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Research Article

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A study on antibiotic utilization pattern in a general medicine ward of a tertiary care teaching hospital

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ABSTRACT

Irrational use of antibiotics can cause increase adverse drug reaction, lead to antibiotic resistance and increase the treatment cost. Assessment of pattern of antibiotics utilization is significant in the context of its increase use and its overall impact on the health care system. The present study was a prospective study done in general medicine ward of a tertiary care teaching hospital to analyze the utilization pattern of antibiotics.200 patients were included in the study. Most common cause of antibiotics intake was respiratory tract infection. Most common antibiotic used was ceftriaxone.Number of antibiotics prescribed per prescription were 1.83.Antibiotics were mostly prescribed by brand name.As antibiotics are most commonly prescribed drugs and report of misuse is not uncommon so proper strategy like educational intervention and antibiotic policy are necessary to control this.

Key words: Antibiotic, Rational Use, Drug Resistance

INTRODUCTION

Successful use of antibiotics has brought a revolutionary change in management of infectious diseases but it also resulted over use and misuse of antibiotics. Antibiotics today are commonly prescribed drugs in a hospital set up [1]. Indiscriminate and in appropriate use of antibiotics not only increase treatment expenditure, cause adverse drug reaction (ADR) but also responsible for emergence of antibiotics resistance and treatment failure [2][3][4].Realization of grave consequences of antibiotic resistance has forced the different stake holders and policy makers to adopt a multi pronged approach to combat the menace of antibiotic resistance and antibiotic stewardship constitute an important part of that [5][6].Prescribing skill reflects prescriber's knowledge, attitude and practice towards diagnosis and management of diseases. Drug utilization study is a great tool for analyzing and evaluating prescribing pattern of medical professionals and also helps in formulating drug and antibiotics policy [6].Present study was conducted to analyze the pattern of antibiotic prescription in a tertiary care hospital. The aim of this study was to obtain information about demographic profiles of patients, prevalence of infectious diseases and prescribing pattern of antibiotics in medicine ward of a tertiary care teaching hospital.

EXPERIMENTAL SECTION

Study Design

It was a prospective study done by collaborative effort of pharmacology and medicine department of Sri Venkateshwaraa Medical College Hospital and Research Centre , Pondicherry

Study Population
Patients admitted to inpatient department of general medicine were included in the study.

Study Period
December 2012 to February 2012.

Data collection
Data were collected from the indoor case sheet of General medicine ward. Data collected were regarding demographic details of patients, diagnosis of disease, duration of hospital stay, information about intake of antimicrobial agents.

Statistical analysis
Data were analyzed by entering in to a Microsoft excel sheet and applying descriptive statistics.

RESULTS AND DISCUSSION

A total of 200 patients who were prescribed anti microbial agents (AMA) were included in the study .Out of this 116(58%) were males and 84(48%) were females respectively. Mean age of patients was 48.8 years. Median duration of hospitalization was 5 days. All this data are depicted in table.1.The clinical conditions for which antibiotics were prescribed are Respiratory tract infection (24%), Urinary tract infection (18%), Gastroenteritis (18%) Typhoid fever (16%), Septicemia (13%) Meningitis (8%) Pyrexia of unknown origin (3%), which is shown in table.2.A total of 840 drugs were prescribed. Average number of drugs per prescription was 4.2. A total number of 373 antibiotics were prescribed and average numbers of antibiotic per prescription was 1.83.Commonly given antibiotics were ceftriaxone(30.03%),coamoxiclav(22.6%),amikacin(16.33%)ciproploxacin(13.41%)metronidazole(12.34%),Levofloxacin(5.09%). Out of 373 antibiotics prescribed 332 (89%) were written in trade name and 41(11%) in generic name.

Table-1: Demographic data	
Total No. Of Patients	200
Male Patients	116
Female	84
Mean age of patients	48.12 years
Duration of hospital	5 days
Indicators	No. of Patients
Average no. of drugs per prescription	4.2
Average no. of antibiotics per prescription	1.83
Percentage of drugs prescribed by generic name	11%

Table -2 : Cause of antimicrobial agents prescription

Disease	No. of Patients	Percentage
RTI	48	24%
UTI	36	18%
Gastroenteritis	36	18%
Typhoid Fever	32	16%
Septicemia	26	13%
Meningitis	16	8%
PUO	6	3%

Table -3:Commonly Prescribed antimicrobial agents (AMA)

Antimicrobial Agents (AMA)	Number of patients	Percentage
Ceftriaxone	112	30.03%
Co amoxiclav	84	22.6%
Amikacin	62	16.63%
Ciprofloxacin	50	13.41%
Metronidazole	46	12.34%
Levofloxacin	19	5.09%

Irrational use of antibiotics is a significant contributor for development of antibiotic resistance. As antibiotic resistance has posed a significant threat to management of infectious diseases and incidence of antibiotic resistance is increasing day by day, urgent steps are needed to promote rational use of antibiotics[3[4]. Antibiotics utilization study can help in fostering the habits of rational use of antibiotics which means at right dose, for right duration and at right cost. In our study β-lactam antibiotics were found to be the most commonly prescribed antibiotics which corroborates with finding of Khan FA *etal*[9].In our study among the β-lactam antibiotics ceftriaxone was commonly used drug but Study done by Shankar *etal* shown that ampicillin was most commonly prescribed β lactam antibiotic[10]. The average number of drugs prescribed in each prescription was 4.2 and average number of antibiotics per prescription was 1.8 in our study which is similar to the finding of Ramesh *etal* in which they have reported average number of drugs and antibiotic per prescription 4.1 and 1.5 respectively[11]. Antibiotics were mostly prescribed by their brand names and only 16% antibiotics were prescribed by their generic names which corroborates with finding of Ramesh *etal*[11].

CONCLUSION

Our study concluded that most common disease for which antibiotics prescribed was respiratory tract infection. Most common antibiotic used was ceftraixone, more than one antibiotic was prescribed and only 11% antibiotics were prescribed in generic name. A strict protocol for prescribers is required to promote rational use of antibiotics which would not only prevent antibiotic resistance but also reduce the treatment expenditure

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