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"Use of Antimicrobial agents in hospitals of Indore City" A survey

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Abstract

Antimicrobial resistance is a serious public health concern worldwide. Inappropriate prescribing, including the wrong drug, incorrect dose/duration, and poor compliance, contributes to it. Objective of survey to describe the use of antimicrobial agents in hospitals of Indore city, in the treatment of Urinary tract infection (UTI), Respiratory tract infection (RTI) according to choice of antibiotics and to identify factors determining the attitudes and practices of prescribers regarding antibiotic usage and to suggest measures that contain antibiotic resistance. Consulting to the doctors, pharmacists, and various prescription analyses was carried out in 15 hospital of Indore city during 2010-2011 and the use of antibiotics was recorded by indication, antibiotics name. 70% of hospitals were prescribed antibiotics in prophylaxis and treatment of UTI and RTI simultaneously. Antibiotics for treatment were in 90% of the cases for Urinary tract infection (UTI) and in 80% for respiratory tract infection (RTI) with Levofloxin, sulfamethaoxazole/trimethoprin (cotrimaxozole) and Amoxicillin clavulanat (augment in) ciprofloxacin and cotrimaxozole most frequently used, respectively. Antibiotics are often used in hospitals, both as treatment and prophylaxis. The most common infection treated with antibiotics was UTIs, followed by RTIs. Antibiotics abuse and bacterial resistance were evolving with use of antimicrobials (Antibiotics).

KEY WORDS - Antimicrobials agents, antibiotics, UTI, RTI

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INTRODUCTION

An antimicrobial agent is a substance that kills or inhibits the growth of microbes such as bacteria,fungi, or protozoan. Antimicrobial drugs either kill microbes) or prevent the growth of microbes. Technically, antibiotics are those substances that are produced by one microorganism and that kill, or prevent the growth, of another microorganism.[1] When antibiotics are given as prevention, in the wake to prevent any infection, it is called ' prophylactic' use of antibiotics. This process of taking measures to maintain health and prevent infection is called antibiotic prophylaxis.[1] Antibiotics are generally used to treat bacterial infections. The toxicity to humans and other animals from antibiotics is generally considered to be low. However, prolonged use of certain antibiotics can decrease the number of gut flora, which can have a negative impact on health. Some recommend that, during or after prolonged antibiotic use, one should consume probiotics and eat reasonably to replace destroyed gut flora. Hence, the common infections found during the study are (1) Urinary tract infection (UTI), (2) Respiratory tract infection (RTI)

MATERIALS AND METHODS

Study design

The survey was carried out with a self-administered, anonymous questionnaire encompassing the factors influencing their decision making and attitude toward antibiotic-prescribing practices. The survey was carried out in various hospitals, doctors, pharmacists, and another source of Indore city, the study was conducted from September to October 2010. The questionnaire was prepared consisted of the basic details. The main aim of the survey is to find out the mostly used antibiotics in hospitals of Indore city Prescribed by the doctors in prophylaxis and treatment of following infection:

1. % of Hospitals Prescribe antibiotics in following infections & diseases

I. Urinary tract infection (UTI)

II. Respiratory tract infection (RTI)

III. Others infection & diseases

2. % of Hospitals Prescribe antibiotics in Prophylaxis of Respiratory Tract infection (RTI)

3. % of Hospitals Prescribe antibiotics in Treatment of Urinary Tract infection (UTI)

4. % of Hospitals Prescribe antibiotics in Prophylaxis & Treatment both

The information's obtained from the survey of various hospitals and doctors of Indore city help us for our study

Data Analysis

On the basis of the study following data were collected and summarized.

RESULTS

The result were expressed as descriptive statistics, out of 15 hospitals 13 hospitals prescribed antibiotics in treatment of following infection: Urinary tract infection (UTI) and Respiratory tract infection (RTI). On the basis of information collect during the survey the following result were obtained.[Table 1]

1. % of Hospitals Prescribe antibiotics in following infections and diseases

In Urinary tract infections (UTI): 90%

In Respiratory tract infections (RTI): 90%

In others infection & diseases: 60%

2. % of Hospitals Prescribe antibiotics in Prophylaxis of Respiratory tract infection: 60%

3. % of Hospitals Prescribe antibiotics in Treatment of Respiratory tract infection (RTI): 80%

4. % of Hospitals Prescribe antibiotics in Treatment of Urinary tract infection (UTI) : 90 %

5. % of Hospitals Prescribe antibiotics in Prophylaxis & Treatment of Both infections (UTI and RTI): 70%

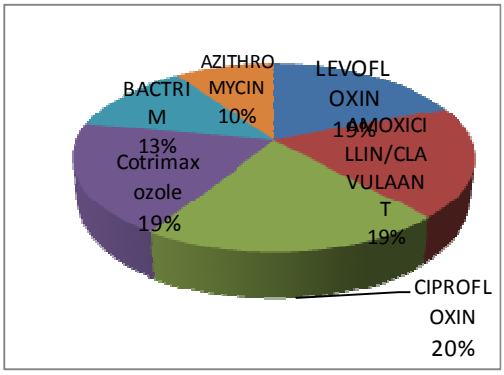

Fig. 1 Percentage (%) of hospitals prescribe antibiotics in treatment of Urinary tract infections (UTI)

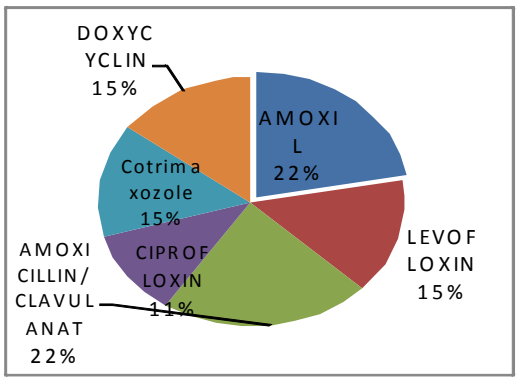

Fig.2 Percentage (%) of hospitals prescribe antibiotics in treatment of respiratory tract infection (RTI)

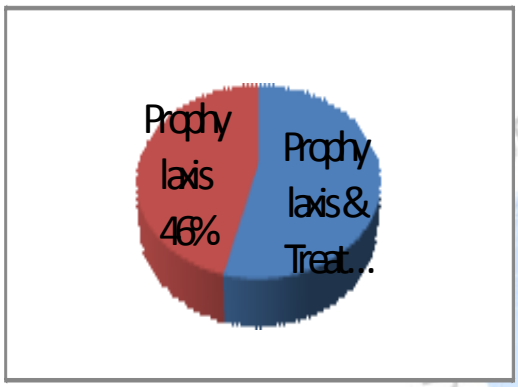

Fig.3 Percentage (%) of hospitals prescribe antibiotics in prophylaxis and treatment of Respiratory tract infections (RTI)

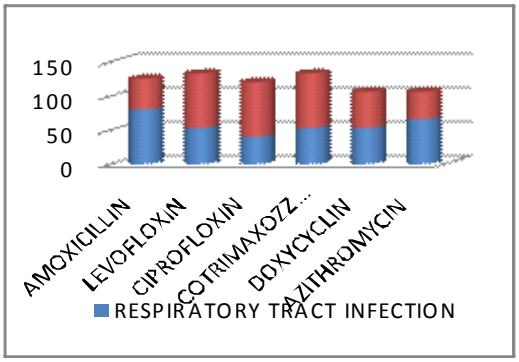

Fig.4 Percentage (%) of hospitals prescribes antibiotics in treatment of following infection- Urinary tract infection (UTI) and Respiratory tract infection.

DISCUSSION

Because of patient requests/expectations, physicians felt moderate and a strong pressure to prescribe antibiotics. The need for patient education is probably more acute in developing countries at least to relieve the pressures of the practitioners serving at all odds (self medication, expectations of quick relief, over-the-counter availability of antibiotics, etc).Similar to other reports, respiratory-tract infections accounted for the majority of the antibiotic usage, and amoxicillin happened to be the top drug prescribed despite the fact that a majority of respiratory infections are of viral etiologic. It is evident that the majority of the practitioners admit that antibiotics are overused. The reasons for the attitude to prescribe a broad-spectrum antibiotic when a narrow-spectrum antibiotic would suffice are as follows. About 73% believed that diagnostic uncertainty was the reason why physicians often prescribe a broad-spectrum antibiotic when a narrow-spectrum antibiotic would sufficient.

The global increase in resistance to antimicrobials has created a public health problem of potentially crisis proportions.

CONCLUSION

Purulent discharge, antibiotic-resistance concern, fever, and patient satisfaction were some of the strong factors influencing the prescribers to prescribe an antibiotic according to the present study. Although physicians often blame patients for demanding antibiotics, physicians, by their own admission, may prescribe more antibiotics because of treatment or diagnosis uncertainty. Resistance to levofloxacin and other Fluoroquinolones may evolve rapidly, even during a course of treatment. Numerous pathogens, including Staphylococcus aurous, enterococci, and Streptococcus pyrogenes now exhibit resistance worldwide. There are three known mechanisms of resistance. Some types of efflux pumps can act to decrease intracellular quinolones concentration. In gram-negative bacteria, plasmid-mediated resistance genes produce proteins that can bind to DNA gyres, protecting it from the action of quinolones. Finally, mutations at key sites in DNA gyrase or Topoisomerase IV can decrease their binding affinity to quinolones, decreasing the drug's effectiveness. "Normally levofloxacin should only be used in patients who have failed at least one prior

therapy. The overuse of antibiotics, such as happens with children suffering from otitis media, has given rise to a breed of super-bacteria that are resistant to antibiotics entirely.

Table 1 hospitals prescribed antibiotics in treatment of following infection: Urinary tract infection (UTI) and Respiratory tract infection (RTI)

Name of antibiotics (Brand name)	Name of antibiotics (Generic name)	Percentage of hospitals prescribe antibiotics in treatment of UTI	Percentage of hospitals prescribe antibiotics in treatment of RTI
Amoxil	Amoxicillin	45 %	80%
Levaquin	Levofloxin	80%	53%
Augmentin	Amoxicillin/Clavulanat	80%	80%
Ciprox	Ciprofloxin	80%	40%
SMZ-TMP and Septra	Cotrimoxazole	80%	53%
Doryx	Doxycycline	53%	53%
Azithromycin	Azithromycin	40%	66%
Duricef	Cefedroxil	40%	80%
Bactrim	Cotrimaxozole	53%	60%

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