Research Article

TO EVALUATE THE PRESCRIBING PATTERN OF PATHOGENIC DISEASES

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ABSTRACT

The aim of current study was to evaluate the prescribing pattern of pathogenic diseases, identify the prescribing pattern for antibiotic, antifungal to the patient and to improve the drug utilization system in hospitals. The study was carried out to the outdoor patient (OPD) and emergency patient at Green City Hospital, Greater Noida. In this study we have taken two types of patient's data, one who took mono-therapy and one who took combination therapy. The study was carried out the period of one month. The sources of data collected with the help of physician prescribing records and patient medication profile. During the study period most associated pathogenic diseases were antibacterial and anti-fungal. So antibiotic and antifungal drugs were prescribed and mono-therapy and combination therapies were used for treatment of these infection. The most commonly drugs used for mono-therapy was Clotrimazole, Albendazole, Ampicillin, Chloramphenicol, Clotrimazole and the drug used for combination therapy were Amoxicillin +potassium clavulunate, Sulfamethazone + Trimethoprim, Sulfadiazine + Mafenide. After completion of study we observed that the most the prescribing pattern for pathogenic diseases was combination therapy. The current study gave the idea about antibiotic used in pathogenic diseases, their combination and drug utilization in hospital system.

KEYWORDS: *Pathogenic Disease, Antibiotic Drugs, Antifungal Drugs, Mono-therapy, Combination-therapy.*

INTRODUCTION

The term pathogen came into use in the 1880s. Usually, the term is used to describe an infectious microorganism or agent, such as a virus, bacterium, protozoan, prion, viroid, or fungus. Small animals, like certain kinds of worms and insect larvae, can also produce disease. However, these animals are typically, referred to as parasites rather than pathogens. The scientific study of microscopic organisms, including microscopic pathogenic organisms, is called microbiology, while the study of disease that may include these pathogens is called pathology [1].

Types of Pathogens:

(1) ***Bacteria:*** The huge majority of bacteria, which typically range between 1 and 5 micrometers in length, are harmless or beneficial to humans. On the other hand, a relatively small list of pathogenic bacteria can cause infectious diseases. One of the bacterial diseases with the highest disease burden is tuberculosis, caused by the bacterium *Mycobacterium tuberculosis*, which kills about 2 million people a year, mostly in sub-Saharan Africa. Pathogenic

bacteria also cause infections like Pneumonia tetanus, typhoid fever, diphtheria, syphilis, and leprosy. The Antibacterial drug used for such kind of infection [2, 3].

(2) ***Viral:*** Several diseases that are caused by viral pathogens include smallpox, influenza, mumps, measles, chickenpox, Ebola and rubella, Pathogenic viruses are diseases mainly of the families of, Adenoviridae, Picornaviridae, Herpesviridae, Hepadnaviridae, Flaviviridae, Retroviridae, Polyomavirus, Rhabdoviridae. Viruses normally range between 20 and 300 nanometers in length. The Antiviral drug used for such kind of pathogenic diseases [4, 5].

(3) ***Fungal:*** Fungi include a eukaryotic kingdom of microbes that are usually saprophytes (consume dead organisms) but can cause diseases in humans, animals and plants. Fungi are the most common cause of diseases in crops and other plants. The typical fungal spore size is 1–40 micrometers in length. The antifungal drug used for fungal infection in human [6, 7].

(4) ***Prionic:*** According to the prion theory, prions are infectious pathogens that do not contain nucleic acids. These abnormally folded proteins are found characteristically in some diseases like scrapie, bovine spongiform encephalopathy (mad cow disease) [8, 9].

Drug used in Pathogenic diseases:
1. ***Antibacterial Drugs:*** An antibiotic is a type of antimicrobial substance active against bacteria and is the

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most important type of antibacterial agent for fighting bacterial infections. Antibiotic medications are commonly used in the treatment and prevention of such infections. They may either kill or inhibit the growth of bacteria. In tuberculosis, the combination therapy (two or more antibiotics) has been used to delay or prevent the emergence of resistance. In acute bacterial infections, antibiotics as part of combination therapy are prescribed for their synergistic effects to improve treatment outcome as the combined effect of both antibiotics is better than their individual effect [10-13].

2. *Antiviral drugs:* This class of medication used specially for treating viral infections rather than bacterial ones. Most antiviral are used for specific viral infections, while a broad-spectrum antiviral is effective against a wide range of viruses. Antiviral drugs are one class of antimicrobials, a larger group which also includes antibiotic (also termed antibacterial), antifungal and ant parasitic drugs, or antiviral drugs based on monoclonal antibodies. Most antiviral are considered relatively safe to the host, and therefore can be used to treat infections. Most of the antiviral drugs currently available are designed to help deal with HIV, herpes viruses, the hepatitis B and C viruses, and influenza A and B viruses.[14,15].

3. **Antifungal Drugs:** It is also known as an anti mycotic medication, is a pharmaceutical fungicide or fungi static used to treat and prevent mycosis such as athlete's foot, ringworm, candidiasis (thrush), serious systemic infections such as crypto coccal meningitis. Such drugs are usually obtained by a doctor's prescription, but a few are available OTC (over-the-counter). [16, 17].

Study Designs and Methodology:
(A) Study Design:
1. It was a prospective drug utilization study.
2. All the observations were recorded in drug utilization patterns.

(B) Study Site:
Study was carried out in the OPD & emergency of the Green city Hospital, Greater Noida.

(C) Study Population:
About 100% patients using antibiotics drugs were included.

(D) Inclusion Criteria:
- All Patients using antibiotics drugs visiting OPD & IPD.
- Patients treated with at least one antibiotic drug.
- All the patients already receiving antibiotics drugs before the study.

Exclusion Criteria:
- Patients which are not treated with antibiotics.
- All the mentally retarded and unconscious patients.
- Drugs addicts.
- Patients unable to comply

Duration of Study:
- The study was carried out for the period of one month.

Sources of Data:
- Physician's prescribing records.
- Patient's medication profile.

Material Used:
- Informed contents.
- Drug utilization monitoring forms.

Data Collection:
- Patient's demographics.
- Patients were interviewed after obtaining contents. An interview was conducted by using structured questionnaire (open question method).

Observations & Conclusion Remarks Observations:
The study also came across the most commonly prescribed drugs in Mono-therapy, number of patient prescribed and % prescribed as mono-therapy showed in table 1.1.

Table No. 1.1: Commonly prescribed drugs as mono-therapy

Name of Drug	No. of Patient prescribed	% prescribed as Mono-therapy
Clotrinidazole	26	50
Albendazole	10	5
Ampicillin	16	14
Chloramphenicol	10	4
Clotrimazole	3	12
Total	70	100

The study also came across the most commonly prescribed drug in Combination Therapy was:
Tab:- Augmentin (salt:- Amoxycillin 375mg + pott. Clavulanate 625mg).
Tab:- Microsve CV (salt:- Cefpodoxime 200mg + pott. Clavulanate 125mg).
Tab:- UTI Infection (salt:-Sulfamethoxazone +Trimethoprim).
Tab:- Canditral (Itraconazole).
Gel form:- (Burn therapy & prevention and treatment of bacterial infection).
(Salt:- Silver sulphadiazine + Mafenide).
Most commonly prescribed drugs as Combination therapy are showed in table 1.2:

Table No. 1.2: Commonly prescribed drugs as combination therapy

Drugs	No. of Patients	% of Prescribing
Amoxycillin + Pott. Clavulanate	40	57.14
Cefpodoxim +Pott. Clavulanate	20	15.14
Sulfamethoxazone + trimethoprim	8	11.40
Sulphadiazine + mafenide	4	8.57
Total	72	92.25

Drugs Prescribed to the Pathogenic Infectious Patients:
Working on 150 Patients 100% of prescription were found to be Mono-therapy
Prescribed and 92.25% was of Combination therapy.

Table No. 1.3: Antibiotics, Antifungal, Antinfection and Antipyrogenic drugs Prescribed as Mono-therapy and Combination therapy

Drugs prescribed as	No. of prescription	% of prescription
Monotherapy	70	72
Combination therapy	92.25	100
Total	162.25	172

RESULTS AND DISCUSSION

During the study period the most commonly found associated diseases in Pathogenic disease were Anti-biotic and Antifungal.

Table No. 2.1: Associated diseases with Pathogenic Diseases

Associated disease	No. of Patients	%age of Patients
Pathogenic disease	10	20
Bacterial infection	22	37
Chicken pox	3	2
Skin infection	15	20
Antibiotics	50	71
Total	100	150

Table No. 2.2: Incidences of food borne illness from common Pathogens (Reported to Food Net, 2010)

Pathogen	Illness	Incidencea	Changesb
Salmonella	8,256	17.6	Increase- 3%
Campylobacter	6,365	13.6	decrease- 27%
Shigella	1,780	3.8	decrease- 57%
STEC 0157	442	0.9	decrease- 44%
Vibrio	193	0.4	Increase- 115%
Yersinia	159	0.3	decrease- 52%
Listeria	125	0.3	decrease- 38%

(a) Per 100,000 persons.
(b) Since 1996-1998 data.
STEC: Shiga toxin-producing Escherichia coli.

CONCLUSION

The primary objective of this study was to evaluate the prescribing pattern in antibiotic, antifungal, to the patients and its associated diseases and to improve, Drug utilization system in Hospital. The major observations of this study are:

- Antibiotics were more prevalently in middle age group of patient.

- All the medicines were prescribed through brand name during the period of therapy.
- Most of the patients required more than one Antibiotics drugs and combination therapy was the preferred mode of therapy.
- Amoxicillin was frequently prescribed drug.
- Antibiotics and Antifungal were most common associated disease and required medication drug therapy for treatment.

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