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USE OF ANTIBIOTICS FOR RESPIRATORY TRACT INFECTIONS

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ABSTRACT

Respiratory tract infections (RTI) are one of the major causes of morbidity and decreased quality of life because of climate and pollution. The Objective of present study is to analyze the rationality of antibiotic use in adult patients with RTI. A Retrospective study was carried out in medical records department at a teaching hospital, Gulbarga.For a period of four months from 1st April 2010 to 30th July 2010. In this study, 60 prescriptions were analyzed. Out of 60 prescriptions, most of them were prescribed with more than one antibiotic. 90% of the prescriptions (54) were prescribed without any microbial culture sensitivity tests. The distribution of disease among 60 prescription are upper respiratory infection tract URTI, lower respiratory tract infection LRTI, asthma, viral respiratory tract infection are 28.33%,20%,13.33%,28.33%,8.33% respectively. 37(60%) contained more than one antibiotic. 29(48.30%) contained 3rd generation cephalospirin to treat RTI. Broad spectrum antibiotics are used for viral RTI which are self-limiting. This irrational use of antibiotics raises the risk of antibiotic resistance. Hence there is a need to appoint a clinical pharmacist at various levels in the health care setup to supervise and evaluate the prescriptions, to provide better patient care services and give a feed back to the physicians to improve the prescribing skills.

KEYWORDS: Respiratory tract infections, Antibiotic, Resistance, Rationality, Patient care.

OBJECTIVE

The present study has been conducted to analyze the rationality of antibiotic use in adult patients with RTI.

INTRODUCTION

The inappropriate and economically inefficient use of medication in terms of Poly pharmacy, use of drugs not related to the diagnosis, poor patient's compliance, overuse and misuse of antibiotics and use of unnecessary expensive drugs has been commonly observed in the health care system throughout the world, especially in the developing countries.[1] Respiratory tract infections (RTI) are one of the major causes of morbidity and decreased quality of life, because of climate and pollution. Community acquired lower RTI like acute bronchitis, pneumonia and exacerbations of chronic lung diseases rank among the most common reasons why people visit their General Physician.[2] The increase in antibiotic resistance is one of the pivotal threats being faced in the present era. Overuse and misuse of antibiotics has been commonly observed throughout the world, especially in developing countries like India.[3]

Rational use of antibiotics include identification of appropriate indication based on sound medical consideration, selection of appropriate antibiotic considering efficacy, safety, suitability for the patient and cost, and prescribing the appropriate dosage of antibiotic in quantities sufficient to last for duration of treatment. It also includes the provision of appropriate information to the patient to ensure that the prescribed antibiotics are taken correctly. This would necessitate the prescriber to have a sound knowledge of the causative microbe for a particular disease including its pattern of antibiotic sensitivity.[13]

Factors influencing prescription antibiotics: A WHO resource (EMHPI portal)

1. The standard treatment guidelines should be based on the findings of the cumulative antibiogram, antimicrobial policy, survelliance data on antimicrobial resistance and antibiotic consumption data and hospital associated infection profile of the particular hospital or community.
2. To develop a system to recognize and report trends in antibiotic resistance.
   It is necessary to understand physician prescribing behaviour in order to develop interventions that will effectively improve the rationale use of antibiotics.
3. All the community prescribers and doctors should be supplied with guidelines for appropriate use of antibiotics.
4. These should be prepared in consultant with microbiologist and laboratory data for the particular community and area.

Principles of Antibiotics Use

Prescribe antibiotics only when there will be a clear clinical benefit.

Choose antibiotics according to local prescribing guidelines. To prevent resistance and Clostridium difficile and MRSA limit the use of broad spectrum antibiotics e.g. co-amoxiclav, quinolones and cephalosporins.

For Patients in hospital

- Use IV only when absolutely necessary and switch to oral as soon as possible
- State the intended treatment duration on the prescription
- Review patients daily
- Stop antibiotics as soon as the patient is well enough
- In the community
- Do not use antibiotics for viral sore throat, simple coughs and colds or bronchitis in otherwise fit people.
- To minimize antibiotic use and help patients understand give them patient information leaflets or delayed prescription when they attend for upper respiratory tract infections
- Avoid prescribing over the telephone

Advice in difficult cases can be obtained from a Consultant Microbiologist

Remember for an antibiotic to be effective abscesses should ideally be drained and foreign bodies removed.

MATERIALS AND METHODS

A hospital based single centered, randomized, Retrospective study, cohort study. This data was collected from both case records and patients.

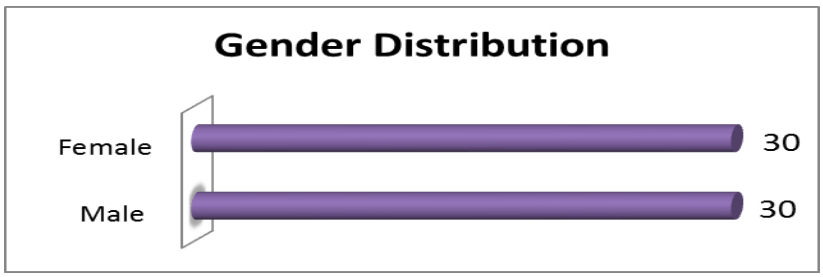
This study was conducted in the medical records department at a teaching & general hospital, Gulbarga for a period of four months from 1st April 2010 to 30th July 2010. In this study 60 prescriptions were analyzed in which antibiotics were prescribed.

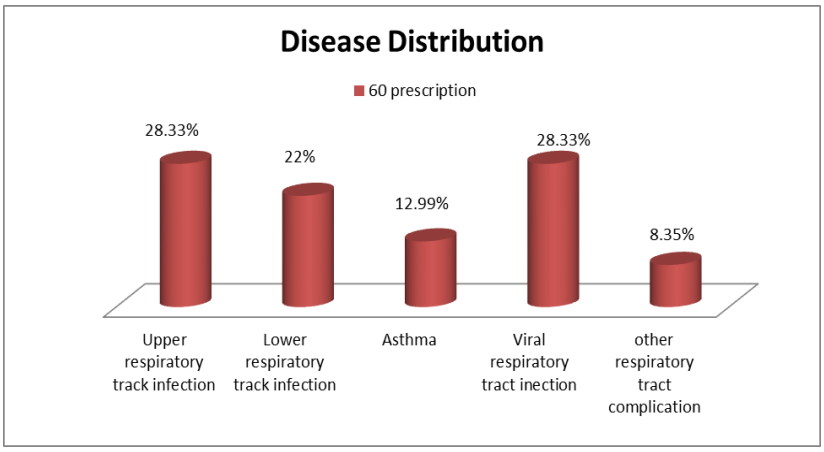
- Patients of both the gender above 18 years of age suffering from upper respiratory tract infection (URTI), lower respiratory tract infection (LRTI), asthma and viral respiratory tract infections (VRTI), and other respiratory tract were included.
- Female patients who are or may become pregnant**,** Chronic depressive patients, Patients who have been on oral steroids and oral contraceptives and Patients on any medications

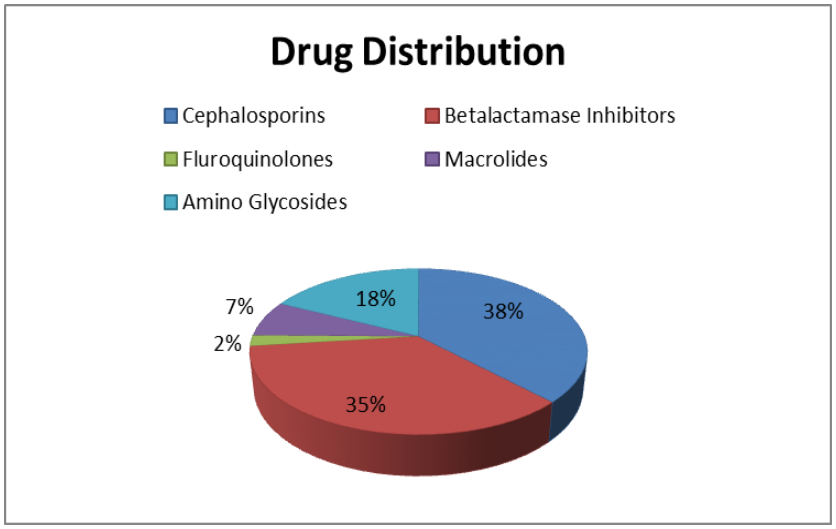
which are thought to interfere in any way with any of the drugs under study would be excluded.

RESULTS

Out of 60 prescriptions, 30(50%) were female and 30(50%) were male. 37(60%) contained more than one antibiotic.99.99% of the prescriptions were prescribed without any microbial culture sensitivity tests. 29 (48.30%) contained 3rd generation cephalosporin's to treat RTI. Out of 60 prescriptions 17 prescriptions were encountered with viral RTI. Out of these 17 viral infections 14 were treated with 3rd generation cephalosporin's (82.35%). Much antibiotic prescription is of little value and on the other hand lower antibiotic prescription seems to be theoretically associated with an increase in the complications of infection. Out of 60 prescriptions, upper respiratory tract infection (URTI), lower respiratory tract infection (LRTI), asthma and viral respiratory tract infections (VRTI),and other respiratory tract complications were the diagnosis made in 28.33%, 22%,12.99% , 28.33% and 8.35% of the prescriptions respectively. Among60 prescriptions, 90 antibiotics were prescribed, 3rd generation Cephalosporin's were most frequently prescribed (37.66%) patients. Betalactamase inhibitors were prescribed among (35.46%) patients. Fluroquinolones were prescribed among (2.11%) patients. Macrolides (clarithromycin and azithromycin) were prescribed among (7%) patients. Amino glycosides (gentamycin and amikacin) were prescribed in (17.77%).







DISCUSSION

The increase in antibiotic resistance is one of the pivotal threats being faced in the present era. Overuse and misuse of antibiotics has been commonly observed throughout the world, especially in developing countries like India.[4] 3rd generation cephalosporin's were used in proportion of 44.82% & 33.33% in VRTI & URTI (which were generally self limiting) respectively. Being the drug choice in RTI, Amoxicillin was used in only 3.33% (2) of prescriptions.[5] Erythromycin, Roxithromycin and Doxicycline were not prescribed in any prescriptions. 99.99% of antibiotics were prescribed without microbiological sensitivity test, which is the major factor in contributing for antibiotic resistance.[6] The patient's lack of knowledge and past experience of receiving antibiotics for respiratory tract infections make them to believe that antibiotics are effective for viral respiratory illnesses which were generally self limiting.[7] Moreover, economic factors contributing to over prescription of antibiotics in the form of incentives and gifts by pharmaceutical companies to the prescribers, is another factor which needs to be addressed. Moreover, physicians should be trained in rational prescribing skills by imparting them rational therapeutic guidelines and refresher training.[8] Evidence-based reviews and guidelines recommend lesser use of antibiotics for acute respiratory tract infections, not only because the antibiotics are in effective, but because their wide spread use is thought to contribute to the development of antibiotic resistance.[9] Some of the strategies recommended are:- reduced or do not prescribe antibiotics for bronchitis if pneumonia is not a concern, prescribe antibiotics only if symptoms do not improve after 48 hours, do not prescribe broad antibiotics for simple VRTI like cold, and do not prescribe broad spectrum antibiotics like 3rd generation cephalosporin's and Clarithromycin, use respiratory Quinolones in community acquired pneumonias or

pneumonias in high risk patients (asthma, COAD, COPD).[10] Much antibiotic use is of lower importance and on the other hand lesser antibiotic use seems to be associated with an increase in the complications of infection.

CONCLUSION

Broad spectrum antibiotics are used for viral RTI which are self-limiting.[11] This irrational use of antibiotics raises the risk of antibiotic resistance.[12] Hence there is a need to appoint a clinical pharmacist at various levels in the health care setup to supervise and evaluate the prescriptions, to provide better patient care services and give the physicians a feed back to improve the prescribing skills.

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