x, xvii}. In our study we used single dose of ciprofloxacin 1 hour before the procedure. In our study population, majority of patients remained asymptomatic (>80% in each group). Symptoms of dysuria were comparable in both groups and there was no additional advantage noticed in patients with prophylaxis. Kamil Cam et al also reported with almost similar patient population and prophylactic with 3rd generation cephalosporin, he concluded that prophylaxis is not required before diagnostic cystoscopy in patient having urine without bacteruria^v. Contrary to our study, Maria Del C.C.G et al reported more culture positive UTIs in prophylaxis group as compared to group without prophylactic antibiotics^{xviii}. Results of our study confirms the no significant benefit of prophylactic antibiotics in routine office based cystoscopy procedures. Considering poor socio-economic status, it cost of

antibiotics significant burden on the government and the patient in private sector hospitals. However, it is important to conduct multi-centric trials and identify the low and high-risk population for hospital acquired infections and justifiably implement the practice of prophylaxis.

CONCLUSION:

There is no difference in patients proceeding for day care cystoscopy procedures with or without taking antibiotic prophylaxis. Ureteral stents removal, diagnostic cystoscopy and check cystoscopy can safely be performed without antibiotic prophylaxis. Dysuria can happen up to 17% of patients without prophylaxis. Multi-centric trials are needed to identify the low and high-risk population for hospital acquired infections and justifiably implement the practice of prophylaxis.

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REFERENCES:

1. The effect of office based flexible and rigid cystoscopy on pain experience in female patients. Niek F. Casteleijn, Jessica L. Vriesema, Saskia P. Stomps, Olav L.W.B. van Balen, Erik B. Cornel. *Investig Clin Urol*. 2017 Jan; 58(1): 48–53.
2. Diagnostic tests used in the investigation of adult haematuria: A systematic review. Rodgers MA, Hempel S, Aho T, Kelly JD, Kleijnen J, Westwood M *BJU Int*. 2006 Dec; 98(6):1154-60.
3. Flexible and Rigid Cystoscopy in Women. Jason R. Gee, Bradley J. Waterman, David F. Jarrard, Sean P. Hedican, Reginald C. Bruskewitz, Stephen Y. Nakada. *JSLs*. 2009 Apr-Jun; 13(2): 135–138.
4. Antimicrobial agents for preventing urinary tract infections in adults undergoing cystoscopy. Shuxiong Zeng, Zhensheng Zhang, Yu Bai, Yinghao Sun, Chuanliang Xu, Cochrane Urology Group. *Cochrane Database Syst Rev*. 2019 Feb; 2019(2): CD012305.

5. Prospective evaluation of the efficacy of antibiotic prophylaxis before cystoscopy. Kamil Cam, Ali Kayikci, Ali Erol. *Indian J Urol.* 2009 Apr-Jun; 25(2): 203–206.
6. Overuse of Antimicrobial Prophylaxis in Community Practice Urology. Matthew Mossanen, Joshua K. Calvert, Sarah K. Holt, Andrew C. James, Jonathan L. Wright, Jonathan D. Harper, John N. Krieger, John L. Gore. *J Urol.* 2015 Feb; 193(2): 543–547.
7. Surgical Antibiotic Prophylaxis and Risk for Postoperative Antibiotic-Resistant Infections. Margot E Cohen, Hojjat Salmasian, Jianhua Li, Jianfang Liu, Philip Zachariah, Jason D Wright, Daniel E Freedberg. *J Am Coll Surg* 2017 Nov; 225(5): 631–638.e3.
8. The Global Prevalence of Infections in Urology Study: A Long-Term, Worldwide Surveillance Study on Urological Infections.. Wagenlehner F, Tandogdu Z, Bartoletti R, Cai T, Cek M, Kulchavenya E, Köves B, Naber K, Perepanova T, Tenke P, Wullt B, Bogenhard F, Johansen TE. *Pathogens.* 2016 Jan 19; 5(1).
9. Identifying antibiotic stewardship interventions to meet the NHS England CQUIN: an evaluation of antibiotic prescribing against published evidence-based antibiotic audit tools. Neil Powell, Kate McGraw-Allen, Alasdair Menzies, Bradley Peet, Callie Simmonds, Abigail Wild. *Clin Med (Lond)* 2018 Aug; 18(4): 276–281.
10. Antibiotic prophylaxis for transrectal ultrasound-guided prostate needle biopsy: Compared efficacy of ciprofloxacin vs. the ciprofloxacin/fosfomycin tromethamine combination. Alexandre Morin, Marco Bergevin, Natalie Rivest, Steven P. Lapointe. *Can Urol Assoc J.* 2020 Aug; 14(8): 267–272.
11. High proportion of healthcare-associated urinary tract infection in the absence of prior exposure to urinary catheter: a cross-sectional study. Ilker Uçkay, Hugo Sax, Angèle Gayet-Ageron, Christian Ruef, Kathrin Mühlemann, Nicolas Troillet, Christiane Petignat, Enos Bernasconi, Carlo Balmelli, Andreas Widmer, Karim Boubaker, Didier Pittet. *Antimicrob Resist Infect Control.* 2013; 2: 5.
12. Clinical Practice Guidelines for the Antibiotic Treatment of Community-Acquired Urinary Tract Infections. Cheol-In Kang, Jieun Kim, Dae Won Park, Baek-Nam Kim, U-Syn Ha, Seung-Ju Lee, Jeong Kyun Yeo, Seung Ki Min, Heeyoung Lee, Seong-Heon Wie. *Infect Chemother.* 2018 Mar; 50(1): 67–100.
13. Epidemiology of urolithiasis in Asia. Yu Liu, Yuntian Chen, Banghua Liao, Deyi Luo, Kunjie Wang, Hong Li, Guohua Zeng. *Asian J Urol.* 2018 Oct; 5(4): 205–214.
14. Ureteral stents in urolithiasis. Matthias Beysens, Thomas O. Taily. *Asian J Urol.* 2018 Oct; 5(4): 274–286.
15. Do We Need Surveillance Urethro-Cystoscopy in Patients with Neurogenic Lower Urinary Tract Dysfunction?. Ulla Sammer, Matthias Walter, Stephanie C. Knüpfer, Ulrich Mehnert, Beata Bode-Lesniewska, Thomas M. Kessler. *PLoS One.* 2015; 10(10)
16. Routine Cystoscopy After Robotic Gynecologic Oncology Surgery. My-Linh T. Nguyen, Erin Stevens, Christopher J. LaFargue, Michael Karsy, Tarah L. Pua, Constantine Gorelick, Sean S. Tedjarati, Tana S. Pradhan. *JSLs.* 2014 Jul-Sep; 18(3).
17. Oral ciprofloxacin or trimethoprim reduces bacteriuria after flexible cystoscopy. Johnson MI, Merrilees D, Robson WA, Lennon T, Masters J, Orr KE, et al. *BJU Int.* 2007; 100: 826–9.
18. Usefulness of antimicrobial prophylaxis with ciprofloxacin prior to flexible cystoscopy. [María Del Carmen Cano-García](#), [Rosario Casares-Pérez](#), [Elisabeth Castillo-Gallardo](#), [Sergio Merino-Salas](#), [Miguel Arrabal-Martín](#), [Miguel Ángel Arrabal-Polo](#). *Rev Med Chil.* 2015 Aug; 143(8): 1001–4.