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RESEARCH ARTICLE

ANALYSING THE RATIONALITY OF ANTIBIOTICS IN COMPARING THE DIFFERENT DEPARTMENTS IN RMMCH

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ABSTRACT

They are many problems which are caused by healthcare system. This study was conducted to know and determine the rational use of antibiotics;drugs were analyzed for appropriateness in dosage, duration of therapy and drug combinations.The mostly used antibiotics in RMMCH are compared in the four departments which are medicine, surgery,obstetrics and gynecology (OBG) and pediatrics in both outpatient department (OPD) and inpatient.Prescriptions from were collected over a period of 6 months.Prescriptions containing antimicrobial drugs were analyzed for appropriateness in dosage, duration of therapy, and drug combinations. As compared to the all the departments the more number of antibiotics are used in surgery of about 64.39% as compared to the other departments and about 10% were irrational. And the total number of irrational prescriptions are about 33%. The doctors should be aware of prescribing the antibiotics and to reduce the irrational use of antibiotics and they should keep them in a control from prescribing irrational fixed dose drug combinations.

KEYWORDS: Antimicrobials, outpatient department, inpatient, rational, irrational

INTRODUCTION:

WHO defined the rational use of drugs as "Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community."

Incorrect use of medicines

WHO strongly recommends that governments focus control and prevention efforts in four main areas:

- surveillance for antimicrobial resistance;
- rational antibiotic use, including education of healthcare workers and the public in the appropriate use of antibiotics;
- Introducing or enforcing legislation related to stopping the selling of antibiotics without prescription; andstrict adherence to infection prevention and control measures, including the use of hand-washing measures, particularly in healthcare facilities.

WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take them correctly? This incorrect use may take the form of overuse, underuse and misuse of prescription or non-prescription medicines.

Common problems include:

- Polypharmacy (use of too many medicines);
- Overuse of antibiotics and injections;
- Failure to prescribe in accordance with clinical guidelines;
- Inappropriate self-medication.

In developing countries, the proportion of patients treated according to clinical guidelines for common diseases in primary care is less than 40% in the public sector and 30% in the private sector.

The consequences of incorrect use of medicines

Incorrect use of medicines occurs in all countries, causing harm to people and wasting resources. Consequences include:

Antimicrobial resistance. Overuse of antibiotics increases antimicrobial resistance and the number of medicines that are no longer effective against infectious disease. Many surgical procedures and cancer therapies are not possible without antibiotics to fight infection.

Adverse drug reactions and medication errors. Harmful reactions to medicines caused by wrong use, or allergic reactions to medicines can lead to increased illness, suffering and death. Lost resources. Between 10–40% of national health budgets are spent on medicines. Out-of-pocket purchases of medicines can cause severe financial hardship to individuals and their families. Eroded patient confidence. Exacerbated by the overuse of limited medicines, drugs may be often out of stock or at

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unaffordable prices and as result erode patient confidence. Poor or negative health outcomes due to inappropriate use of medicines may also reduce confidence.

Antibiotics are powerful and effective drugs in the fight against infectious diseases caused by bacteria, and have saved millions of lives since their first appearance about 50 years ago. Yet now, more and more people are dying from infectious diseases that were curable but for which we no longer have the right treatment. Antimicrobial drug resistance is a growing problem and developing new antimicrobials is not the solution for this problem.

The problem of irrational use of antibacterial drugs is both complex and many-faceted. But whatever its complexity, it should not be underestimated because it has a harmful influence on the possibilities of successfully treating certain highly prevalent infectious diseases. It is the responsibility of the doctors to develop a good prescribing habit which will help in reducing the intensity of the problem. The rational use of antibiotics would help to limit as much as possible the appearance and spread of resistant strains, which in the long run threaten our chances of effectively controlling the infectious diseases. To tackle with this problem, global initiatives are trying to promote "antibiotic stewardship," with the aim of enhancing the appropriateness of antimicrobial use. But it requires continuous education of prescribers and patients, which needs to be supported by high quality evidence linking antimicrobial use to the emergence of resistance. These issues are associated with prescribing pattern of antibiotics thus this study was conducted to know the extent of rational therapy in inpatient and outpatient at RMMCH, Chidambaram.

MATERIALS AND METHODS:

A retrospective and prosepective study was carried out at a tertiary care hospital at chidambaram. 600 prescriptions, 150 each from medicine, surgery, obstetrics and gynecology (OBG) and pediatrics OPDs were collected over a period of 6months to evaluate the prescriptions for their rational approach. Prescriptions containing antimicrobials of any category were selected randomly irrespective of ailments, age or sex of the patients or the route of administration of the drug. The antimicrobials prescribed by doctors were studied for common diseases like haemmorhoids, appendicitis, ovarian cyst, fibroid uterus(postoperative cases), phimosis, diabetic foot ulcers and some of theinfections like upper and lower respiratory tract, urinary tract, gastro- intestinal tract and of soft tissues etc.

MODE OF COLLECTION OF PRESCRIPTIONS:

The copies of the prescriptions from the patients attending OPD and INPATIENT WARD at a tertiary care hospital were obtained.

RATIONALITY OF THE PRESCRIPTION:

In the present study, WHO guidelines were taken into consideration for evaluating the
rationality of the prescriptions.The parameters for evaluation were:
(1) Dosestrength and dosage schedule (2) Duration of therapy (3). Rationalor irrational.

RESULTS:

Out of total 600 prescriptions collected from medicine, surgery, OBG and pediatrics
OPDs, 71.1% prescriptions contained antimicrobial drugs. Of which 35.2%

Prescriptions were with single antimicrobial agent, 15.78% prescriptions were with two or more antimicrobial agents.

TABLE 1: Analyzing the prescribed antibiotics in the following departments

Parameter	Surgery (150)	Medicine (150)	OBG (150)	Pediatrics (150)
Antibiotic prescriptions	70	46	52	56
Single antibiotic agent	30	32	12	21

Among the different classes of antimicrobial quinolones,metronidazole, amoxicillin, oflaxacin, cefotaxime, cefixime, are mostlyprescribed.
In this study, there is no prescription with incorrect dosage,incorrect duration of therapy, over prescribing or use of banned drug formulations..

Table 2:

ANTIBIOTIC LIST IN RMMCH
Amikacin
Amoxicillin
Ampicillin
Benzyl penicillin
Cefotaxime
Ceftriazone
Cloxacillin
Co-trimoxazole
Clavulanic acid
Cefixime
Ofloxacin
Metronidazole

DISCUSSION:

The appropriate use of antibiotics delays the development of drug resistance by microorganisms. Antibiotics are overused, particularly for minor infections, misused for self –limiting viral infections and underused due to financial concerns.

Inappropriate and indiscriminate use of antimicrobials and their combinations is a global

Problem causing a substantial economic burden on health care systems. Over prescribing is associated with increased side effects, excessive cost of the therapy, moreover it leads to emergence of resistant organisms, whereas under prescribing gives rise to treatment failure.

Antimicrobial drug resistance refers to non-responsiveness of micro-organisms to an

Antimicrobial agent one important reason for antimicrobial drug resistance is irrational use of FDCs. The present study was undertaken to evaluate rational use of antimicrobial in RMMCH, Chidambaram. The prescriptions were better in respect to the duration of therapy, and dosage, which isconsistent with the previous study.The polypharmacy of antimicrobials seen in the prescriptions may be due to empirical use of antimicrobials without waiting for culture and sensitivity test for confirmatory diagnosis.The requirements of the rational use of medicines can be fulfilled only if the process of both prescribing and dispensing is appropriately followed. This includes steps concerned with proper diagnosis, correct prescribing, dispensing, and giving proper information to the patient.

CONCLUSION:

The antibiotic use was found to be reasonable and rational in most of the cases, but there are many antibiotics used from outside the Essential Drug list. The hospital may need to develop its own essential drug list in line of World Health Organisation and Indian Academy. There is an urgent need to develop standards ofantimicrobial drug prescriptions to avoid drug resistance. Educational interventions to promote rational use of antimicrobial agents and awareness of deleterious impact of irrational prescribing habit on the community and all members of the health care system are needed.Clinical pharmacists may be in a position to review the prescription order, which may help in selecting the appropriate antibiotic.

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