WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 7.523
Volume 6, Issue 17, 1048-1054. Research Article ISSN 2277–7105

PRESCRIBING PATTERN OF ANTIBIOTICS IN PEDIATRIC OUT-PATIENT DEPARTMENT

E. Harikrishna[1], P. Manjula[2], D. Sudheer Kumar[3] and P. Kishore[1]*

[1]Department of Pharmacy Practice, Care College of Pharmacy.

[2,3]Care College of Pharmacy.

Article Received on
29 October 2017,
Revised on 18 Nov. 2017,
Accepted on 08 Dec. 2017
DOI: 10.20959/wjpr201717-10427

***Corresponding Author**
Dr. P. Kishore
Department of Pharmacy Practice, Care College of Pharmacy.

ABSTRACT

Introduction: Antibiotics are one of the most widely prescribed drugs among pediatric patients. To prevent antimicrobial resistance, antibiotics must be prescribed rationally. The main objective of our study is to determine trend or prescribing pattern of antibiotics in pediatric out-patient department. **Methods and materials**: A prospective observational study was carried out for 1 month. A total number of 497 patients who visited outpatient department were included in the study. **Results**: Most of the patients were neonates (60%) followed by childrens of age 2yrs to 6 yrs, 6-12 yrs and infants. The most commonly observed disease condition was fever (133 patients, 26.76%) followed by cough with fever was seen in 114 children (22.93%), gastroenteritis (59 children, 11.87%), malaria (33 patients 6.63%), URTI in 27children (5.43%). A total of 1991 drugs were prescribed in 497 prescriptions and among them 27.37% (545) were antibiotics. Among 378 patients who received antibiotics, most of the patients were prescribed with combinations (57.75%). Most commonly prescribed combination drug was cefpodoxime+ potassium clavunate. Cephalosporins group was mostly prescribed antibiotic class followed by antiprotozoals and quinolones. **Conclusion:** Cephalosporins were most commonly prescribed drugs. The selection of antibiotic should be based on culture and sensitivity test to avoid the development of bacterial resistance; however prescription of antibiotic should be done in accordance with WHO guidelines and rational strategie.

KEYWORDS: Pediatric, Antibiotics, Prescription pattern, Out-Patient.

INTRODUCTION

A prescription by a doctor may be taken as a reflection of physician's attitude to the disease and the role of drug in its treatment.[1] Infants and children are among the most vulnerable population groups that contract illnesses. The use of antimicrobial agents has become a routine practice for the treatment of pediatric illnesses and antibiotics are among the most commonly prescribed drugs in pediatrics.[2] Although the key role played by antibiotics in the treatment of infectious diseases in developing countries should be acknowledged, there are reports of irrational use of antibiotics which may even lead to infections that are worse than those caused originally.[3] The rising incidence of bacterial resistance to commonly used antibiotics, particularly the emergence of multi-drug resistant organisms has made it mandatory that antibiotics must be used judiciously in pediatric practice. Many of the antibiotics are unnecessarily prescribed for viral infections such as the common cold. Several professional societies have designed guidelines to reduce the use of antibiotics worldwide by means of various control strategies.[4] Detailed knowledge of antibiotic prescription pattern is important before policies and measures can be implemented. The reduction of uniformity in drug prescribing and the emergence of antibiotic resistance, monitoring and control of antibiotic use in children's was the main cause that pushed us to carry out this study. We have chosen the field of the antibiotics prescription as the pediatric group are commonly affected by various infectious diseases. The aim was to study the prescribing pattern of antibiotics in hospital of pediatric out-patient.

METHODS AND MATERIALS

An observational study was carried out for one month in the pediatric outpatient department in a private hospital. Patients who visited OP were included in the study. Patients who visited only for vaccination were excluded from the study. A total of 497 prescriptions were collected randomly during the period of study. The data was collected in pre-designed patient profile form. The data includes patient parameters such as age, sex, body weight and disease condition and the drug data such as name of the drug, dosage form, dosing frequency, duration, route of administration and diagnosis data.

RESULTS

Table 1: Age wise distribution of data.

Age	No. of patients
0-4weeks	51
4week-2yrs	298
2yrs to 6yrs	88
6yrs to 12yrs	55
12yrs to 18yrs	5
TOTAL	497

A total of 497 prescriptions were analyzed during the period of study. Most of the patients were neonates i.e, 60% followed by childrens of age 2yrs to 6 yr (17.7%), children's of age 6-12 yrs and above were 12.07% and infants were 10.26%. The male patients were 295 (59.35%) and female patients were 202 (40.64%).

The most commonly observed disease condition was fever 133 (26.76%) followed by cough with fever in 114 children (22.93%), gastroenteritis in 59 children (11.87%), malaria in 33 patients (6.63%), URTI in 27 children (5.43%), general weakness in 29 patients (5.84%), vomiting in 23 patients (4.63%), skin rashes in 20patients (4.03%), stomach pain in 15 patients (3.02%), seizures in 13 patients (2.62%), otitis in 11 patients (2.21%) and others disease conditions (constipation, redness of eye, acidity, indigestion) were observed in 17 patients (3.42%).

Table: 2 Number of drugs per prescription.

Number of drugs per prescriptions	Number of patients
One	03
Two	57
Three	125
Four	138
Five	113
Six	46
Seven	15

A total of 1991 drugs were prescribed in 497 prescriptions. Among them 27.37% (545) were antibiotics. A total of 378 prescriptions were found with at least one antibiotic. A minimum of one antibiotic and maximum of five antibiotics were observed in 378 prescriptions.

Most of the prescriptions (27.77%) contain four drugs, followed by three drugs in 125 prescriptions (25.15%), five drugs in 113 prescriptions (22.74%), two drugs in 57 prescriptions (11.47%), six drugs in 46 prescriptions (9.26%), seven drugs in 15 patients (3.02%) and least of one drug was seen in three prescriptions (0.6%).

Table 3: Number of antibiotics per prescription.

Number of antibiotics	Number of Prescriptions
One	91
Two	248
Three	30
Four	07
Five	02

Most of the prescriptions contain two antibiotics, followed by one antibiotic in 91 prescriptions, three antibiotics in 30 prescriptions, four antibiotics in 7 prescriptions and maximum of five antibiotics were seen in 2 prescriptions.

Table: 4 Combination of antibiotics.

Combination of Antibiotics	Number of patients
Cefpodoxime + clavunic acid	192
Oflaxacin + ornidazole	43
Ceftriaxone + Tazobactam	27
Ceftriaxone + Amikacin	20
Cefixime + Clavunic acid	20
Sataranidazole+ornidazole	04
Chloramphenicol + clotrimazole	08

Among 378 patients who received antibiotics, most of the patients were prescribed with combinations 57.8%. Most commonly prescribed combination drug was cefpodoxime & potassium clavunate followed by ceftriaxone & tazobactam with amikacin and oflaxacin with ornidazole.

Table 5: Prescribing pattern of antibiotics in different disease conditions.

Disease condition	Cefpodoxime +clavunate	Cefpodoxime	Oflaxacin +ornidazole	Ceftriaxone + Tazobactam	Amikacin	Chloroquine phosphate	Cefixime+ Potassium clavunate	Metronidazole	oflaxacin	Chloramphenicol+ Clotrimazole	Others *
Fever	45	45	-	09	07	02	-	-	-	-	02
Cough, fever	66	14	-	02	02	-	09	-	-	-	08
Gastroenteritis	06	04	43	-	-	-	04	08	01	-	05
Malaria	15	03	-	09	08	30	06	-	-	-	-
Seizures	04	02	-	05	05	-	-	-	-	-	-
Cough	10	03	-	02	01	-	-	-	02	-	01
Skin rashes	-	09	-	-	01	-	-	-	03	02	01
Stomach pain		01	-	-	-	-	01			-	-
Otitis	05	01					01		01	08	-
Eye infection	-	-	-	-	-	-	-	-	02	-	05

*others include Azithromycin, cefixime, Cefuroxime, tobramycin, cefotaxim)

As mentioned in Table 5, Cephalosporin class of drugs were most commonly prescribed drugs 306 (56.15%), followed by anti-protozoal (59, 10.83%), quinolones (51, 9.36%), antimalarials (32, 5.87%), Beta lactamase inhibitors (27, 4.95%), aminoglycoside (27, 4.95%) and others (anti fungals and macrolides) were 3%.

Among all cefpodoxime plus clavunic acid (50.70%) was most commonly prescribed drug followed by cefpodoxime (16.5%), oflaxacin (10.26%), ornidazole (9.45%), chloroquine phosphate (6.44%), Ceftriaxone plus Tazobactam 5.43%, amikacin (4.83%), cefixime & clavunic acid 4.02% and others (metronidazole, chloramphenicol plus clotrimazole, Azithromycin, Cefuroxime, tobramycin, Cefuroxime, cefixime, clotrimazole plus neomycin) 8.45%.

DISCUSSION

The most number of the hospitalized Pediatric patients belonged to age group of neonates. Our Study results reveal that highest susceptibility was observed in patient age group of less than one year. These results in agreement with previous study reported by Palikhe[5], in Kathmandu hospital, which revealed that infant less than one year received antibiotics more frequently than older children. This could be due to a higher susceptibility of infections at a younger age and needs a greater concern for infant's health relatively.

Our study found that most common cause of prescription of antibiotic was fever, cough with and gastroenteritis. These results are similar to the study conducted by Khaled M Alakhali *et al.*[6] who indicated fever, gastroenteritis and bronchitis were important reasons for prescribing of antibiotic.

A minimum of four drugs were prescribed in our study which was similar to study conducted by Ashraf H *et al.*[7] Prescribing drugs depends on the patient's condition. Thus it is evident that the polypharmacy and over prescribing are common in India. Various reasons can account for this situations like ambiguity in diagnosis in a patient presenting with multiple symptoms, demand for quick relief from patient; availability of non-essential and irrational drug combination and aggressive medicine promotions.

In present study most of the patients were prescribed with at least of two antibiotics, which is similar to the study conducted by Khaled M Alakhali *et al.*[6] This is due to over concern of the parents concern, delay in diagnosis and pediatricians not following guidelines. The prescription of antibiotic was based on clinical judgment without investigation. At times peer pressure on physicians also motivates them to treat simple infection aggressively with multiple antibiotics. Cefpodoxime was the most commonly prescribed drug in present study. Similarly a study conducted by Budhia Majhi *et al.*[8] also found that cefpodoxime was most frequently prescribed antibiotic in pediatrics for treating infection. Because of its broad category and safety of use, it is commonly prescribed by most of the Pediatricians.

The study conducted by Laya Vahdati Rad *et al*[9] found that the most common antimicrobial agents prescribed were cephalosporins which was similar to present study. Most commonly prescribed antibiotics were belong to cephalosporin group, as they show broad spectrum activity physicians prefer cephalosporin's over other.

CONCLUSION

This study gives an overview of the pattern of antibiotic use in the pediatric out-patient department, single as well as combined drugs prescriptions. Cephalosporin antibiotics were the mostly prescribed antibiotics as well as the most preferred for combination therapy among pediatric patients. Fever, cough and gastroenteritis were the most prevalent health condition and were found to be primary cause for hospitalization among pediatric patients. A minimum of two antibiotics were prescribed in many patients. Despite of limited sample size, our study could contribute towards improvement in prescription pattern and implement institutional guidelines.

REFERENCES

1. Janaki R. Torvi and SumanDambal. Drug prescription pattern in paediatricout patient clinic in a tertiary hospital. Curr Pediatr Res, 2011; 1(2): 77-80.
2. Sanz EJ, Bergman U, Dahlstorm M. Paediatric drug prescribing. *European Journal of Clinical Pharmacology*, 1989; 37: 65-8.
3. Pricipi N et al. Control of antibiotic therapy in paediatric patients. *Developmental Pharmacology and Therapeutics*, 1981; 2: 145-55.
4. Hecker MT, Aron DC, Patel NP, Lehmann MK. Unnecessary use of antimicrobials in hospitalized Patient. *Archives of Internal Medicine*, 2003; 163: 972-8.
5. Palikhe N. Prescribing Pattern of Antibiotics in Pediatric Hospital ofKathmandu ValleyJournal of Nepal Health Research Council, 2(2): 31-36.
6. Khaled M Alakhali, Asif Ansari Shaik Mohammad. Prescribing Pattern of Antibiotics in Pediatric Patients in the Jazan Region, Kingdom of Saudi Arabia. RGUHS J Pharm Sci, Jul–Sep, 2014; 4(3): 120-124.
7. Ashraf H, Handa S, Khan NA. Prescribing pattern of drugs in out-patient department of child care centre in Moradabad city. *IPSRR*, July – August 2010; 3(2): 001.
8. Majhi, Budhia & Panda, Abinash & Kumar Barma, Saroj. Antibiotic prescribing pattern in paediatrics outpatient in a tertiary care hospital. Journal of Evidence Based Medicine and Healthcare, 2017; 4: 3048-3051.
9. Laya Vahdati Rad, Modupalli Alekhya. Prescribing Pattern of Antibiotics in Pediatric Inpatient Department of a Tertiary Care Teaching Hospital in Bangalore. IOSR Journal of Pharmacy and Biological Sciences (IOSR-JPBS) e-ISSN: 2278-3008, p-ISSN: 2319-7676, Jul - Aug. 2015; 10(4): Ver. I, 26-32.