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DRUG UTILIZATION STUDY IN PAEDIATRIC OUTPATIENT DEPARTMENT IN A TERTIARY CARE HOSPITAL

Pharmacology

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ABSTRACT

Background: Drug therapy accounts for major portion of health expenditure. Drug utilization studies are used as potential tools in the evaluation of healthcare system of a country. They facilitate the rational use of drugs among population. Hence this study was conducted to analyze the prescriptions patterns in outpatient department of paediatrics. **Aim and objective:** To analyze the prescription pattern and drug utilization in outpatient department of paediatrics in a tertiary care hospital. **Methods:** A prospective observational study was conducted in the outpatient department of paediatrics in Government Kilpauk medical college hospital, Chennai. Patient and drug related information's were collected. Data obtained from 100 prescriptions were statistically analyzed for drug utilization pattern and The prescribing pattern of various drugs were analyzed using World health organization's core indicator. **Results:** The children between the age group of 1- 6 yrs were the major group , consulted by the paediatricians. Antimicrobial agents were the most commonly prescribed drugs . The average number of drug per prescription was 2. More than 95% of drugs were prescribed as generic drugs. Percentage of drugs prescribed from essential medicine list 2011 was 90%. **Conclusion:** The results of this study would be taken as basis for conducting studies in larger group of population so as to identify potential targets in order to make improvements in prescribing patterns and drug dispensing policies of the hospital.

KEYWORDS

Drug utilization study, core indicators, essential medicine list.

Introduction

Drugs are chemical substances used for treatment of diseases. They are also used in prevention and diagnosis of disease conditions. Utilization of drugs varies according to the consumers, clinical conditions and hospital policy. Drug utilization study is defined by World health organization (WHO) as "The marketing, distribution, prescription and use of drugs in society with special emphasis on the resulting medical, social and economic consequences". Drug utilization research helps in identification of clinical use of drugs in populations and its impact on healthcare system.[1] They form an essential part of pharmacoepidemiology as it describes the extent, nature and determinants of drug exposure. Hence, in recent years, studies on drug utilization have become a potential tool to be used in the evaluation of health care systems. Its importance has increased because of increase in marketing of new drugs, delayed adverse effects and the increasing concern regarding the cost of drugs.[2]

India has one of the largest proportions of population in the younger age groups in the world. 29.5% of the population of the country has been in the age group 0-14 years at the Census 2011.[3] More than 40% of the population account for less than 18 years of age. Children have the same right as adults to receive medicine that are safe and effective. The drugs trials in children faces many challenges. Adult data cannot be extrapolated to predict the effectiveness and safety in children and infants for a variety of reasons like dynamics of growth, changes in metabolism, maturation of organs and other developmental problems.

Many challenges like parenteral permission, assent for child participation, caution in placebo usage makes it difficult for pharmaceutical industry to conduct drug research in paediatric population, hence facing problems in approval of drug use by regulatory authorities. Overcoming all these challenges a drug comes into market for paediatric use. Hence a drug utilization study in paediatric population is an effective tool for monitoring the appropriateness of the usage of various medications.

A number of studies have reported drug usage patterns in different health care sectors in India.[4,5,6] Our study was conducted to analyze drug utilization in the outpatient department of paediatrics of a tertiary care hospital.

Methodology

A prospective observational study was conducted in the outpatient department (OPD) of paediatrics of Government Kilpauk Medical College Hospital, Chennai after getting approval from the institutional ethics committee.

Inclusion criteria:

1. All new cases coming to the OPD for treatment were included.

Exclusion criteria:

1. Those who are not willing to give the treatment particulars
2. Acutely ill children and
3. Children coming for vaccination

The prescriptions written by the paediatrician were collected from 100 cases as a pilot study. The details of Patient related information's like age, sex, diagnosis and Drug related information's like name of drug, dose, dosage schedule, dosage form, route of administration, duration of treatment were recorded from the outpatient prescription sheet.

All the details were entered in a customized data collection sheet. The data were analyzed based on the following WHO core indicators like average number of drugs per prescription, analysis of various groups of drugs, analysis of routes of drug administration, percentage of drugs prescribed by generic names and percentage of drugs prescribed from essential drug list.

National List of Essential Medicines of India [7] was used for assessing the number of drugs prescribed from the essential list.

Statistical Analysis

Microsoft access 2007 version database was for used for statistical analysis. Data was expressed as descriptive statistics like percentage, mean and median.

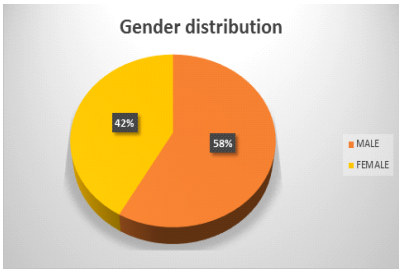
Results:

The prescription written by the paediatricians were collected from 100 cases, out of which 58 were male children, 42 are female children, 52 children's are between 1 to 6 years, 44 children are between 6 to 12 years and 4 are less than 1 year of age . Tab:1 shows the Age distribution of the patients. Fig 1 shows the Gender distribution of the patients.

Tab.1: Age wise distribution of patients

AGE	PERCENTAGE
Less than 1 year	4 %
1 – 6 Yrs	52%
6 – 12 Yrs	44%

Fig :1 Gender distribution of the patients



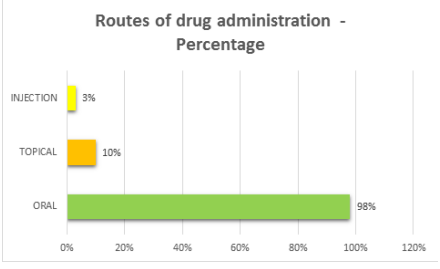
Analysis of prescription pattern reveals that the most common drug prescribed was Antimicrobials 30%, followed by Nonsteroidal anti-inflammatory drugs 23%, Antihistamines 21% and others 16% in distribution. Tab:2 shows the commonly prescribed drug categories.

Tab. 2: Shows various drug categories

DRUG CATEGORIES	PERCENTAGE
Antimicrobials	30%
Nonsteroidal anti-inflammatory drugs	23%
Antihistamines	21%
Others	16%

The common routes of drug administration are analyzed from the data collected, in which the most common route of drug administration was by Oral 98% followed by Topical 10% and only 3% prefer injections in children. Fig:2 shows the percentage distribution of routes of drug administration.

Fig :1 Routes of Drug administration in percentage



The prescribing pattern of various drugs were analyzed using WHO Core criteria. Tab:3 shows the WHO Core criteria and the average.

Tab.3: Shows about the WHO core Indicators

WHO Core Indicators	Average
Prescriptions with oral route of drug administration	98
Prescriptions with antibiotics	30
Average number of drugs per prescription	2
Number of prescriptions with generic drugs	96
Percentage of drugs prescribed from EML 2011	90

Discussion

Male children accounted for 52% of the total cases (Tab.1). Major group of paediatric patients were less than 6 years. The percentage of drugs prescribed from various classes according to the indications and the commonest indication was respiratory tract infection contributing to 65%.

The drugs prescribed were antibiotics, Nonsteroidal antiinflammatory drugs (NSAIDs), antihistamines, mucolytics , bronchodilators, antiemetics, antispasmodics, vitamins, micronutrients and probiotics. The most commonly prescribed drugs are antimicrobial agents (30%) followed by NSAIDs (23%) and Antihistamines(21%) (Tab 2).

Antibiotics were prescribed in more than 50% prescriptions. Amoxycillin was the commonest antimicrobial agent followed by Erythromycin and Cotrimoxazole. This is similar to the studies conducted by Bansal V et al[8], Flemming B et al [9] and Nilti mittal et al.[10] The antibiotics were prescribed based on the clinical diagnosis without culture sensitivity. This could be inappropriate which may be sometimes responsible for high incidence of microbial resistance. This demands changes in the hospital antibiotic policy to limit the frequent and inappropriate prescription of antibiotics.

The drug prescriptions were analyzed for WHO core indicators (Tab. 3). The average number of drug per prescription was 2. The percentage of prescriptions with 1, 2,3 and 4 drugs prescribed 29, 52, 15 and 4 percent respectively. The study conducted by Ahmad najmi[11] showed that Average number of drugs per prescription was 3.7. and paracetamol was the most common drug prescribed followed by cefixime. Polypharmacy has drawbacks like high health care costs, poor patient compliance and higher incidence of adverse events.

The most common route of drug administration was oral route followed by parenteral route (Tab.2). The high percentage of oral route of drug administration was quite explainable since this study was conducted in the outpatient department. 96% of drugs were prescribed as generic drug. In the study conducted by Nimbagiri swamy thiruthopu [12] among 209 patients the percentage of drugs prescribed with the generic name was found to be 19.16% compared to 96 % in our study.

The importance of drugs prescription by generic name is an useful strategy in increasing drug cost savings. 90% of drugs were prescribed from the National List of Essential Medicines, 2011[7] of ministry of health and family welfare.

Conclusion

There is always a variation in drug utilization among different health institutions. Conducting periodic studies among various populations bring amendments in the hospital drug policies for rational use of drugs in the future. Allocation of health care budgets can also be modified by appropriate usage of drugs.

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