

RETROSPECTIVE STUDY ON USAGE OF DIFFERENT ANTIBIOTICS

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ABSTRACT

A drug is a substance which may have medicinal, intoxicating, performance enhancing or other effects when taken or put into a human body or the body of another animal and is not considered a food or exclusively a food. In pharmacology, a drug is “a chemical substance used in the treatment cure prevention, or diagnosis of disease or used to otherwise enhance physical or mental wellbeing. Drugs may be prescribed for a limited duration, or on a regular basis for chronic disorders. Over or under the prescription of antibiotics may result in either treatment failure or side effects. So drug utilization evaluation is a tool in accessing the rationality of prescription. In our study, Cephalosporins were found be used more frequently (52.83%) compared to other groups like penicillins (7.54%), tetracyclines (0.94%), macrolides (1.88%), aminoglycosides (4.71%), fluoroquinolones (5.66%) and combination therapy (26.4%), Combination of antibiotics (53.84%) was used more frequently than other groups in CNS department compared to Cephalosporins (30.76%) and penicillins (15.38%).

KEYWORDS: Cephalosporins, tetracyclines, penicillins, fluoroquinolones.

INTRODUCTION

A drug used to treat bacterial infections. Antibiotics have no effect on viral infections. Originally, an antibiotic was a substance produced by one micro organism that selectively inhibits and kills the growth of micro organisms. Synthetic antibiotics, usually chemically related to natural antibiotics, have since been produced that accomplish comparable tasks. The use of antimicrobials has contributed to the dramatic fall in morbidity from communicable and infectious diseases over the last 50 years globally, as to increasingly high levels of expenditure on the consumption of antimicrobials. A substantial proportion of the total drug budget in many countries is dedicated to antibiotics and they are often the largest single group of drugs purchased in development of antibiotics and antimicrobials, their widespread availability and use have had several negative implications on global health care, among these the inappropriate use by health care providers and consumers and the increase of drug resistance. The primary economic implication of resistance on the diminishing efficacy of antibiotic treatment includes the need to rely on more expensive drugs that may be practically unaffordable for most primary health care programmes. In developing countries, relatively high levels of availability and consumption have led to disproportionately higher incidence of inappropriate use and greater levels of resistance compared to developed countries. Surveys on antibiotic use in these settings show antibiotics prescribed in 35 to 60% of clinical

encounters although appropriate in less than 20% A recent comparative analysis of inappropriate prescribing by physicians and other professional personnel in 12 developing countries also highlighted an unnecessarily high proportion (25 to 75%) of patients receiving antibiotics during clinical visits. These indicate the continuing need to curb the irrational, or inappropriate, use of antimicrobial agents and to identify effective interventions to improve drug use. Drug utilization is defined as “the prescribing, dispensing, administering, and ingesting of drugs”. The World Health Organization (WHO) expands on this definition of including outcome variables in their definition. Drug utilization is defined by the WHO as the “marketing, distribution, prescription, and use of drugs in society, with special emphasis on the resulting medical, social and economic consequences. A drug utilization study is therefore a study designed to describe quantitatively and qualitatively – the population of users of a given drug (or class drugs) and / or the conditions of use (for example, indications, duration of treatment, dosage, previous or associated treatments and compliance).

MATERIALS AND METHODS

Enlisting patients in the study as per the directions of the doctor, and as per inclusion criteria. The patient demographic data, therapeutic data and various other relevant and necessary data collected from: Medical records of inpatient, Personal interview of patients to determine the chief complaint, history of the present

illness, past medical and medication history, Patients prescriptions, Interview of patient care takes. Department of general medicine, St. Joseph Hospital, Guntur, Andhra Pradesh. Prospective and Observational study. 6 months. (From Jan – 2015 to June – 2016). sample size is 100 – 120 patients.

PATIENT SELECTION

Inclusion criteria

All the inpatients of either sex of age between 2 years to 80 years for paediatrics undergoing treatment in the inpatient wards of the hospital will be taken for the study. Patients who are having past medical and medication histories also included in this study.

Exclusion criteria

Patients undergoing treatment less than one day of hospital stay they are excluded from the study. Patients those who are admitted in general ward and Intensive

care department they are excluded from the study. Pregnant women were excluded in the study.

RESULTS

Total number patients N=300. In that our sample size is 106.300 is the total no of patients arrived to St. Joseph Hospital in our 6 months of project period. In that 103 is the number of patient are using antibiotics. In his total male patients are 56 and female patients are 50. In all the departments respiratory patients are using more no of antibiotics followed by gastro and CNS patients. In the results of all the departments respiratory tract infection patients are more prone to usage of antibiotics. Respiratory tract infections = 47.5%, Gastro = 19.4%, CNS = 12.3%, Gynecology = 4.8%, UTI=4.8%, Ortho=2.9%, CVS=1.9%, Blood infection = 1.9%. Endocrine= 1.9% Poisoning = 0.9%, Miscellaneous = 0.9%.

Table 1: Total number of male and female patients using antibiotics according to their age.

Department	20-40		40-60		60-80	
	Male	Female	Male	Female	Male	Female
Central nervous System Dept.	3	2	4	3	1	0
Gynecology Dept.	0	5	0	0	0	0
Cardio vascular system dept.	0	1	0	0	1	0
Respiratory system Dept.	8	10	9	7	7	8
Gastroenterology dept.	6	5	4	0	3	2
Orthopedic dept.	1	0	0	0	1	1
Urinary track infections dept.	0	1	0	1	2	1
Poisoning dept.	0	0	1	0	0	0
Endocrinology dept.	0	0	1	0	1	0
Blood infections dept.	0	0	0	0	2	0
Miscellaneous	0	0	0	0	1	0

Table 2: Usage of antibiotics according to class and gender.

Class of antibiotics	Male	Female	Total
Sulfonamides	0	0	0
Penicillins	2	3	5
Tetracyclines	1	1	2
Cephalosporins	35	20	55
Macrolides	2	2	4
Aminoglycosides	5	2	7
Polypeptides	0	0	0
Quinalones	1	6	7
Others (Comb)	11	12	23

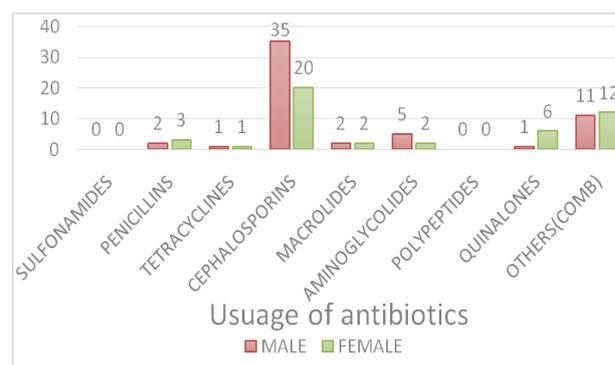


Fig. 1: Individual usage of antibiotics in each antibiotic class.

Table 3: Cephalosporins.

Cephalosporins	No. of times prescribed
Ceftriaxone	67
Cefixime	7
Cefoperazone + sulbactam	6
Cefuroxime	3
Cefpodoxime	1
Cephalexim + probencid	1

Table 4: Quinines.

Quinalones	No.of times prescribed
Ofloxacin	16
Amoxacillin	5
Levofloxacin	3

Table 5: Aminoglycosidese.

Aminoglycosidese	No.of times prescribed
Amikacin	12
Gentamycin	2
Vancomycin	1

Table 6: Pencillins.

Pencillins	No. of times prescribed
Pipercillin tozobactam	9
Pipercillin slubactam	2
Amoxacillin + calvulanic acid	1

Table 7: Tetracyclins.

Tetracyclins	No. of times prescribed
Doxycyclin	2
Oxytetracyclin	1

DISCUSSION

We have conducted drug utilization and evaluation studies on antibiotics at St.Joseph hospital Guntur in departments. Only inpatients were taken in to our study. The study is conducted to know the utilization pattern of antibiotics at St.Joseph general hospital.

The patients were divided according to the departments they belongs to. Next we have divided according to gender. Next, we have divided the patients according to their age. Next we have divided the antibiotic that is given according to their class.

Before that we have to what is prospective study it is an analytic study designed to determine the relationship between a condition and a characteristic shared by some members of group. The population selected is healthy at the beginning of the study. Some of the members of the group share a particular characteristic, such as cigarette smoking. There searcher follows the population group over a period of time, nothing the rate at which a condition, such lung cancer, occurs in the smokers and in the non smokers. A prospective study may involve many variables or only two; it may seek to demonstrate a relationship that is an association or one that is causal. Prospective studies produce a direct measure of risk called the relative risk. Of all the disease conditions respiratory conditions respiratory track infection patients has been used antibiotics widely and in all those antibiotics classes cephalosporins has been widely used in all the disease condition. Approximately two-thirds of all prescriptions were for purpose of treatment and the rest for prophylaxis. This was quite similar to patterns

described elsewhere Evaluation of antibiotic use with the aim of treatment shows that microbiological examination. Preceding treatment was not performed in most cases (88.8%). The majority of prescriptions were therefore made on an empirical basis. The pattern of some prescriptions for example in the treatment of skin and soft tissue infections (example cellulites) and common cold reflects lack of compliance to the Ghana Standard Treatment Guidelines (STG).

CONCLUSION

The conclusion should focus on promoting rational antibiotic prescription and utilization aimed at minimizing the future emergence of bacterial resistance. List and use of injections was very high (92%). 72.62% medicines were prescribed by generic name. Majority of medicines were prescribed as injections followed by infusions and tables. There is no significant prescribing differences between male and female patient groups. Instead of conducting a descriptive, prospective DUR, a concurrent DUR with direct feedback to prescribers seems effective to improve the appropriateness with regard to the indication for use. Nevertheless, it may have negative effects on other component of the quality of the prescriptions. Since the effect of DURs varies with both the type of interventions conducted and the criterion applied, there is a need for further research in other settings and with other drugs.

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