CLINICAL STUDY

A Cross-sectional Study on Prescribing Pattern for Children at Primary Health Care Clinics

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ABSTRACT

Background: Rational prescribing for children is very essential as there is increased risk from the use of medicines in them due to multiple reasons ranging from altered pharmacokinetics to long-term side effects. Drug-related needs of children must be assessed on individual basis to meet appropriate health care outcomes. **Aim:** This cross-sectional descriptive study aims at assessing drug use pattern and rationality in prescribing pattern as per World Health Organization (WHO) core prescribing indicators. **Material and methods:** A cross-sectional and prospective study was carried out in private primary health care clinics of Hyderabad, Telangana State. A total number of 300 prescriptions for children were reviewed. Patients' demographic characteristics, diagnosis and drugs prescribed were recorded in a prestructured and validated data collection form. **Results:** Average number of drugs per prescription were 1.92. Fever and upper respiratory tract infections were found to be common complaints in this age group. Paracetamol was the most commonly prescribed medication and among prescribed antibiotics, fluoroquinolones occupied the major part. About 67.3% of drugs were from the WHO Model List of Essential Medicines for Children. The percentage of drugs prescribed with generic names was very less. **Conclusion:** In this study, it was found that the prescription pattern in the selected primary health care centers in Hyderabad was in compliance with the WHO prescribing indicators, except the generic prescribing practice.

Keywords: Pediatrics, prescribing indicators, antibiotics, demographic characters

The availability and affordability of good quality drugs and their rational use are needed for effective health care. Rational prescribing is an essential component of health care system. Inappropriate prescribing negatively impacts the health of an individual and the economy of the society. Especially in children, irrational prescribing may increase the risk of developing health complications in the later stages of their life. It was reported that the use of antibacterial at young age can develop respiratory problems, allergic manifestations and may increase the risk of obesity. Thus, medicine safety issues in children, especially rational prescribing is an essential component of health care system.

For the rational prescribing of medicines in children, the first model list of essential drugs for children (less than 12 years) was released in October 2007. It is aimed to serve as a guideline for rational prescribing in this age group. Now the 7th edition of list was released in 2019 by WHO.

MATERIAL AND METHODS

A descriptive cross-sectional study was carried out in the primary health care pediatric clinics for evaluation of drug prescribing patterns starting from 20th January 2019 to 23rd March 2019. The study protocol was approved by RBVRR Women's College of Pharmacy Institutional Research Board (IRB). Only prescriptions with legible handwriting, demonstrating all the essential components of prescriptions were included. The data was collected from 5 private practitioners from chosen areas of Hyderabad. Five practitioners were randomly chosen each month from a pool of 10 practitioners enrolled for the study. Prescriptions were selected by random sampling method.

The study population included was under 13 years of age. Patients' demographic characteristics (age, gender), chief complaints and medicines prescribed were recorded. Class of medicines prescribed, dose, route of drug administration, frequency and duration

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of treatment was recorded in data collection form. WHO specifies drug use indicators for adoption in drug utilization studies.

The following basic drug use indicators (core indicators) were used in the study to describe the prescribing pattern: (a) Average number of drugs per encounter; (b) Percentage of drugs prescribed by a generic name; (c) Percentage of encounters with an antibiotic prescribed; (d) Percentage of encounters with an injection prescribed and (e) Percentage of drugs prescribed from the essential drug list. Based on this collected data, the WHO prescribing indicators were assessed.

Data collection was carried and supervised on a daily basis by the investigators involved in the study. Completeness of data was checked every day during the data collection period. Data was analyzed descriptively and summarized using tables and charts.

RESULTS

Total 300 prescriptions were analyzed; 162 male and 138 female patients visited the clinic during assessment period. Among 300 patients, 35% were below 4 years, 56% were 4-10 years of age and 9% were above 10 years. The major complaint was fever with or without upper respiratory tract infections. Thirty-two percent of prescriptions were found to be with one drug and 44% of prescriptions had two drugs. Only 22% of prescriptions had three drugs and 2% had more than three drugs (Table 1).

Average number of drugs prescribed was 1.92. Nonsteroidal anti-inflammatory drugs (NSAIDs) occupied 30% of the total medications prescribed. Twenty-four percent of the medications were mucolytics and antitussives (Fig. 1). Most frequently prescribed drug was found to be paracetamol followed by mucolytic agents. Together they contributed to more than 50% of the prescribed drugs. Only 10% patients received antibiotics and the overall percentage of antibiotics prescribed was also 10%. The most frequently prescribed antibiotics were fluoroquinolones followed by macrolides (Fig. 2). The percentage of drugs prescribed from the essential drugs list was 67.3%. Out of 300 prescriptions, only 5 (1.67%) patients had been prescribed with injections. Percentage of drugs prescribed by a generic name was only 13% (Table 2).

Table 1. Summary of Drugs per Prescription

No. of drugs per prescription	Total prescriptions
One	96
Two	132
Three	66
More than three	6

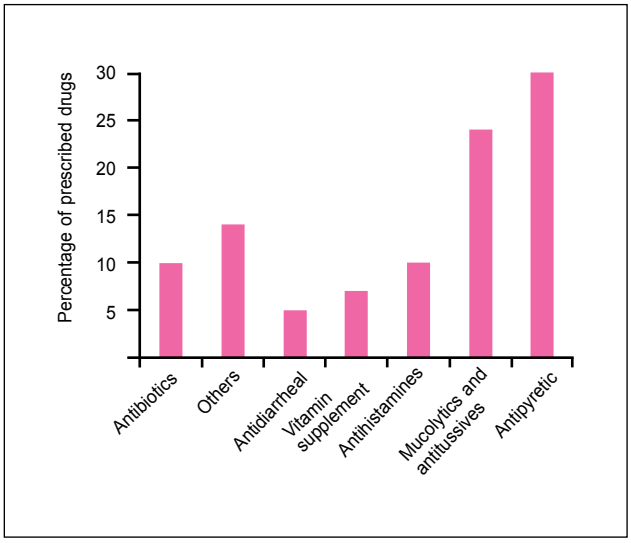


Figure 1. Percentage of prescribed drugs from various therapeutic classes.

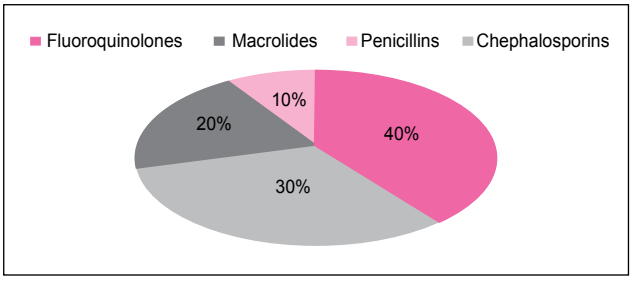


Figure 2. Relative percentage of prescribed antibiotics.

Table 2. Analysis of Prescriptions According to the WHO Core Prescribing Indicators

WHO prescribing indicator	Reported (%)	WHO Standard (%)
Average number of drugs per encounter	1.92	2
Percentage encounters with one or more antibiotics	10	20-26.8
Percentage of drugs prescribed by generic name	13	100
Percentage encounters with an injection prescribed	1.67	13.4-24.1
Percentage of drugs from essential drug formulary list	67.3	100

DISCUSSION

There are only few published studies in India on prescribing practices for children to conclude about this practice. Especially, there is a need to study prescribing practices in rural areas of India. However, findings of our study highlighted few areas of prescribing that should be intervened appropriately.

Antipyretics, cough and cold preparations and vitamins were the commonest categories of drugs prescribed, as reported in some similar studies. Fever and respiratory disorders are very common outpatient complaints in this age group. The average number of drugs prescribed is within the limits of WHO indicators. The total number of drugs from essential list in this study was better compared to the studies in other cities.

Percentage encounter with injection was only in 1.67% patients, indicating a rational practice as previously reported. Generics prescription was very poor which was in line with other reports, which needs to be improved.

CONCLUSION

Hence, the present study concludes that the prescribing pattern in children in selected areas of Hyderabad city was found to be rational in most of the aspects of WHO guidelines. We also found some areas of concern regarding prescribing practices. Low usage of generic drugs in prescription writing was the main drawback. So, there is an immediate need of encouraging physicians towards generic prescriptions. The number of drugs prescribed from Model EDL can also be improved by continuing education on rational drug use and development of easy to use treatment guidelines by the physicians.

Acknowledgment

We are thankful to Principal and Management of RBVRR Women's College of Pharmacy for supporting us to carry out this research.

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