

Study on antifungal usage in patients with vaginal itching and discharge at a private hospital in Kolkata using the National Accreditation Board for Hospitals and Healthcare Providers and the World Health Organization prescribing criteria

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Abstract

Introduction: One in every 10 women presents with abnormal vaginal discharge in Gynaecology and Obstetrics Department, with the most common cause being candidiasis. Irrational use of antifungal for treatment of this condition leads to antifungal resistance and increase morbidity.

Materials and Methods: This retrospective study was conducted at the Department of Pharmacology in collaboration of Department of Obstetrics and Gynaecology of the private medical college hospital in Kolkata. One hundred and forty outpatient department prescriptions were screened and included in this study from March 2024 to April 2024, and the prescriptions of the previous 6 months were collected.

Results: The average number of drugs per prescription was 1.1. Antifungals were prescribed in 89.3%, out of which only 8.6% were in accordance with the standard treatment guidelines of management of vaginal candidiasis. The dose of the drug was written in 11.5% of the prescriptions while the duration of treatment was written in 84.9% of the prescriptions. The fungal culture and sensitivity testing was documented in only 10.7% of the prescriptions. 29.5% of the prescriptions had the generic name of the medicines whereas the complete diagnosis was written in only 13.7% of the prescriptions.

Conclusion: This study highlights the commonly encountered errors in prescribing of antifungal drugs in a tertiary care teaching hospital. These errors may lead to irrational prescribing of antifungal and development of antifungal resistance in the long run. Active surveillance in the form of regular prescription audit and organizing regular training workshop for the prescribers will improve the prescribing practice.

Keywords: Antifungal, good prescribing practice, National Accreditation Board for Hospitals and Healthcare Providers, prescription audit, rational prescribing

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INTRODUCTION

A common complaint often encountered by the physicians at the Outpatient Department (OPD) of Gynaecology and Obstetrics is vaginal discharge.^[1] The global data suggest that 1 in every 10 women suffers from vaginal discharge in a particular year. The disease is estimated to affect around 28% of females in India. The most common causative agent attributed to this symptom is infection with *Candida* spp.^[2]

The mainstay of therapy for candidiasis are the antifungal drugs. Unfortunately, the early diagnosis and usage of appropriate antifungal agents is a major challenge in patient management. The injudicious use of antifungal drugs creates a vicious circle resulting in antifungal resistance.^[3,4]

A rather surprising thing to note is that as many as 30%–50% of the antifungal prescriptions are either inappropriate or they can be optimized further to yield a better result for the patient.^[4]

The National Antibiotic Policy of India advocates the use of tablet fluconazole 150 mg as a single dose for vaginal candidiasis. For milder cases, intravaginal agents such as creams or suppositories of clotrimazole, miconazole, nystatin, or intravaginal azoles as a single dose or for 7–14 days may be used.^[5] However, the indiscriminate use of antifungal drugs has ultimately led to unfavorable outcomes such as persistent infections, unnecessary exposure, and increased cost of treatment for the patients.^[4] The cost of treating fungal infections is huge ranging from \$6.7 billion to \$7.2 billion annually only in the USA, and it is expected to go further up with the rising incidences of antifungal resistance.^[6]

The World Health Organization (WHO) has defined rational drug use as “patients receiving medicines appropriate for their clinical needs, in doses that meet their individual requirements, for an adequate period of time and at the lowest cost to them and their community.”^[7]

For achieving the goal of rational prescribing, the WHO has the “core prescribing indicators” in place which aid in prescription analysis and conducting the drug utilization studies. When the studies are conducted with the help of these indicators, they not only improve the quality of health care and patient care provided by the hospital but also identify the areas for improvement.

The National Accreditation Board for Hospitals and Healthcare Providers (NABH) has developed certain

prescribing indicators for rational prescription writing. These indicators emphasize not on who went wrong but on identifying why did it happen and what can be done in future to prevent its recurrence. The NABH sets itself to achieve the highest benchmark possible in relation to hospital quality and patient safety spreading across all levels and functions keeping in mind the norms which have got global acceptance. The standards that have been laid down provide the base around which not only the quality health care of the patients is ensured but also the necessary improvements are done in the hospitals. The NABH assessment conducted for the hospitals follow a comprehensive approach before awarding the accreditation which ultimately leads to continuous improvement of the hospital including prescribing practice.^[8] There is little published data from our nation regarding the compliance level of NABH prescribing criteria especially in the Gynaecology and Obstetrics department especially from Eastern India. Hence, we used the NABH prescribing criteria over the WHO criteria as the specific objective for the conduction of this study.

To further strengthen the process of rational prescribing and to prevent the emergence of antibiotic resistance, the antibiotic stewardship program has been recommended. These programs are focused on guiding the clinicians on how to use the antimicrobials rationally. The antibiotic stewardship program constitutes one of the three pillars for an integrated approach to strengthening the health-care system, the other two being infection prevention and control and patient and medication safety.^[9] However, most of these programs are focused on antibacterials with less coverage given to antifungal drugs.^[10]

The main aim of this study was to find out the rationality of the current antifungal use in patients presenting with vaginal itching and discharge in the OPD of Gynaecology and Obstetrics at our setting. Scarce data are available from the private medical colleges on the prescribing pattern of antifungal drugs. These data are of particular importance since there has been a tremendous increase in undergraduate seats from 51,348 in 2014 to 108,848 in 2023. The Government of India is also planning to relax the norms for setting up of new medical colleges.^[11] With these relaxations, it is expected that a lot more private medical colleges will come up across India where future doctors will be trained. It is very important to ensure that the standard of these teaching hospitals meets a level of requirement necessary for proper training of our future medicos.

Objectives

This study was designed keeping in mind the following objectives:

Specific objective

- a. To assess the quality of prescribing by NABH prescribing indicators.

General objectives

- a. To establish the rationality of antifungal use by the WHO prescribing indicators
- b. To observe the compliance of the hospital to the national antibiotic policy.

MATERIALS AND METHODS

Study design, site, and duration

The study was retrospective in nature, carried out in the Department of Pharmacology of KPC Medical College and Hospital (KPCMCH), Kolkata, in collaboration with the Department of Obstetrics and Gynaecology, KPCMCH. This study was carried out between March 2024 and April 2024, and the prescriptions of the previous 6 months were collected. The OPD prescriptions were obtained from the medical record section of the college with permission from the concerned authority.

Ethical considerations

The study was initiated after obtaining the approval of the Institutional Ethics Committee (KPCMCH/IEC/2023-140).

Sample size

A total of 140 prescriptions were analyzed during the study period.

Selection criteria

Inclusion criteria

- a. The prescriptions written in the Gynaecology OPD of KPCMCH
- b. The prescription was written in the designated OPD paper in KPCMCH
- c. The females presenting with complaints of white vaginal discharge or vulvovaginal itching to the Gynaecology OPD irrespective of parity.

Exclusion criteria

- a. All prescriptions of in-patients of gynaecology and obstetrics
- b. All prescriptions written in the emergency department of gynaecology and obstetrics
- c. Patients having prior diagnosis of sexually transmitted diseases.
- d. All damaged data or data which cannot be read.

Methodology

- a. All the OPD prescriptions of females with vulvovaginal itching and discharge were taken as a part of study
- b. The prescriptions were taken from the medical records section of the hospital
- c. They were screened according to the inclusion and exclusion criteria, and after inclusion, they were allotted a unique prescription code
- d. The data were recorded in a case record form and scrutinized using the NABH and the WHO prescribing indicators
- e. The collected data were analyzed using MS Excel and the result displayed in the form of percentages.

Designing of the case record form

In the case record form, the following information were recorded:

Primary parameters assessed (National Accreditation Board for Hospitals and Healthcare Providers criteria)

1. Whether antifungals were prescribed or not
2. Whether antifungals were prescribed according to the standard treatment guidelines or not
3. Whether fungal culture and sensitivity was written in the prescription
4. Whether presumptive/definitive diagnosis was written or not
5. Whether duration of treatment written or not.

Secondary parameters assessed (World Health Organization criteria)

1. Percentage of drugs prescribed by generic names
2. Average number of drugs per prescription.

For the second point under primary parameters assessed the standard treatment guidelines (STG) that were considered for this study was the National Treatment Guidelines for Antimicrobial Use in Infectious Diseases published by the National Centre for Disease Control, Ministry of Health and Family Welfare, Government of India.^[6]

Data analysis

The data were analyzed using Microsoft Excel 365 (2024 Version). The results were represented in the form of percentages, average, and mean \pm standard deviation values.

RESULTS

A total of 140 prescriptions were studied. The mean age of the study population was 35.99 ± 13.65 years (mean \pm standard deviation).

Among the prescriptions that were studied, it was found that a total of 154 antifungals were prescribed. Consequently, the average number of antifungals per prescription came out to be 1.1.

Antifungals were prescribed in 89.3% of the prescriptions while 10.7% of the prescriptions had no antifungals in them.

In the prescriptions that were studied, it was observed that, in a huge percentage (91.4%), the drugs that were prescribed were not in accordance with the standard treatment guidelines. The study also revealed that the dose of the drug was only mentioned in 11.5% of the prescriptions. The duration of treatment was written in 84.9% of the studied prescriptions.

Only 10.7% of the prescriptions had the fungal culture and sensitivity information documented.

Drugs were prescribed by generic names in only 29.5% of the prescriptions while 70.5% of the prescriptions had brand names in them. The complete diagnosis was written in only 13.7% of the prescriptions. Table 1 and Figure 1 highlight the summary of the results obtained from the study.

DISCUSSION

Providing the right antimicrobial to the right patient at the right time with the right dose is the primary focus of rational prescribing. The prescribing indicators measure the performance of health-care providers in relation to the appropriate use of drugs.

Based on the NABH and WHO core prescribing indicators, a total of 140 prescriptions were analyzed for antifungal usage. In this study, the average number of antifungal drugs per prescription was 1.1. This value is less than the recommended value given by the WHO per prescriptions, which ranges from 1.6 to 1.8.^[12] This number is also much less than a study done by Agasti *et al.* at a tertiary care hospital in the state of Odisha in 2019 where the average number of antifungals came out to be 3.^[7]

Table 1: Summary of the results obtained

Parameter assessed	Yes (%)	No (%)
Whether antifungal prescribed	89.3	10.7
Antifungal prescribed according to the standard treatment guidelines	8.6	91.4
Dose of drug written	11.5	88.5
Duration of treatment written	84.9	15.1
Fungal culture/sensitivity test prescribed	10.7	89.3
Generic name used	29.5	70.5
Diagnosis written	13.7	86.3

This finding of our study also negates the problem of polypharmacy. Polypharmacy is often defined as the routine use of five or more drugs per prescription given concurrently. It is associated with multiple problems such as increased chances of adverse drug reactions, drug–drug interactions, and increased mortality to name a few.^[13]

The percentage of drugs prescribed by generic name in this study was 29.5%. This value is in sharp contradiction to a study conducted by Singh *et al.* in Delhi in 2020 which was aimed at performing prescription audit using the WHO recommended indicators at a rural hospital. The number of drugs prescribed by generic name in their study came out to be 85.8%.^[14] This result shows that there is a huge gap in using the generic names of medicines in the prescriptions, which needs to be bridged. The Government of India has also very actively advocated the use of generic names of medicines in the prescriptions.^[15] In 2018, for the promotion of generic prescribing, the Drug Technical Advisory Board of India has recommended maintaining a separate rack or shelf which will be reserved for the storage of generic medicines. Furthermore, the pharmacies must display the words “Generic medicines in proper name are also available” at prominent places within their licensed premises.^[16]

The percentage of drugs prescribed according to the standard treatment guidelines as per our study was 8.6%. This result shows that many doctors, especially postgraduate trainee cadres, were not aware of the antifungal prescribing guideline. The standard treatment guidelines though are available freely on the Internet but referring every time to them electronically in case of crowded OPDs might not be possible. It would be better if a hard copy of the same is available to the doctors in the OPDs or its available on their smart mobile phone for their easy reference. Organizing regular seminars and workshops relating to the rational

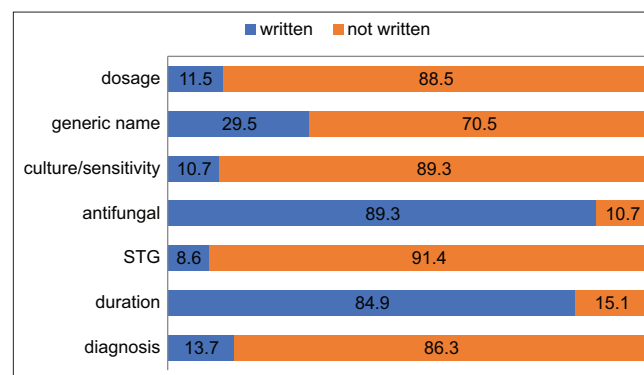


Figure 1: Parameters assessed with their percentages (both present and absent). STG: Standard treatment guidelines

prescribing practices may help the doctors in providing a better care to the patient.

In 86.3% of the prescriptions, a clear diagnosis was not mentioned which is not in alignment with the findings of a study by Abidi *et al.* in 2012 in Western UP where the analysis of 237 prescriptions showed that complete diagnosis was written in 70.04% of the prescriptions.^[17] Writing of a complete diagnosis forms an integral part of good prescribing practices. It should be highlighted that fungal culture does take more time in comparison to bacterial culture, and this could possibly be the reason why many prescriptions did not have clear diagnosis.

In our study, antifungal culture/sensitivity test was prescribed in only 10.7% of the prescriptions emphasized the fact that doctors are prescribing antifungal empirically. Although this is a common phenomenon worldwide in this patient group,^[18] the authors are concerned that such practice can lead to increased antifungal drug resistance in the long run. The use of antimicrobials in accordance with the culture and sensitivity report has been advocated almost everywhere and forms a cornerstone of any antimicrobial stewardship program.

The dose was mentioned in 11.5% while the duration of treatment was mentioned in 84.9% of the prescriptions. The dose and duration are very important parameters that must be mentioned with the drug as wrong dose and duration will affect the patient health and safety. Most drugs are available in variable strengths and dosage forms. Thus, if clear-cut instructions are not given in the prescriptions, then the wrong drug may be given to the patient, or an inadequate dose may be administered leading to patient harm. Writing the dose, dosage form, and duration of treatment forms an integral part of good prescribing practices.^[19]

Hence, from the above data, it is clear that there is a huge scope of improvement of antifungal prescribing habit. Regular prescription audit with NABH prescribing criteria is the need of the hour in every Indian hospital. The authors believe that prescription audit is a fact-finding tool and not a faultfinding weapon. The understanding and the misinterpretation regarding the concept of prescription audit need to be cleared. Rational use of antifungal drugs will lead to best patient outcome with minimal adverse events and resistance.

CONCLUSION

It is evident from the results that the standard treatment guidelines were followed only in less percentage of

prescriptions. Even the dose, duration, and diagnosis were not clearly mentioned in majority of prescriptions. Furthermore, the culture and sensitivity test before prescribing was done for a small number of patients indicating more prevalence of empirical treatment and poor compliance to the guidelines.

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Conflicts of interest.

There are no conflicts of interest.

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