RESEARCH
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ANALYSIS OF DRUGS USAGE FOR COMMON GYNECOLOGICAL COMPLICATIONS IN UTTAR PRADESH, A DEVELOPING STATE OF INDIA

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ABSTRACT
The current research set out to identify the medication prescription trend in the gynecological departments of several Uttar Pradesh hospitals in order to provide a rationale for drug usage. The study detailed the medications used to treat various gynecological issues between January 1, 2023, and December 15, 2023. We examined a total of 250 prescriptions from four well-known hospitals in Uttar Pradesh. We collected sixty prescriptions from first-time patients at each institution, sourced from both indoor and outdoor sources. The results showed that 250 prescriptions for various conditions contained a total of 1088 medications. The report ranked antimicrobial drugs (275) first, followed by anti-ulcer drugs (221), vitamins and minerals (219), analgesic drugs (125), drugs that affect gastrointestinal motility (90), drugs that act on the central nervous system (CNS) (90), antihypertensive drugs (90), hormonal drugs (100), and anti-diabetic drugs (100). Each prescription had more than four medicines, according to the report. The report classified 77, 136, and 68 of the 292 medications in 50 pregnant women's prescriptions as pregnancy categories A, B, and C, respectively, while the remaining 11 medications lacked a specific category assignment. It was clear from the prescription pattern that medication-related issues, such as drug interactions and adverse reactions, were possible. To achieve desirable treatment results, modern drug efforts must be implemented.
KEYWORDS- Gynaecological, Uttar Pradesh, Medication, Prescription, Pregnant women's

INTRODUCTION

Gynecology is the principal field of medical science that focuses on health problems specific to women. During a woman's life, her body's physiological processes undergo changes. [1] Women exhibit a higher susceptibility to infectious illnesses and mortality compared to men. [2] Women rapidly initiate a significant immune system response to eliminate infections and experience the repercussions of the inflammatory reactions. [3] Some frequent disorders that affect women include amenorrhea, dysmenorrhea, infertility, vaginitis, urogenital fistula, and Bartholin's cyst. [4] According to research on Uttar Pradesh's health condition, there is a lack of awareness about the risks associated with prevalent female disorders. The range of values is between 5 and 6. Several risk factors associated with common gynecological issues include hunger, early marriage and childbirth, obesity, mental stress, spiritual beliefs, poorer socioeconomic position, and illiteracy. [7] The maternal mortality rate in impoverished nations is around 100 times greater than in industrialized countries. [8] Pregnant women in Bangladesh are the most vulnerable patients. However, it is gratifying to note that the nation has made substantial advancements in improving the well-being of women and children, successfully attaining its Millennium Development Goal (MDG) 4 of reducing child mortality. Furthermore, it is progressing towards achieving MDG 5a, which aims to decrease maternal mortality. [9] Choosing distinct treatment patterns is necessary for women compared to men owing to the physiological and psychological differences. [10] The pharmaceutical business in India is well advanced in terms of technology. This industry supplies 97% of the local

market's total medicinal demand. The pharmaceutical sector is capable of supplying medications for all prevalent female ailments. Prescribing medication to a pregnant lady is concerning to a certain degree. In such a situation, it is critical to follow the safety margin index of the prescribed prescription. The United States Food and Drug Administration implemented a system in 1979 to categorize the potential dangers of pharmaceutical drugs to a developing foetus. Clinical data from both human and animal studies classify drugs from many therapeutic areas into pregnancy categories A, B, C, D, and X, each representing an increasing level of risk.

MATERIALS AND METHODS

From January 1, 2023, to December 15, 2023, researchers from four well-known hospitals in Uttar Pradesh carried out a cross-sectional study in their gynecological departments.

Collection of prescription from patients

We randomly selected all patients from the hospital's indoor and outdoor patient pools and conducted the study in the gynecology and obstetrics department (Table 1). A small number of doctors did not get their prescriptions gathered. We used a digital camera to take pictures of the prescriptions and also made notes on some of them.

Fig 1: Different Types of Prescriptions

Data analysis

Afterwards, we consulted drug prescription guidelines like MIMS (21st edition, 2009) and QIMP (13th edition) to obtain the generic names and therapeutic classifications of the medications.

Evaluation using statistical methods

We examined the data using SPSS version 12 and Microsoft Excel. A variety of factors were considered in the comparisons.

RESULTS

Both indoor and outdoor patients had a total of 250 prescriptions, including 1088 medications from various therapeutic areas. Table 1 displays the results of the drug analyses. This enormous number of medications provides an overview of the field of gynecological therapy. Nevertheless, BSMMU and DMCH are urban hospitals, whereas Enam Medical College Hospital is sub-urban and General Hospital is a rural hospital. According to Table 2, the pharmacological classes with the highest prescription rates were antibacterial, antiulcerant, vitamin mineral, and analgesic-anesthetic. The corresponding percentages were almost 25%, 21%, 20%, and 12%. The prescription also includes hormonal, antihypertensive, and antidiabetic medications, as well as GIT and CNS active drugs.

Sr. No	Name of Hospitals	Indoor	Outdoor	Total
1.	Samudayik Swasthya Kendra,Baberu, Uttar Pradesh	30	30	60
2.	Soni Clinic & Hospital Gomti Nagar, Uttar Pradesh	30	30	60
3.	Mother Care Maternity Home	30	30	60
4.	Vatsalya Hospital Kanpur, Uttar Pradesh	30	30	60
	Total	**120**	**120**	**240**

Table 1: List of prescription's number collected from hospital.

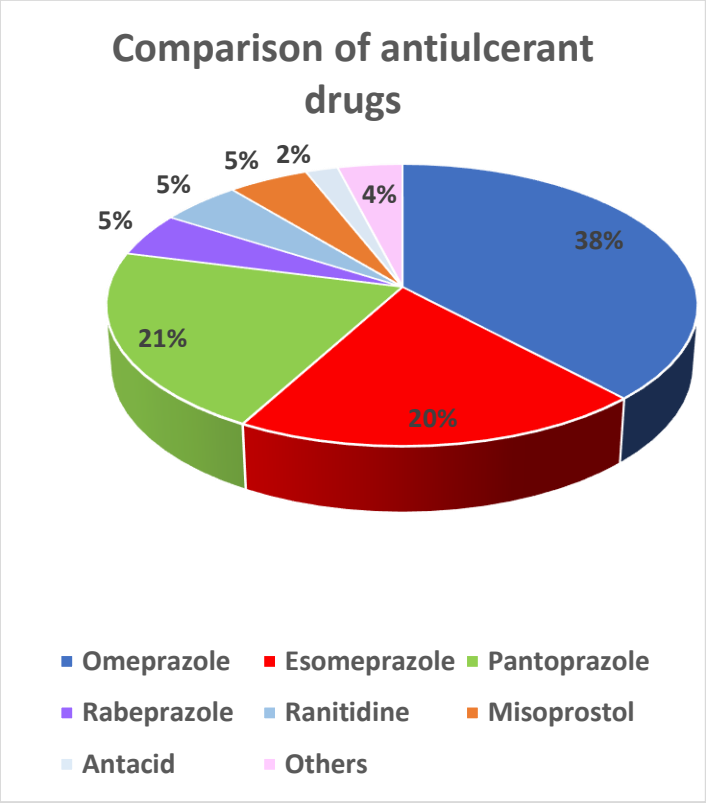

Fig 2 : Percentage usage of antiulcer drugs

Table 2: List of drugs according to therapeutic class

Sr. No.	Therapeutic Class	No. of Prescribed Drug
1.	Antiulcer drug	221
2.	Drug acting on GI motility	90
3.	Antimicrobial Drug	275
4.	Analgesic-Aesthetic	125
5.	Vitamin mineral	129
6.	Antihypertensive	35
7.	Drugs act on CNS	42
8.	Hormonal drug	34
9.	Anti-Diabetic Drug	14
10	Anti-Histamine	10
11	Other Drugs	23
	Total Drug	**1088**

Antiulcer medication uses

The primary function of these medications was to reduce the amount of hydrochloric acid in the stomach. Of all the medications used to treat ulcers, around 84% were proton pump inhibitors (PPIs). Out of all the antiulcer ant medications, only omeprazole accounted for 38%. This is double the amount of omeprazole and pantoprazole combined. As seen in Figure 2, the use of antacids was incredibly low. Around 2% of the sample was given ranitidine, an antagonist of the H2-receptors. Misoprostol, a medication that heals ulcers, was also used (approximately 5%). Others accounted for about 5% of all antiulcer medications (Figure 2).

Antimicrobial medication use

Antimicrobial medications encompass a wide range of uses, including those against bacteria, viruses, fungi, protozoa, and helminths. These four divisions were the primary consumers of antibiotic medications. In the U.P. pharmaceutical market, you can find nearly all classes of antibacterial medicines. People often use metronidazole, an antiprotozoal medicine, in combination with other antibacterial medications. Figure 3 shows that its prescription rate was about 38%, which is double that of ciprofloxacin, the antibiotic with the second-highest prescription rate at 14%. The use of Cephalosporin, a -lactam antibiotic, was more common than other types of antibiotics. Ciprofloxacin accounted for 14%, ceftriaxone for 12%, and cefixime for 11% (Figure 3). Approximately 6% of all antibiotics were antifungal medications. Primarily, antifungal topical medications were employed. The following percentages were approximate: 7% for Gentamycin, 3% for Azithromycin, 6% for Doxycycline, and 6% for Clindamycin.

Analgesics

We extensively used NSAIDs as pain relievers. We used hydrocortisone and dexamethasone in extremely modest amounts. About 38% of all analgesic prescriptions were for diclofenac sodium. Ibuprofen (6%), paracetamol (27%), and ketorolac (16%) were the most often used pain relievers.

Hormone-containing medications

Certain medical disorders necessitate the use of hormonal medications. In 44% of the cases, we used Norethisterone. Figure 4 demonstrates the 20% usage of allylestrenol, another hormone derivative.

Use of Minerals and Vitamins

Four hospitals mostly utilized multivitamins. Vitamin C was the second-most common agent in this category. Multivitamins accounted for 22%, followed by vitamin C (20%), zinc supplements (19%), calcium and vitamin D (12%), iron supplements (12%), vitamin A (6%), vitamin B (5%), and vitamin E (1%). This ranking is based on the agents' intended applications.

Determination of pregnancy category of drug

Fifty pregnant ladies who attended doctor's appointments between four and eight months into their pregnancies provided fifty prescriptions. The patients received a total of 204 medications. We examined them (Figure 5) to better understand the potential risks of using these medicines while pregnant.

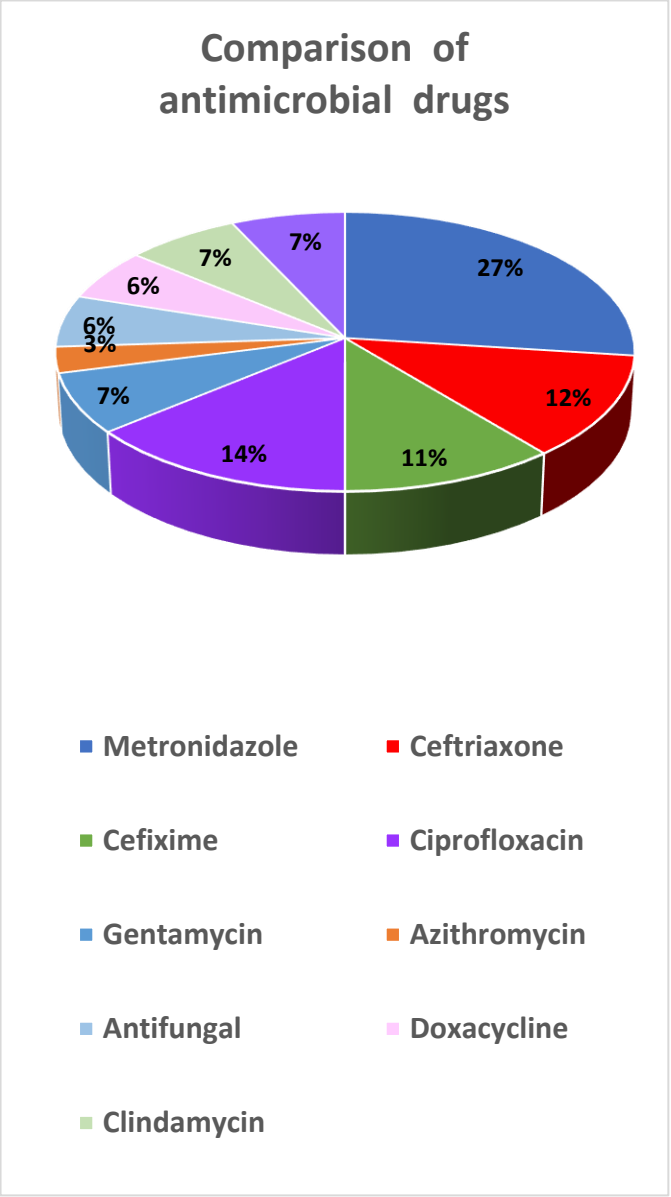

Fig. 3: Percentage usage of antimicrobial drugs

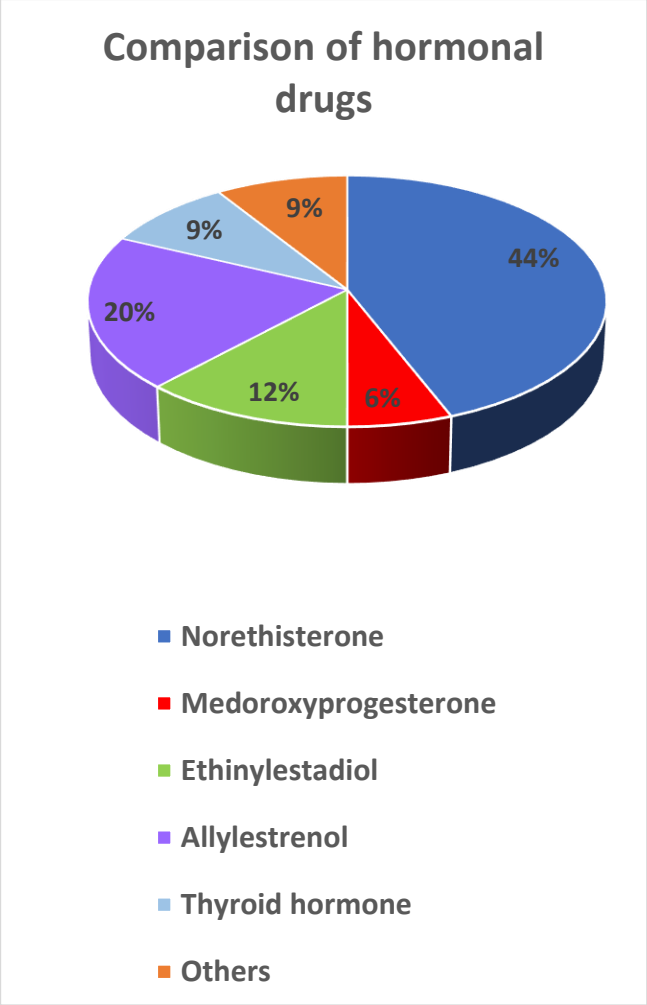

Fig. 4: Percentage usage of hormonal drug

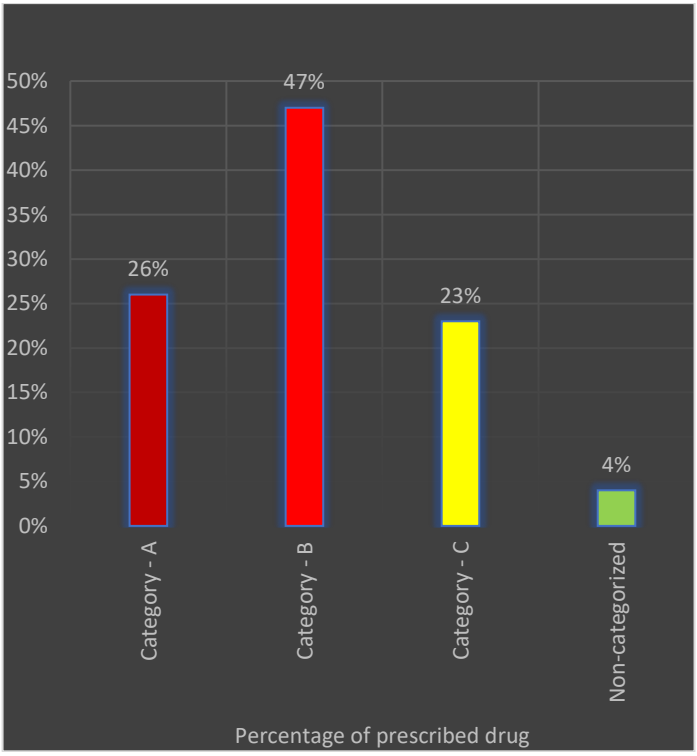

Fig. 5: Percentage of different pregnancy category of drugs

DISCUSSION

We uncovered the current state of prescription patterns in Bangladesh for addressing common gynecological issues. Compared to the World Health Organization's suggested average of 2.0 medications per prescription, the average number of pharmaceuticals prescribed for gynecological diseases was nearly 4.5. [12-30] It is worth noting that our findings demonstrated consistency when compared to another study on medicine prescription during pregnancy in wealthy nations. In that study, the mean value varied considerably, ranging from 1.7 to 13.6. [31-40] follows antimicrobial drugs, antiulcerant drugs, vitamin minerals, and analgesic-anaesthetic drugs. The results of this study evaluate the risk-benefit ratio of pharmaceuticals used by pregnant women in India (U.P.), shed light on the current state of drug intake by patients, and include a range of therapeutic categories. After looking at all the different types of prescription medications, we found that Metronidazole had a far greater use rate than the other antimicrobial drugs. Over 37% of the antibacterial medications were cephalosporin derivatives, according to the research. Most doctors Favor the proton pump inhibitor omeprazole above other medicines in its class when administering antiulcer medications. We also gathered pregnant women's reports to evaluate the pattern of medication therapy. When administering medications, it is critical to closely observe medication administration during pregnancy and consider the fetal risk-benefit ratio. Doctors in this situation should use the US Food and Drug Administration's pregnancy category index. Nonetheless, nutritional supplements for pregnant women, including vitamins, minerals, and hormone medications, are in high demand. Amon In this study, women in Bangladesh experiencing gynecological issues most commonly received norethesterone as a prescription, accounting for 44% of the total hormonal medications. In contrast, industrialized nations like Germany found that 37 percent of pregnant women use systemic hormones. s. [45-55] Paracetamol, an analgesic, accounts for 27% of all medications prescribed in underdeveloped countries like Bangladesh, compared to 63% in France. [56-60] In our study, the majority of the medications administered to pregnant women belonged to Category-A, with 26%, 47%, and 23% of the total, respectively. In the US, research showed a somewhat different trend, with 2.4% of medications falling into category A, 50.0% into category B, and 37.8% into category C. Approximately 4% of pharmaceuticals have remained unclassified up to this point. [61-66].

CONCLUSION

The gynecology department in Uttar Pradesh was found to be engaging in polypharmacy when it was found that a prescription contained more than four distinct kinds of medications. Antimicrobial, anti-ulcer, and vitamin mineral prescriptions made up the majority of those patients' prescriptions. In the case of pregnant patients, the utilization of category-C medications, in addition to non-categorized pharmaceuticals, was around 23%.

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