

ASSESSMENT OF DRUG USE PATTERN AMONG PATIENTS OF OVERACTIVE BLADDER AT A TERTIARY CARE TEACHING HOSPITAL: A CROSS-SECTIONAL STUDY .

Purab Kant Acharya^a, Benu Panigrahy^b, Y Roja Ramani^{b,*}, Surya Kumar Biswal^b, Dibya Ranjan^b

^a *Department of Pharmacology, MKCG Medical College, Berhampur, Odisha, India*

^b *Department of Urology, MKCG Medical College, Berhampur, Odisha, India*

Abstract

Introduction:

Overactive bladder (OAB) is a serious illness that affects both men and women and becomes more common with age. A large fraction of this population has comorbidities and takes many medicines. To encourage rational drug use in this population the World Health Organization's drug use indicators appears to be an important tool assess drug use trends.

Objectives:

This study was conducted to assess medication utilization patterns in patients with OAB attending the Urology OPD.

Materials & Methods:

During November –December 2022 this cross-sectional observational research was conducted. The study comprised 51 patients aged 18–60 of both genders. Patients had Overactive Bladder symptoms. The WHO prescription indicators were used to examine these patients' data.

Findings:

The average number of drugs prescribed per encounter was found to be 3.66 (optimal value 1.6–1.8). An antibiotic was found to be prescribed in 68.63% of encounters (optimal value 20.0–26.8%). The most commonly prescribed form of antibiotic was Ciprofloxacin. 100% of drugs were prescribed by their Generic name. None (0%) of the encounters prescribed an injection. 50.27% of drugs were prescribed from the Essential Drug List (EDL). 29 (74.36%) patients received combination therapy of Tamsulosin + Dutasteride due to BPH. All the study subjects were treated with Beta-3 Agonist Mirabegron for OAB symptoms.

Conclusion:

On the basis of this study's findings, polypharmacy, the prescribing practises for antibiotics, deviates from the WHO-recommended standard. Since antibiotics are frequently overused and expensive, their use must be appropriately monitored. In contrast, generic prescribing and EDL prescribing were not identified as problematic in this study. Further, long-term studies are required to detect irrational use of antibiotics among the study subjects.

Recommendation:

Physicians and pharmacist should be aware regarding drug usage of the patients with infections. Patients should be counselled regarding the harm it can cause and the antimicrobial resistance that can occur.

Keywords: over active bladder, WHO prescribing indicators, Drug use pattern,

Submitted: 2023-08-29, Accepted: 2023-09-08

1. Introduction:

Lower urinary tract symptoms (LUTS) are linked with numerous diagnoses, including overactive bladder (OAB) symptoms with or without bladder infections, bladder pain syndrome, urinary incontinence, and benign prostatic hyperplasia (BPH).^{1,2} Overactive bladder (OAB) is a bothersome storage urinary symptoms clinical problem among both male and female which presents with uncontrollable and frequent need to pass urine. Its prevalence increases with age adults (≥ 40 years), with women (11–39.5%) more commonly experiencing this disorder than men (11–27%).^{3,4} Many of them have associated comorbidities and with multiple medications. OAB is treatable and includes behavioural therapy, physiotherapy along with pharmacotherapy. Anticholinergic drugs like darifenacin, fesoterodine, oxybutynin, solifenacin, tolterodine and trospium being the mainstay of therapy, produce significant improvements in OAB symptoms. Despite good efficacy anticholinergics have significant side effects like headache, constipation, blurred vision, and dry mouth, and drug interactions with various other concomitant medications, as a result of which compliance with treatment is often compromised. In their most recent guidelines, all scientific organisations recommend Mirabegron as a novel option for treating idiopathic OAB/LUTS.⁵ It has a high safety profile including for cardiovascular events. A changed practice patterns among physicians from anticholinergic medications towards β_3 -adrenoceptor agonists in patients suffering from OAB, has been observed in various studies⁶. Mirabegron, a β_3 -adrenoceptor agonist with an independent mode of action from anticholinergics, is the first medication in this class to be authorised for treating OAB symptoms.⁷ Also, studies have shown the benefits of combination therapy of antimuscarinic and β_3 agonists as an additional option to treat OAB. For the purpose of promoting rational drug use among this population, it is necessary to assess patterns of

drug usage using the World Health Organization's drug use indicators. The purpose of this investigation was to describe utilisation patterns of various drugs to treat OAB in this tertiary care health set up.

1.1. Objectives:

This study was conducted to assess medication utilization patterns in patients with OAB attending the Urology OPD.

2. Materials & Methods:

This was a prospective cross-sectional observational study conducted from November 2022 to December 2022. Fifty-one [51] patients of either sex, aged 18-60 years presenting with symptoms of OAB were enrolled using convenience sampling method. The study was approved by the Institutional Ethics Committee (ECR/661/Inst/OR/2014/RR-21) and informed consent was obtained from the patients prior to starting the data collection.

2.1. Inclusion Criteria:

All adult (age ≥ 18) patients with OAB with/without BPH

2.2. Exclusion Criteria:

Patients with OAB who are catheterised.

2.3. Study Tools:-

(a) Pre-designed Case Record Form consisting of socio-demographic status, symptoms, diagnosis & prescribed treatment.

(b) WHO Core drug prescribing indicators – for evaluation of Drug Utilization Pattern among OAB patients.

The socio-demographic and clinical characteristics of the study population were collected in a validated case record form from IPD and OPD of Urology Department.

2.4. Statistical Analysis:

Socio-demographics, symptoms, patterns of drug used, WHO core drug prescribing indicators were presented as percentages & proportions.

*Corresponding author.

Email address: yrramani2021@gmail.com (Y Roja Ramani)

3. Results:

Data collected from fifty-one patients was compiled and evaluated using World Health Organization (WHO) prescribing indicators.

4. Discussion:

Management of overactive bladder depends on the type of urinary incontinence and its severity. 78.43% of the study population were on combination of Tamsulosin and Dutasteride. All patients presenting with OAB symptoms were prescribed Mirabegron irrespective of other concomitant medication for other associated conditions. This finding corroborated with studies conducted by ⁸. Present study reveals that, in our setting, prescribers adhered to generic prescribing [100%] & prescribing from the Essential Drugs List 2020 as drugs are dispensed only from the Hospital Pharmacy. There was a deviation of prescribing indicators from the standard values recommended by WHO in context to Polypharmacy and Antimicrobial prescriptions. Polypharmacy observed in the present study might have been due to the reason that patients with overactive bladder (OAB) also had comorbid medical conditions like, cardiovascular, neurological, and psychiatric. Also 78% study population were suffering from benign prostatic hyperplasia symptoms along with overactive bladder symptoms. The prescribing practices for antibiotics also didn't match the optimal value of WHO. This inflated use of antimicrobials can be attributed to an infection outbreak (seasonal) during the study period. Both the above findings ultimately lead to increased value of average number of drugs prescribed per encounter (3.66). Prescription pattern monitoring research is an instrument for assessing the prescribing, dispensing, and distribution of medications prevalent in a particular area, facilitating the rational use of drugs for a specific disease condition⁹. Therefore, there is need for urgent action to improve prescription practices, like integration of WHO treatment recommendations¹⁰ and following the AWaRe classification¹¹ into national guidelines. As serious and catheterised pa-

tients were excluded from the study it appears obvious that injectable

5. Conclusion.

Prescribing indicators are important tools for evaluating potential drug use in problematic conditions such as OAB. Therefore, periodic interpretation and use of prescribing indicators in OPDs like Urology should be done keeping in mind the individual response variations in physician's prescriptions as per the patient's response to the given medication.

6. Limitation.

Further, long-term studies will be of immense value to detect irrational use of medications among the study subjects.

7. Recommendation.

Physicians and pharmacist should be aware regarding drug usage of the patients with infections. Patients should be counselled regarding the harm it can cause and the antimicrobial resistance that can occur.

8. Acknowledgement.

We are thankful to the patients and their caring parents without them the study could not have been done. We are thankful to the supporting staff of our hospital who were involved in the patient care of the study group.

9. List of abbreviation.

LUTS- Lower urinary tract symptoms
OAB- overactive bladder
BPH- benign prostatic hyperplasia
WHO- World Health Organization

Table 1: **Demographic characteristics**

Sl. no	Variable	N (%)
1	Age (years) <50 50-60 60-70 70-80 >80	4 (07.84) 18 (35.29) 10 (19.61) 11 (21.57) 8 (15.69)
2	Gender Male Female	42 (82) 9 (18)
3	Education Illiterate Primary Secondary Graduate Professional	3 (5.88) 12 (23.53) 22 (43.14) 14 (27.45) 0 (0)

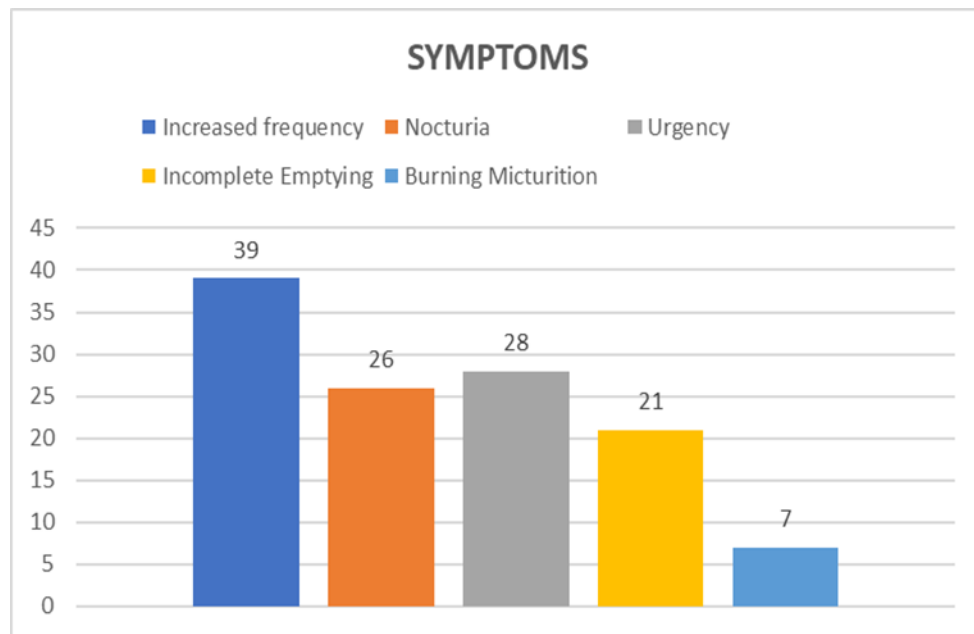


Figure 1: Symptoms

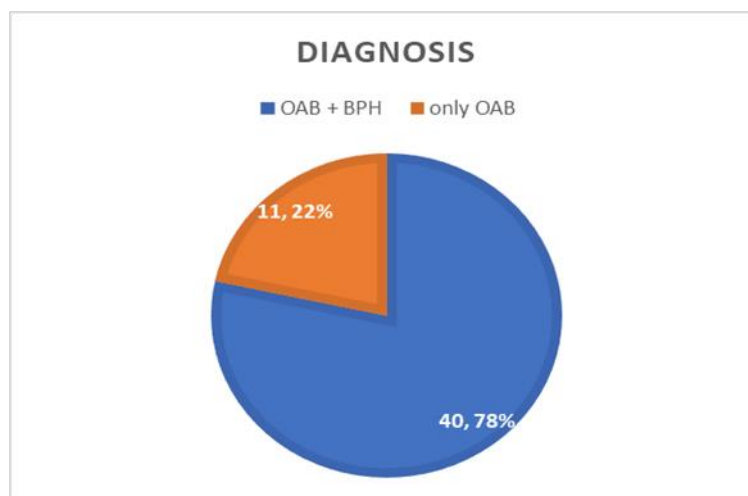


Figure 2: Diagnosis

Table 2: WHO Core Prescribing Indicators

Prescribing Indicators	Total	Recorded Value	Optimal Value
Encounters with a prescribed Injection	0	0%	13.4-24.1%
Encounters with a prescribed antibiotic	35	68.63%	20.0- 26.8%
Drugs prescribed from the Essential Drug List	94	50.27%	100%
Drugs prescribed per encounter	187	3.66	1.6-1.8
Drugs prescribed by Generic Name	187	100%	100%

Table 3: Medications prescribed among OAB Patients

Prescribed Treatment	Dosage form	Dose	Route	Frequency	Recorded Value n (%)
Antibiotics Ciprofloxacin Nitrofurantoin	Tablet	500 mg 100 mg	Oral Oral	BD BD	35 (68.63) 7 (13.72)
OAB Medications Tamsulosin + Dutasteride Solifenacin	Tablet Tablet	0.4 mg +0.5mg 50mg 5 mg	Oral Oral	OD OD OD/BD	40 (78.43) 5 (9.80)
Proton Pump Inhibitors Pantoprazole Rabeprazole	Capsule Tablet Tablet	20 mg 40 mg 20 mg	Oral	OD	49 (96.1)

10. References:

- Lee CL, Kuo HC. Pathophysiology of benign prostate enlargement and lower urinary tract symptoms: Current concepts. *Ci Ji Yi Xue Za Zhi*. 2017 Apr-Jun; 29(2):79-83. doi: 10.4103/tcmj.tcmj_20_17. PMID: 28757771; PMCID: PMC5509197.
- Park HJ, Won JE, Sorsaburu S, Rivera PD, Lee SW. Urinary Tract Symptoms (LUTS) Secondary to Benign Prostatic Hyperplasia (BPH) and LUTS/BPH with Erectile Dysfunction in Asian Men: A Systematic Review Focusing on Tadalafil. *World J Mens Health*. 2013 Dec; 31(3):193-207. doi: 10.5534/wjmh.2013.31.3.193. Epub 2013 Dec 24. PMID: 24459652; PMCID: PMC3888888.
- Wang Y., Xu K., Hu H., Zhang X., Wang X., Na Y., Kang X. Prevalence, risk factors, and impact on health related quality of life of overactive bladder in China. *Neurourol. Urodyn*. 2011; 30:1448-1455. doi: 10.1002/nau.21072.
- Przydacz M., Golabek T., Dudek P., Lipinski M., Chlosta P. Prevalence and bother of lower urinary tract symptoms and overactive bladder in Poland, an eastern European study. *Sci. Rep*. 2020; 10:19819. doi: 10.1038/s41598-020-76846-0.
- Kreydin EI, Gomes CM, Cruz F. Current pharmacotherapy of overactive bladder. *Int Braz J Urol*. 2021 Nov-Dec; 47(6):1091-1107.

doi: 10.1590/S1677-5538.IBJU.2021.99.12.
PMID: 34003613; PMCID: PMC8486454.

6. Menhaji K, Cardenas-Trowers OO, Chang OH, Hall EF, Ringel NE, Falk KN. Anticholinergic prescribing pattern changes of urogynecology providers in response to evidence of potential dementia risk. *Int Urogynecol J.* 2021 Oct; 32(10):2819-2826. doi: 10.1007/s00192-021-04736-8. Epub 2021 Mar 8. PMID: 33683426.
7. akasu T, Ukai M, Sato S, Matsui T, Nagase I, Maruyama T, Sasamata M, Miyata K, Uchida H, Yamaguchi O: Effect of (R)-2-(2-aminothiazol-4-yl)-4-ⁱ-{2-[(2-hydroxy-2-phenylethyl)amino]ethyl} acetanilide (YM178), a novel selective b3-adrenoceptor agonist, on bladder function. *J Pharmacol Exp Ther.* 2007, 321: 642-647. 10.1124/jpet.106.115840.
8. Ali M, Landeira M, Covernton PJO, et al. The use of mono- and combination drug therapy in men and women with lower urinary tract symptoms (LUTS) in the UK: a retrospective observational study. *BMC Urol* 2021; 21: 119.
9. Shanmugapriya S, Saravanan T, Rajee SS, Venkatrajan R, Thomas PM. Drug prescription pattern of outpatients in a tertiary care teaching hospital in Tamil Nadu. *Persept Clin Res.* 2018 Jul-Sep;9(3):133-138. doi: 10.4103/picr.PICR_86_17. PMID: 30090712; PMCID: PMC6058512.
10. https://apps.who.int/iris/bitstream/handle/10665/59001/WHO_DAP_94.11.pdf
11. <https://www.who.int/publications/i/item/021-aware-classification>.

11. Publisher details.

Publisher: Student's Journal of Health Research (SJHR)
(ISSN 2709-9997) Online
Category: Non-Governmental & Non-profit Organization
Email: studentsjournal2020@gmail.com
WhatsApp: +256775434261
Location: Wisdom Centre, P.O.BOX. 148, Uganda, East Africa.



Author biography

Purab Kant Acharya Postgraduate Student, Department of Pharmacology, MKCG Medical College, Berhampur, Odisha, India.

Benu Panigrahy Associate Professor, Department of Urology, MKCG Medical College, Berhampur, Odisha, India.

Y Roja Ramani Associate Professor, Department of Pharmacology, MKCG Medical College, Berhampur, Odisha, India.

Surya Kumar Biswal Postgraduate Student, Department of Pharmacology, MKCG Medical College, Berhampur, Odisha, India.

Dibya Ranjan Postgraduate Student, Department of Pharmacology, MKCG Medical College, Berhampur, Odisha, India.