



Prescription Pattern of Antibiotics at Outpatient Department of Gynaecology and Obstetrics in a Teaching Hospital in Bangladesh

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Abstract

Background: Antibiotics are usually prescribed based on the clinical features of infections. **Objective:** The purpose of the present study was to assess the prescription pattern of antibiotics at Outpatient Department of Gynaecology and Obstetrics in a teaching hospital in Bangladesh. **Methodology:** This cross-sectional study was carried out among patients attending the Outpatient' department (OPD) of Obstetrics and Gynaecology from October 2014 to April 2015 in Rajshahi Medical College and Hospital, Rajshahi, Bangladesh. The demographic details, average number of drugs per prescriptions, percentage of drugs prescribed by generic names, percentage of encounters with an antibiotic and an injection prescribed, percentage of drugs prescribed from Essential Drug List (EDL) of Bangladesh, percentage of encounters with prescription of antiulcerant, NSAID, multivitamin and multimineral, iron preparation and a calcium preparation were noted. **Results:** A total number of 384 women were recruited for this study. The age group of 20 to 29 years accounted for the highest number 180 (46.8%) and from the age group of 70 to 79 years accounted for the lowest number 2 (0.5%) patients. The most commonly prescribed antibiotic was cefuroxime 56(36.36%) followed by cefixime, azithromycin, fluconazole, ciprofloxacin, nitazoxanide, roxithromycin, metronidazole, clindamycin and flucloxacillin were 28(18.18%), 21(13.63%), 12(7.79%), 11(7.14%), 9(5.84%), 8(5.19 %), 6(3.89 %), 5(3.24%), 4(2.59%) respectively. **Conclusion:** Antibiotics are frequently being used in the OPD of Obstetrics and Gynaecology department among the women.

Keywords: Prescription pattern; antibiotics; Outpatient' department; gynaecology and obstetrics; teaching hospital

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Introduction

Antibiotics are broadly used in healthcare facilities, and are essential in high infection risk departments¹.

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There are several minor and major surgical procedures which take place for both the treatment of infections and as perioperative prophylaxis to prevent healthcare-associated infections². In obstetrics and gynaecology (OBGY) departments, antibiotics are used to treat common and severe infections prior and during delivery to prevent maternal and neonatal complications³. There are several uses in prophylaxis before any surgical procedure, such as caesarean

section or uterine prolapse operations, but also to treat infections arising from wounds after surgical procedures⁴.

Antibiotic use can be effectively monitored via prescription surveillance studies⁵. Data from such studies supplemented by information about local resistance patterns can feed into the development of local antibiotic prescribing guidelines. Availability of local guidelines is crucial to prescribe antibiotics appropriately for specific indication and is the cornerstone to improve the use of antibiotics⁶. Despite this, surveillance at healthcare facilities is underperformed, especially in densely populated, low- and middle-income countries like India⁷. At the same time, the majority of the preventable maternal deaths occur in lower middle-income countries⁸. There is a paucity of studies that assess antibiotic prescribing patterns among patients admitted to the OBGY departments in India. The published studies have not yet presented the antibiotic prescriptions for specific indications⁹.

Prescriptions are reliable and quantifiable source of information for surveillance studies³. However, in resource-constrained healthcare settings, patient information, including prescriptions, are generally not computerized and are often documented manually using paper records only. The lack of automated systems for patients' data entry makes prescription surveillance an expensive and cumbersome process and is one of the contributors to the delay in the development of contextualized antibiotic prescribing guidelines¹⁰.

In India, health services are provided in both public- and private-sector healthcare facilities. The private sector provides healthcare to more than 65.0% households, and the major part of antibiotic use in the country can be attributed to private sector hospitals¹¹. Despite this, limited studies have been conducted on antibiotic prescribing at the Indian private healthcare sector, and the few conducted showed overall high antibiotic prescribing¹². These findings are in line with the available evidence of the high use of antibiotics and presence of various multidrug-resistant bacterial strains in the country⁷.

Therefore, in the present study, this describes and compares antibiotic prescription patterns among the patients admitted to Gynaecology and Obstetrics departments tertiary care hospital. The purpose of the present study was to assess the prescription pattern of antibiotics at Outpatient Department of Gynaecology and Obstetrics in a teaching hospital in Bangladesh.

Methodology

Study Design and Population: This cross-sectional study was conducted in the Department of Pharmacology and Therapeutics at Rajshahi Medical College, Rajshahi, Bangladesh. The total duration of the study was from July 2014 to June 2015 for a period of one year. The study population was comprised to all the patients who were attended in the OPD of Obstetrics and Gynaecology were selected as study population. The data was collected from the Out Patient Department (OPD) of Obstetrics and Gynaecology in Rajshahi Medical College Hospital, Rajshahi, Bangladesh. The patients who were visited the emergency department, patients who were transferred to another department, patients who got admitted during OPD visit, patients unwilling to participate in the study or prescriptions without format will not be accepted. were excluded from the study.

Study Procedure: New patients attending the outpatient department (OPD) of Obstetrics and Gynaecology in Rajshahi Medical College Hospital, Rajshahi, Bangladesh during the study period were considered for analysis. All the prescriptions were used for analysis. The information in the prescription was used to complete some customized pro-forma. The following information were recorded like Reg. number, age, Marital status, occupation, diagnosis, name of drugs, route of administration, number of drugs prescribed per prescription, most commonly prescribed antibiotics, most commonly prescribed group of drugs, percentage of drugs prescribed by generic names, percentage of drugs prescribed from Essential Drug List (EDL) of Bangladesh. The data was expressed as percentage & mean.

Data Analysis: All relevant information were recorded on the basis of a prescription checklist. After data analysis, results were according to objectives, study results were presented in the form of tables, charts, and description of the key findings according to need. Statistical analyses were performed with SPSS software, versions 22.0 (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Continuous data that were normally distributed were summarized in terms of the mean, standard deviation, median, minimum, maximum and number of observations. Categorical or discrete data were summarized in terms of frequency counts and percentages. When values were missing, the denominator was stated.

Ethical Clearance: The study was approved by Institutional Review Board (IRB) of Rajshahi Medical

College and ethical clearance was undertaken from Ethical Review Committee (ERC) of the same institute. Permission was taken from RMCH authority prior to this study. Patients were asked for informed written consent. Confidentiality of the participants and data were strictly maintained. Permission was taken from the concern departments and authorities.

Results

A total number of 384 women were recruited for this study. The age group of 20 to 29 years accounted for the highest number 180 (46.8%) and from the age group of 70 to 79 years accounted for the lowest number 2 (0.5%) patients followed by 22.4% less than 20 years of age, 18.2% between 30 to 39 years, 2.0% between 50 to 59 years and 1.3% between 60 to 69 years (Figure I).

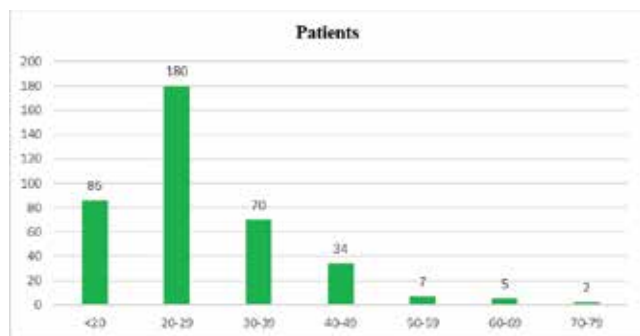


Figure I: Age distribution of patients

The most commonly prescribed group of drugs was recorded. Groups of drug which commonly prescribed were anti-ulcerant (247). The other commonly prescribed group of drugs were iron preparations (235), calcium preparations (182), antimicrobials (160), multivitamins and multi-minerals (147), antispasmodics (120), NSAIDs (67), hormone preparations (65), anti-emetics (56) and

Table 1: Different drug distribution pattern among Outpatient

Groups of drugs	Frequency	Percent
Antiulcerants	247	18.9
Iron Preparations	235	18.0
Calcium Preparations	182	13.9
Antimicrobials	160	12.3
Multi-vitamins and Multi minerals	147	11.3
Antispasmodics	120	9.2
NSAIDs	67	5.1
Hormone Preparations	65	5.0
Antiemetics	56	4.3
Antidepressants	27	2.1
Total	1306	100.0

anti-depressants (27) (Table 1).

Total number of prescriptions with and without antibiotic was assessed. Among 384 prescriptions 154(40.1%) prescriptions were with antibiotic and 230(59.9%) prescriptions were without antibiotic (Table 2).

Table 2: Prescriptions with antibiotic and without antibiotic

Prescriptions	Frequency	Percent
With Antibiotic	154	40.1
Without Antibiotic	230	59.9
Total	384	100.0

The ten most commonly prescribed antibiotics were found in the prescriptions. At least one antibiotic was prescribed in 154(40.1%) of 384 encounters. The most commonly prescribed antibiotic was cefuroxime 54(35.1%) followed by cefixime, azythromycin, fluconazole, ciprofloxacin, nitazoxanide, roxithromycin, metronidazole, clindamycin and flucloxacillin with following 27(17.5%), 18(11.7%), 12(7.8%), 11(7.1%), 9(5.8%), 8(5.2%), 6(3.9%), 5(3.2%), 4(2.6%) respectively. (Table 3).

Table 3: Common antimicrobials Prescribed among the Study Population

Antimicrobials	Frequency	Percent
Cefuroxime	54	35.1
Cefixime	27	17.5
Azithromycin	18	11.7
Fluconazole	12	7.8
Ciprofloxacin	11	7.1
Nitazoxanide	9	5.8
Roxithromycin	8	5.2
Metronidazole	6	3.9
Clindamycin	5	3.2
Flucloxacillin	4	2.6
Total	154	100.0

Discussion

Common gynecological problems for which patients usually coming to OPD are dysmenorrhea, premenstrual symptoms, pelvic inflammatory disease, urinary tract infection, leukorrhea, vaginitis, cervicitis, candidiasis, trichomoniasis, bacterial vaginitis by Gardnerella and Bartholin cyst and abscess, polycystic ovary syndrome¹². Some other problems are endometriosis, abnormal and dysfunctional uterine bleeding, pelvic masses, fibroid uterus, salpingitis, twisted ovarian tumor, benign and malignant breast disease, cervical dysplasia and cancer. Patient also

come for contraceptive counselling and hormone replacement therapy¹³. It responds to the real health needs of the people. It facilitates the dissemination of correct information about the drugs to health personnel, medical practitioners and consumers in general⁸. It makes it imperative to draw up priorities to meet the most urgent needs of the people for essential health care.

Total number of prescriptions with and without antibiotic was assessed. Among 384 prescriptions 154(40.10%) prescriptions were with antibiotic and 230(59.89%) prescriptions were without antibiotic. It is organizationally sound because it makes quality control easier because of the limited number of drugs to be monitored and it facilitates the streamlining of production, storage and distribution of drugs because of the smaller number of drugs involved¹⁴. It helps in the clean identification of drugs. It facilitates the fixing of prices as well as the revision/ withdrawal of duties, sales tax.

The most commonly prescribed group of drugs was recorded. Groups of drug which commonly prescribed were anti-ulcerant. The other commonly prescribed group of drugs were iron preparations, calcium preparations, antimicrobials, multivitamins and multi-minerals, antispasmodics, NSAIDs, hormone preparations, anti-emetics and anti-depressants. Many women are either too shy or ashamed to talk about their bladder problems to anyone, including their doctor. Some problems, especially like incontinence, are considered as a normal phenomenon with increasing age by some females¹⁵. Half of all women will have at least one episode of acute cystitis during their adult life and one-quarter will also report recurrent episodes¹⁶. Pregnancy increases the risk of urinary tract infection. Both progesterone and estrogens levels increase during pregnancy and will lead to decreased ureteral and bladder stone. Increased plasma volume during pregnancy leads to decreased urine concentration and increased bladder volume¹⁷.

The ten most commonly prescribed antibiotics were found in the prescriptions. At least one antibiotic was prescribed in 154(40.10%) of 384 encounters. The most commonly prescribed antibiotic was cefuroxime 56(36.4%) followed by cefixime, azithromycin, fluconazole, ciprofloxacin, nitazoxanide, roxithromycin, metronidazole, clindamycin and flucloxacillin were 28(18.18%), 21(13.63%), 12(7.79%), 11(7.14%), 9(5.84%), 8(5.19 %), 6(3.89 %), 5(3.24%), 4(2.59%) respectively

It represented a limited population of patients. The time period of the study was limited. This study did not include patients of other departments like Medicine, Surgery, Paediatrics, Cardiology, Orthopaedics, Dermatology, Urology that is overall drug use pattern of the hospital. other than the OPD of Obstetrics & Gynaecology. This study was done in only one tertiary level hospital. So variation of prescribing patterns in different hospitals could not be evaluated. Average dispensing time, percentage of drugs actually dispensed, percentage of drugs adequately labelled, patients knowledge of correct dosage was not recorded. Cost analysis was not calculated.

Conclusion

In conclusion most of the study population are young adult. The most common groups of drug which are commonly prescribed are anti-ulcerant, iron preparations, calcium preparations, antimicrobials, multivitamins and multi-minerals, antispasmodics. The most commonly prescribed antibiotic are cefuroxime followed by cefixime, azithromycin, fluconazole, ciprofloxacin, nitazoxanide, roxithromycin, metronidazole, clindamycin and flucloxacillin.

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Conflict of Interest

The authors have no conflicts of interest to disclose.

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The author(s) received no specific funding for this work.

Authors' contributions

Shahnawaz SS, Rashid E, Farzana S: conceived and designed the study, analyzed the data, interpreted the results; Shahnaz T, Tasnim S: wrote up the draft manuscript; Shahnawaz SS, Rashid E: contributed to the analysis of the data, interpretation of the results and critically reviewing the manuscript; Shahnawaz SS: involved in the manuscript review and editing. All authors read and approved the final manuscript

Data Availability

Any inquiries regarding supporting data availability of this study should be directed to the corresponding author and are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

Ethical approval for the study was obtained from the Institutional Review Board. As this was a prospective study the written informed consent was obtained from all study participants. All methods were performed in accordance with the relevant guidelines and regulations.

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