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Prescription pattern and rational drug use in cases of enteric fever in a tertiary care hospital

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ABSTRACT

Introduction

Irrational use of medication is one of the main causes of resistance. It can be prevented by giving right drug to right patients. Hence the present study was conducted to evaluate the prescribing pattern and rational drug use in cases of enteric fever.

Aim

To study of prescription pattern and rational drug use in cases of enteric fever in a tertiary care hospital.

Methods

A cross sectional study was carried out by evaluating prescription of 161 subjects who had definite diagnosis of enteric fever in Department of Pharmacology in collaboration with Department of General Medicine at Government Medical College, Kannauj from May 2018 to July 2018. The data was analyzed by using SPSS software and results were expressed as percentage.

Results

In this study among 161 patients of enteric fever, 56.52% were males and 43.47% were females. There were two subset of age groups in which enteric fever is most common i.e. 58.3% in age group between 21 to 40 years followed by 27.9% in age group between 1 to 20 years. Most commonly prescribed antimicrobial agents were IIIrd generation Cephalosporin's (70.1%) followed by 1st Generation Fluoroquinolones (51.5%). Some patients also received other groups of antibiotics like Macrolides (16.1%), Metronidazole (3.7%) and Penicillins (0.6%). All the medications were prescribed using their generic names and in small letters of English. They were prescribed oral medications (86.95%) and were duly signed by the physicians but none of them followed up. 93.1% received Paracetamol as antipyretic and 2.4% of the patients received Metaclopramide as antiemetic.

Conclusions

The present study provided prescribing pattern in outdoor patients of tertiary hospital which highlighted the current drawbacks like polytherapy, not abiding with antibiotic policy and principles of pharmacoeconomics in prescribing antibiotics to patients of enteric fever. There was less possibility of doing sensitivity test and prescribing them single drug therapy in tertiary care hospital because most of the critical patients are referred from other centres.

Keywords; Typhoid, Prescription Pattern, Rational use of drugs.

INTRODUCTION

Prescription is a written order by a physician to the pharmacist about the directions to compound and dispense medicines. It consists of drug's name, dose and duration of use along with prescriber and patient details like name, address, contact number, signature of the physician and name, age and sex of the patients.[1, 2]

The frequencies of drug prescription errors are high [3]. Prescribing and administering errors are the two most common types of medication errors. The prescriber should follow the proper guidelines for writing a prescription in order to minimize prescribing errors [4]. Errors are possible at any step of patient care from medication selection to administration.

Typhoid is a major public health problem; it has become one of the leading causes of massive morbidity and mortality in developing Countries. It occurs due to ingestion of contaminated food and water with Salmonella species. The estimated worldwide incidence of typhoid in the year 2000 was 21,650,974 with 216,510 deaths [5]. Main reason behind the development of resistance and diagnostic failure is irrational use of antimicrobial agents in undiagnosed cases [6]. Currently many classes of antimicrobial agents are available for the treatment of typhoid fever but salmonella strains are sensitive to Fluoroquinolones. Eg. Ciprofloxacin. Third generation Cephalosporin's are now being commonly used in treatment of Multidrug resistant typhoid.

Antimicrobial resistance has become one of the most common problem. Aim of our study is to see the prescription pattern and rational drug use in typhoid patients.

MATERIAL AND METHODS

This is a cross sectional study, which was carried out by evaluating prescription of 161 subjects who had definite diagnosis of enteric fever in Department

of Pharmacology and in collaboration with department of General Medicine at Government Medical College, Kannauj from May 2018 to July 2018.

Inclusion criteria

Patients who were willing to give informed consent, thereby expressing their willingness after being detected as WIDAL positive were included in present study.

Exclusion criteria

Patients who didn't give their informed consent, having comorbidity and were taking medicines for other clinical problems were excluded.

Patient's details such as name, age, sex, complaints, investigations, treatment details were collected. Ethical clearance was taken from Institutional Ethical Committee before starting the study. The data was analyzed by using SPSS software and results were expressed as percentages.

RESULTS

In this study there was no much difference pertaining to the gender ratio with 56.52% being males and 43.47% being females. There were two subset of age groups in which enteric fever is most common(58.3%) in age group between 21 to 40 years followed by 27.9% in age group between 1 to 20 years.(**Table-1**) 55.2% of the patients received single antibiotic and rest received more than one antibiotic. All the drugs were prescribed in generic names and in small letters of English. They were prescribed oral medications (86.95%) parenteral medications (7.45%) and combination of oral and parenteral medications (4.96%). All the prescriptions were duly signed by the physicians and none of them were followed up. (**Table-2**)

Most commonly prescribed antimicrobial agents were IIIrd generation Cephalosporin's about 70.1%

(Ceftriaxone 31%, Cefixime 32.9%, Cefoperazone 6.1%) followed by 1st Generation Fluoroquinolones about 51.5% (Ciprofloxacin 31%, Ofloxacin 15.52%, and Levofloxacin 4.96%). Some patients also received other groups of antibiotics like Macrolids (16.1%) (Azithromycin 161%), Metronidazole (3.7%) and Penicillins (0.6%) (**Table-3**). Above

mentioned anti microbial agents were given either alone or in combination. Drugs for Peptic ulcer were given either PPI (96.2%) or H2 blockers (2%). 93.1% of the patients received Paracetamol as antipyretic and 2.4% of the patients received Metaclopramide as anti emetic drugs(**Table-3**).

Table-1. Gender and Age Wise Distribution

Gender& age	n=161	Percentage
Males	91	56.52%
Females	70	43.47%
1 to 20 years	45	27.9%
21 to 40 years	94	58.3%
41 to 60 years	16	9.9%
61 to 80 years	4	2.4

Table- 2. Pattern of Prescription Writing

variables	Level of care	n =161	Percentage
Routes of administration	Oral	140	86.95%
	I.V	12	7.45%
	Oral& I.V	8	4.96%
No. Of Antibiotics	Single antibiotic	89	55.2%
	More than one antibiotic	72	44.72%
Generic/ Brand name	Generic name	161	100%
Drug name written in small/ capital letters	Small letters	161	100%
Follow up/ not	Not followed	161	100%
Signature of the Physician	Signature	161	100%

Table- 3. Drugs used in treatment of enteric fever

Drug's	n=161	Percentage
Fluoroquinolones	83	51.5%
Cephalosporin's	113	70.1%
Macrolids	26	16.1%
Penicillins	1	0.6%
Metronidazole	6	3.7%
Other Antibiotics	1	0.6%
Paracetamol	150	93.1%
Aceclopera	2	1.2%
PPI's	155	96.2%
H2 blockers	4	2.4%
Metaclopramide	4	2.4%

DISCUSSION

A prescription is prescriber's attitude to treat the disease by using the healthcare delivery.[7] Patients should receive medications appropriate to their

clinical needs, and in doses that meet their individual requirements for an appropriate period of time, at the cheapest cost available to them in their community.[8]

In this study there was slight predominance of males (56.52%) as compared to females (43.47%). There were two subset of age groups in which enteric fever is most common; 58.3% being in age group between 21 to 40 years followed by 27.9% being in age group between 1 to 20 years, which is in line with the previous studies conducted by **Rani UM et al**[9], and **Rathod P S et al**[10], who reported that the incidence of enteric fever peaks between 15-35 years of age[11], because this age group people tend to be socially active, eat outside and maintain poor personal hygiene which leads to increase in the incidence of enteric fever. In the present study it was made mandatory to start treatment of typhoid fever only after confirmation with Widal test.

In our study Most commonly prescribed antimicrobial agents were IIIrd generation Cephalosporin's about 70.1% (Ceftriaxone 31%, Cefixime 32.9%, Cefoperazone 6.1%) which is in line with the previous studies conducted by **Rahat SA et al.** [12] and **Rathod P S et al.**[10] After Cephalosporins, most commonly prescribed antimicrobial agents were 1st generation Fluoroquinolones about 51.5% (Ciprofloxacin 31%, Ofloxacin 15.52%, and Levofloxacin 4.96%) the trend is now growing in favor of Fluoroquinolones over Cephalosporins because of its low cost and their oral route of administration.

In the present study, 100% enteric fever patients were prescribed multidrug therapy and with 55.2% patients were prescribed one antibiotic however the rest received more than one antibiotic which is in line with the previous studies. Multidrug therapy prescription normally occurs in tertiary care hospital where most of the critical patients are referred from other centres. Some patients also received other groups of antibiotics like Macrolids (16.1%), Metronidazole (3.7%) and Penicillins (0.6%). comes to antibiotics, above mentioned anti microbial agents

were given either alone or in combination with others.

All the drugs were prescribed in generic name and in small letters of English. They were prescribed oral medications (86.95%) and were duly signed by the physicians. 93.1% received Paracetamol as antipyretic and 2.4% of the patients received Metaclopramide as antiemetic.

CONCLUSION

The present study provided prescribing pattern in outdoor patients of tertiary hospital which highlighted the current trend of giving antibiotics in treatment of enteric fever. With this study we concluded that despite all the efforts taken by the government and the WHO, the prescription pattern in tertiary hospital is having shortcomings. With our findings we cannot generalize the prescription pattern in enteric patients because of limitations of our study like, small sample size (161) and study being conducted in single hospital. The results would have been more conclusive and effective if sample size was large and the study would have been multicentric.

There was no preliminary antibiotic sensitivity testing before prescribing antibiotics, which is the main cause of bacterial resistance. Prescribers should be cautious about errors which are made during prescription writing. Awareness programs should be conducted from student life of medical professionals so that prescription errors can be minimized. Ideal prescription should possess less expensive and less number of drugs, so that patient compliance is better and can afford economically.

There is less possibility of doing antibiotic sensitivity test and prescribing single drug therapy in tertiary care hospital because where most of the critical patients are referred from other centres.

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