CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3563437

Available online at: http://www.iajps.com *Research Article*

OCCURRENCE OF URINARY TRACT INFECTIONS AND PROMOTING FACTORS AMONG PYURIC DIABETICS PATIENTS

[1]Dr Abid Ali, [2]Dr Sadaf Zahid, [3]Dr Muhammad Amin

[1]D.G Khan Medical College D.G Khan, [2]Islamabad Medical and Dental College, Islamabad, [3]Medical Officer at RHC Zahir Pir, Rahim Yar Khan.

Article Received: October 2019 **Accepted:** November 2019 **Published:** December 2019

Abstract:

Objectives: *The purpose of this research work is to find out the occurrence of Urinary Tract Infection in the patients of pyric diabetes and to determine the frequency of the sterile pyuria among these patients as well as determination of the prompting risk factors to these urinary tract infections.*

Methodology: *This study is a prospective research work conducted in the DHQ Teaching Hospital D.G Khan. The duration of this research study was from May 2019 to July of 2019. We used the convenient method for sampling. The size of the samples was 60 patients. All the adults with more than sixteen year of age with Diabetes Mellitus and pyuria (greater than four pus cells / HPF) whose report for urine culture was present were the part of this research work. We took the written consent from all patients. We collected all the information on a well-organized Performa. SPSS V.20 was in use for the statistical analysis of the collected information.*

Results: *There were total 60 patients with pyric diabetic were the participants of this research work. The frequency of urinary tract infection was 58.618% (40 out of 60), the rate of occurrence of the sterile pyuria was 37.168% (20 out of 60). The occurrence of the urinary tract infection was more in female gender with symptoms of infection in lower urinary tract and frank pains. High level of serum creatinine, positive nitrates, proteinuria, stone disease and hindered pelvicalyceal system were highly present in the patients with positive culture as compared to the patients present with negative culture.*

Conclusions: *Pyuric diabetic samples of this research work were present to have the positive culture for urinary tract infections in 58.618% patients and with negative-culture sterile pyuria in 37.168% patients. The prevalence of the urinary tract infection was high among females.*

Keywords: *Diabetes Mellitus, Urinary Tract Infection, Pyuric, Screening, Prevalence, Nitrates.*

Corresponding author:

Dr. Abid Ali,

D.G Khan Medical College D.G Khan.

QR code

Please cite this article in press Abid Ali et al., ***Occurrence of Urinary Tract Infections and Promoting Factors among Pyuric Diabetics Patients.,*** *Indo Am. J. P. Sci, 2019; 06(12).*

INTRODUCTION:

The detailed report of urine is very important for assessment and screening of majority of the diseases. The presence of the pus cells in the urine are pyuria which can be asymptomatic or can show the underlying urinary tract infection. Pyuria is noteworthy when there are greater than four pus cells / HPF in sample of centrifuged urine. Many infections which are not detected by the routine culture of urine can be present with an association with the sterile pyuria as genitourinary TB, infection with due to fastidious developing organisms as urea plasma urealyticum, chlamydia, acknowledged systemic abnormalities related with the sterile pyuria are Sickle Cell Disease, SLE, Kawasaki's disease and reiters syndrome. Some anomalies in the structure of kidneys to have association with the sterile pyuria are the incontinence, stone disease, renal papillary necrosis, poly-cystic kidneys, kidney neoplasms, improperly handled urinary tract infections and tubule-interstitial nephritis.

The rate of occurrence of urinary tract infection among the patients of diabetes is 23.28% in a study conducted in UAE, one other research work conducted in Italy also demonstrated asymptomatic bacteriuria in the patients of diabetes. This research work aimed to support in the estimation of the problem load on the patients of diabetes and identification of the urinary tract infection and designing the guidelines and standards for its assessment and administration.

METHODOLOGY:

This study is a prospective research work based on observations conducted at DHQ Teaching Hospital D.G Khan. The duration of this research study was from May 2019 to July of 2019. All patients having more than sixteen year of age suffering from Diabetes Mellitus and pyuria (greater than four pus cells / HPF) and urine culture of those patients was also available were the participants of this research work. D/R and C/S of urine being sent at identical time. We selected these patients from inpatient and outpatient departments. We collected the information about the age of patient, duration of Diabetes Mellitus, symptoms of lower tract infections, high temperature, flank pain, stone complications and benign prostatic hypertrophy with direct interview with the patients and we recorded this information on well-organized Performa.

The information of the laboratory collected from record files about AIC of hemoglobin, D/R and C/S of urine creatinine of serum, ultrasound of kidneys, bladder and ureter and glycosuria. We examined the fresh sample of urine in laboratory on urine analyzer, we carried out the centrifugation at 2500.0 rpm for complete five minutes. Then we carried out the microscopy at very high power field (40.0X100.0) for the counting of the cells. The total amount of the samples was 60. We took the written consent from the patients after describing them the purpose of the research work. We collected all the information on a Performa. SPSS V.20 was in use for the statistical analysis of the collected information.

RESULTS:

Total one hundred patients approached the hospital but the data of 40 patients was not complete so finally, we included 60 patients. Detail about the demography of these patients is present in Table-1. The average Hba1c in the patients of this research work was 4.408 ± 4.203. Among 23 male patients, there was confirm benign prostatic hypertrophy in 13.0% patients. We found the previous history of culture positive urinary tract infection in 26 patients. There was presence of fever in 40.18% patients. Flank pain was present in 24.78% patients. The infections of the lower urinary tract were available in 55.68% patients. Urinary tract infections were present in 58.78% pyuric patients. In this patient's group of pyuric diabetes suffering from urinary tract infection, average age of the patients was 53.95 ± 9.28, average duration of diabetes was 4.83 ± 4.03, there was presence of benign prostatic hypertrophy in 20.18% patients, past history of urinary tract infection was present in 59.0% patients, the symptoms of the lower urinary tract were present in 64.08%, fever was present in 48.82% and flank pain was available in 26.78% patients.

Table-I: Demographic Data Of Study Population

Demographic Aspects	Total No Of Patients	Pyuric Diabetic Patients With Urinary Tract Infection	Diabetic Pyuric Patients With Sterile Pyuria
	Mean ± SD	Mean ± SD	Mean ± SD
No of Patients	97.00 ± 100.00	59.00 ± 60.80	38.00 ± 39.20
Mean age	50.97 ± 19.34	55.97 ± 11.30	55.53 ± 9.88
Patients Seen in OPD	79.00 ± 81.44	46.00 ± 77.96	33.00 ± 86.84
Patients Seen in Ward	18.00 ± 18.66	13.00 ± 22.04	5.00 ± 13.16
Diabetes Duration in Years	7.15 ± 6.26	6.85 ± 6.03	7.46 ± 6.50

On laboratory evaluation, average HbA1c was 4.08 ± 2.44, glycosuria was present in 26.78%, proteinuria in 67.48%, positivity of nitrite in 11.58%, hindered tract on ultrasonography was present in 11.58% and average serum creatinine was available in as 1.71 ± 1.22. We saw the sterile pyuria in 37.08%. In this group, rate of the all variables are present in Table-2 and Table-3 with comparison to the first group of patients. The results of this research work show that urinary tract infections are much common in female patients.

Table-II: Clinical Parameters Of Diabetic Pyuric Patients

Parameters	Pyuric Diabetic Patients with Urinary Tract Infection (n=40)	Sterile Pyuria In Diabetic Pyuric Patients (n=20)
	Mean ± SD	Mean ± SD
BPH among males (n=18)	2.0 ± 20.18	1.0 ± 2.58
Past History of Urinary Tract Infection	34.0 ± 59.00	18.0 ± 50.58
LUTS	37.0 ± 44.08	15.0 ± 42.68
Fever	28.0 ± 48.82	9.0 ± 26.88
Flank pain	15.0 ± 26.79	7.0 ± 21.66

Table-III: Laboratory Results On Study Population

Lab Results	Pyuric Diabetic Patients With Urinary Tract Infection (n=40)	Sterile Pyuria In Diabetic Pyuric Patients (n=20)
	Mean ± SD	Mean ± SD
HbA1C (Mean,SD)	4.08 ± 2.44	5.08 ± 3.73
Glucosuria (No / %)	15.00 ± 26.78	12.00 ± 34.78
Proteinuria on dipstick (No / %)	39.00 ± 67.48	17.00 ± 48.00
Nitrite positive on dipstick (No / %)	6.00 ± 11.58	1.00 ± 2.58
Obstructed (No / %)	6.00 ± 11.58	1.00 ± 2.58
Serum creatinine (Mean,SD) - Ultrasound	1.71 ± 1.22	1.54 ± 2.18

DISCUSSION:

Overall concluded rate of occurrence of urinary tract infection among the patients of diabetes was 23.28% whereas 39.08% among these were the female patients. In this current research work, the rate of the prevalence of the urinary tract infections in more than half patients suffering from pyuric diabetes. This can be due to our definite inclusion criteria. We did not find any research work describing the rate of occurrence of urinary tract infection suffering from pyuric diabetes. The existing evidences are present without any support for the anti-microbial therapy asymptomatic bacteriuria among the patients of diabetes. Possibility of urinary tract infection increases if the patient of diabetes with pyuria is symptomatic. In time diagnosis and management of the symptomatic

urinary tract infection in the patients of diabetes is needed for the prevention of pyelonephritis and abscesses in renal function.

Our results were consistent with the findings of other research works about the urinary tract infections in the patients present with enlarged prostate or with the previous history of the urinary tract infection. We also noticed the presence of proteinuria in approximately 68.0% patients with urinary tract infections. Females were present with high risk of urinary tract infection. Our study also confirmed this finding. There is scarcity of the research works on sterile pyuria. There are many diseases which have association with the sterile pyuria as elaborated in the introductory part. One research work conducted from Italy has described the asymptomatic bacteriuria in the patients suffering from diabetes. One recent research work conducted retroactively in Pakistan stated the rate of incidence of sterile pyuria in genitourinary TB as 17.0%. In this research work, among all the patients with pyuric diabetes, only 58.78% patients were present with a report of positive culture and there was no growth on standard culture of urines for next patients. So, it is sensible to propose that pyuric diabetics require treatment particularly females.

CONCLUSION:

Pyuric diabetics in this research work were available with the culture positive urinary tract infection in 58.618% and culture-negative sterile pyuria in 37.168% subjects. The prevalence of the urinary tract infection was high in female gender. There is need of further research works to describe that if diabetes is a reason for sterile pyuria. Small size of sample is a limitation of this research work.

REFERENCES:

1. Patra, E. P., Karna, S., Meher, D., & Mishra, S. (2019). Bacterial causes of community acquired and nosocomial urinary tract infection in type 2 diabetes: A comparative approach. Journal of Diabetology, 10(3), 102.
2. Ezejiofor, T. I. N. (2016). Environmental Factors in Renal Disease: The Contribution of Urinary Tract Infections in Nigerian Renal Disease Burden-Research. Clinical Microbiology: Open Access.
3. Boothe, D. M., & Boothe, H. W. (2015). Antimicrobial considerations in the perioperative patient. Veterinary Clinics: Small Animal Practice, 45(3), 585-608.
4. Khurram, A., Danial, K., Ahmed, K., &
5. Ali, Z. (2016). Prevalance of pyuria in diabetic patients at a tertiary care hospital in Karachi, Pakistan: an observational study. Pak J Surg, 32(3), 168-171.
6. Bashir, H., Saeed, K., & Jawad, M. (2017). Causative Agents of Urinary Tract Infection in Diabetic Patients and Their Pattern of Antibiotic Susceptibility. Khyber Medical University Journal, 9(4).
7. Shah, S. F., & SA, P. (2016). Gross pyuric diabetics with uncontrolled glycemia: Pattern of pathogenic organisms and antimicrobial susceptibility. Khyber Med Univ J, 8(4), 189-93.
8. Patodia, M., Goel, A., Singh, V., Singh, B. P., Sinha, R. J., Kumar, M., ... & Sankhwar, S. N. (2017). Are there any predictors of pyonephrosis in patients with renal calculus disease? Urolithiasis, 45(4), 415-420.
9. Richa, C., Bhushan, C. S., Kumar, S. P., Dev, P. N., & Nabaraj, P. (2016). Bacteriology of urinary tract infection of chronic renal failure patients undergoing for hemodialysis. J Microbiol Exp, 3(3), 00089.
10. Saheb, S. A. (2018). Prevalence of urinary tract infections in febrile children less than five years of age: a chart review. International Journal of Contemporary Pediatrics, 5(2), 359.
11. Al Rubeaan KA, Moharram O, Al Naqeb D, Hassan A, Rafiullah MR. Prevalence of urinary tract infection and risk factors among Saudi patients with diabetes. World J Urol. 2013;31(3):573-578.
12. Bonadio M, Costareli S, Morelli G, Tartaglia T. The influence of diabetes mellitus on the spectrum of uropathogens and the antimicrobial resistance in elderly adult patients with urinary tract infection. BMC Infect Dis. 2006;17(6):54.
13. Oosi ST, Frazee LA, Gardner WG. Management of asymptomatic bacteriuria in patients with diabetes mellitus. Ann Pharmacother. 2004;38(3):490-493.
14. The prevention and management of urinary tract infections among people with spinal cord injuries. National Institute on disability and rehabilitation research consensus statement, January 27-29, 1992. J Am Paraplegia Soc. 1992;15(3):194-204.
15. Guillausseau PJ, Farah R, Laloi- Michelin M, Tielmans A, Rymer R, Warnet A. Urinary tract infections and diabetes mellitus. Rev Prat. 2003;53(16):1750-1756.
16. Litza JA, Brill JR. Urinary tract Infections. Prim Care. 2010;37(3):491-507.
17. Buchhz NP, Haque R, Salahuddin S. Genitourinary tuberculosis: a profile of 55 inpatients. J Pak Med Assoc 2000; 50:250.
18. Swavely*, N., Speich, J., Nandanan, N., Balthazar, A., & Klausner, A. (2019). MP56-02

Multi-Channel Urodynamics in Healthy Volunteers: Challenges in Defining Normal. The Journal of Urology, 201(Supplement 4), e803-e804.

19. Fadhil, R. S. (2018). Urinary tract infection among patients with bladder cancer: Bacteriological studies. Iraqi Journal of Cancer and Medical Genetics, 5(2).
20. Roshdibonab, F., FazlJoo, M., Mohammadbager, S., Torbati, M., Mohammadi, G., Asadloo, M., & Noshad, H. (2017). The Role of Cranberry in Preventing Urinary Tract Infection in Children; a Systematic Review and Meta-Analysis. International Journal of Pediatrics, 5(12), 6457-6468.