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ASSESSMENT OF PRESCRIBING PATTERN OF ANTIBIOTICS AND WHO PRESCRIBING INDICATORS IN PAEDIATRICS DEPARTMENT

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ABSTRACT

AIM: This study aims to assess and monitor the prescribing pattern of antibiotics by using WHO prescribing indicators. OBJECTIVES: To assess the prescribing pattern of antibiotics, to know the common class of antibiotics and to assess the prescribing pattern using WHO prescribing indicators. METHODOLOGY: It is a prospective, observational study conducted at RIMS Hospital in the department of Paediatrics. Data collection was be done by using self-prepared patient Data collection form and WHO Prescribing Indicators. Microsoft excel was used for recording the data of recruited subjects. RESULTS: In our study the total percentage of male paediatric patients were comparatively more(58%) than that of female paediatric patients (42%). In the present study we observed that Cephalosporins group of antibiotics were most commonly prescribed. In our study we observed that average number of drugs per encounter was 5.2. Antibiotics were prescribed with 79.6% per encounter and most of drugs were prescribed from EDL of hospital. The excessive use of Parenterals is common in many developing countries. In this study 64.01%of antibiotics were given by Parenterals. CONCLUSION: On evaluation of study the use of antibiotics and injections were found to be high. Generic prescribing is more, and prescribing of drugs from EDL was found to be excellent.

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INTRODUCTION

Pediatrics is the specialty of medical science concerned with the physical, mental, and social health of children from birth to young adulthood. Pediatric care encompasses a broad spectrum of health services ranging from preventive health care to the diagnosis and treatment of acute and chronic diseases. [1]

Premature Newborns <38weeks gestational age, Term Newborns > 38weeks gestational age, Neonate0–30days of age, Infant 1month–2years,Young Child2–6years, Child 6–12Years, Adolescent12–18years.[2]

When compared to adult medicine, drug use in paediatrics is not extensively researched and the range of licensed drugs inappropriate dosage form is limited. [3]

Drug therapy is considered to be major component of paediatric management in healthcare setting like hospital. Effective medical treatment of a paediatric patient is based upon an accurate diagnosis and optimum course of therapy, which usually involves a medication regimen. The use of antibiotics has become a routine practice for the treatment of paediatric illnesses. [4]

The drug use indicators described in this manual are intended to measure specific aspects of the behavior of health providers in health facilities in a reproducible manner, irrespective of who measures them or when the measures are taken.

The indicators can be quickly and efficiently used in many settings to assess potential problems in drug use and to prioritize and focus for sequent efforts to correct these problems. These are best understood as first line measures, intended to stimulate further questioning and to guide subsequent action.

Types of prescribing indicators:

Average number of drugs per encounter

Purpose : To measure the degree of polypharmacy.

Percentage of drugs prescribed by generic name:

Purpose : To measure the tendency to prescribe by generic name.

Percentage of encounters with an antibiotic prescribed:

Percentage of encounters with an injection prescribed.

Purpose: To measure the overall level of use two important, but commonly over used and costly forms of drug therapy.

Percentage of drugs prescribed from essential drug list or formulary:

Purpose: To measure the degree to which practices conform to a national drug policy, as indicated by prescribing from the national essential drugs list or formulary for the type of facility surveyed. [5]

This study aims to assess and monitor the prescribing pattern of antibiotics by using WHO prescribing indicators.

The main objectives of the study are to know the common class of antibiotics and to assess the prescribing pattern using WHO prescribing indicators.

The purpose of the study is to improve the rational prescribing of drugs.

MATERIALS AND METHODS

It is a prospective, observational study carried out for six months among the paediatric patients who are admitted in the Rajeev Gandhi institute of medical sciences where patients were recruited based on inclusion and exclusion criteria. The inclusion criteria of this study are patients admitted in the department of paediatrics, whose age group is between 1 month to 12 years of either sex, patients with co-morbidities are included. Patients of age group above 12 years are excluded.

Inclusion criteria:

- Patient admitted in the Department of Paediatrics.
- Patient prescribed with any antibiotic.
- Patient of age group 1 Month to 12 years.
- Patients of either sex.
- Patients with co-morbidities.

Exclusion criteria

Patients of age group above12 years.

Source of data

- Obtained from Medical Case Sheets.
- Medication history interview of patient care takers.

RESULTS:

In the present study we collected a total of 201 prescriptions from department of pediatrics out of which 117 (58.2%) patients were male and 84 (41.8%) were female.

Table 1: Distribution of Gender.

GENDER	NO	Percentage
Male	117	58.2%
Female	84	41.8%

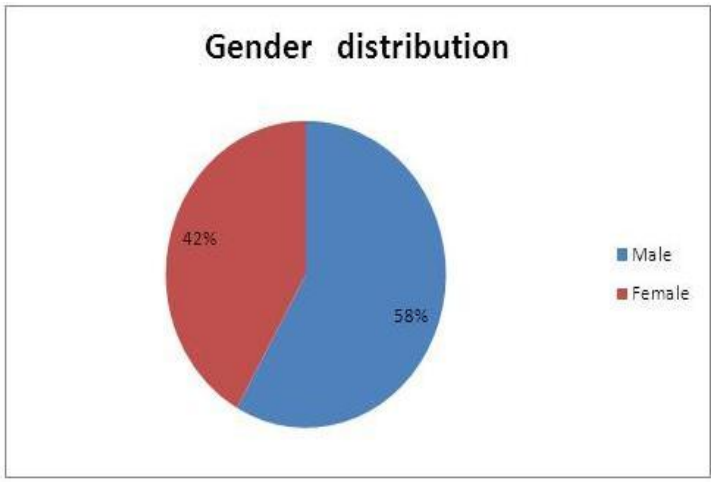

Figure 1: Gender distribution.

Age distribution

We categorized the samples into three age groups based on their age as shown in the table 2.

Table 2. Age distribution.

AGE	Number of patients	Percentage (%)
1Month-1yr	78	38.8%
1yr-5yr	67	33.3%
5yr-12yr	56	27.8%

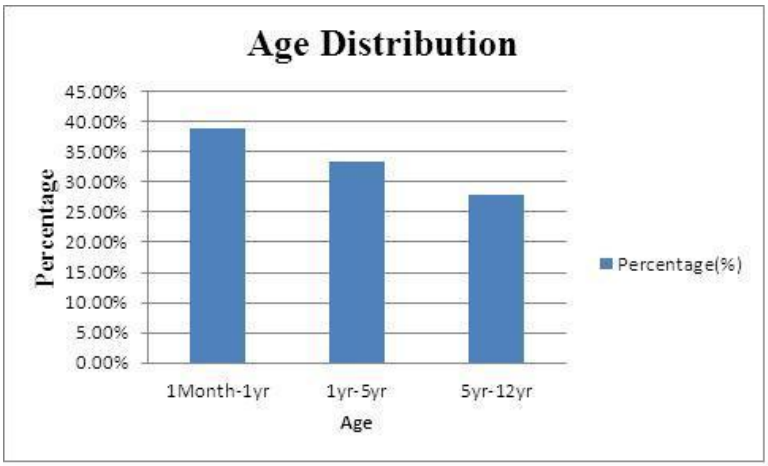

Figure 2. Age distribution.

Prescribing pattern of different classes of antibiotics:

We assessed the use of different classes of antibiotics were Cephalosporin (47.6%) class of antibiotics were most frequently prescribed followed by Aminoglycosides class (39%), Penicillin's class (11.7%), Fluroquinolones class (01%) and Macrolides(0.1%) group.

Table 3 .Prescribing pattern of different classes of antibiotics.

S.NO	ANTIBIOTICS	No of prescriptions	Percentage (%)
1.	Cephalosporin's	123	47.6%
2.	Aminoglycosides	107	39%
3.	Penicillin's	35	11.7%
4.	Fluroquinolones	03	01%
5.	Macrolides	02	0.7%

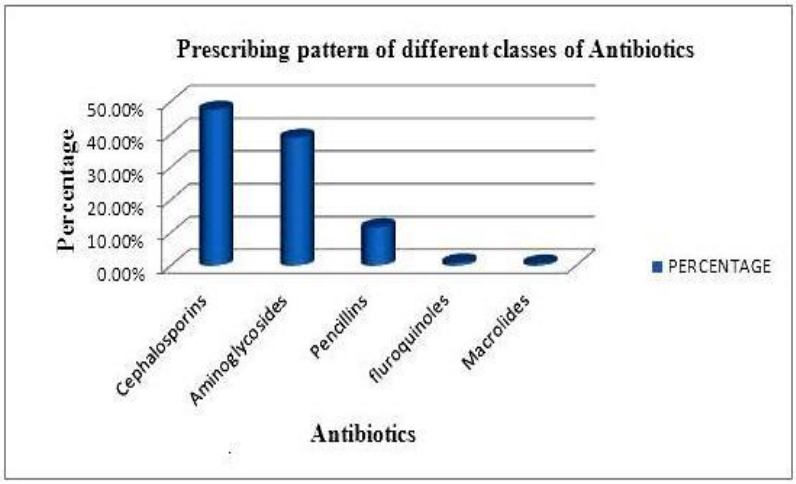

Figure3.Prescribing pattern of different classes of antibiotics:

Common diseases in different age groups

All the pediatrics in the present study were differentiated based on their age group and different types of disease affected as shown in the Table5.5.

Table 4. Common diseases in different age groups .

S/NO	Diseases	1M-1Y	1-5Y	5-12Y	Total
1.	Bronchiolitis	33(71.74%)	12 (26.09%)	1(2.17%)	46
2.	Fever	9 (23.08%)	14(35.9%)	16(41.02%)	39
3.	Broncho pneumonia	13 (50%)	11(42.30%)	2(7.70%)	26
5.	Acute Gastroenteritis	08(53.3%)	03(20%)	04(26.7%)	15
6.	Dengue	0 (0%)	06(46.15%)	07(53.85%)	13
7.	Combination	06(46.15%)	04(30.78%)	03(23.07%)	13
8.	Seizures	1 (9.09%)	04(36.36%)	6 (54.55%)	11
9.	LRTI	1(11.1%)	06 (66.7%)	2(22.2%)	9
10.	Others	04(13.8%)	11(37.93%)	14(48.27%)	29
	Total	75	71	55	201

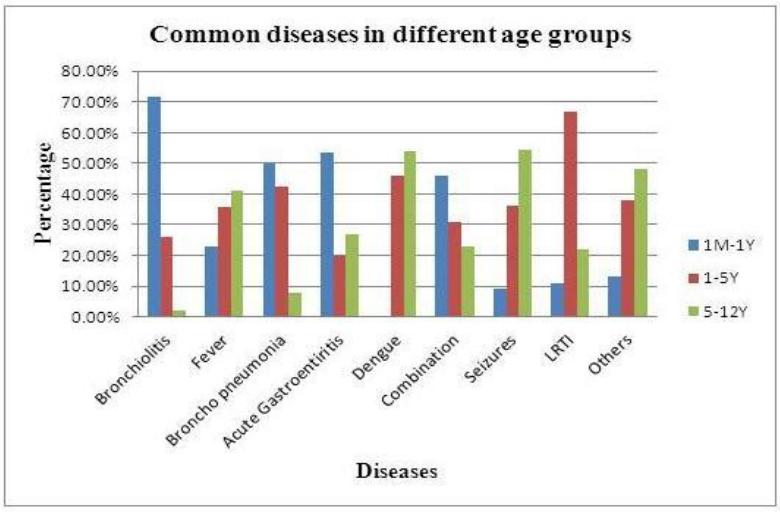

Figure4.Common diseases in different age groups.

Based on dosage Forms

In order to assess one more prescribing indicator i.e % of prescriptions encountered with injection we calculated the use of different dosage forms which were as shown in the table 5.

Table 5. Dosage forms.

S/no	Dosage forms	No	Percentage
1	Tablets	67	6.49%
2	Syrups	305	29.50%
3	Injections	659	64.01%

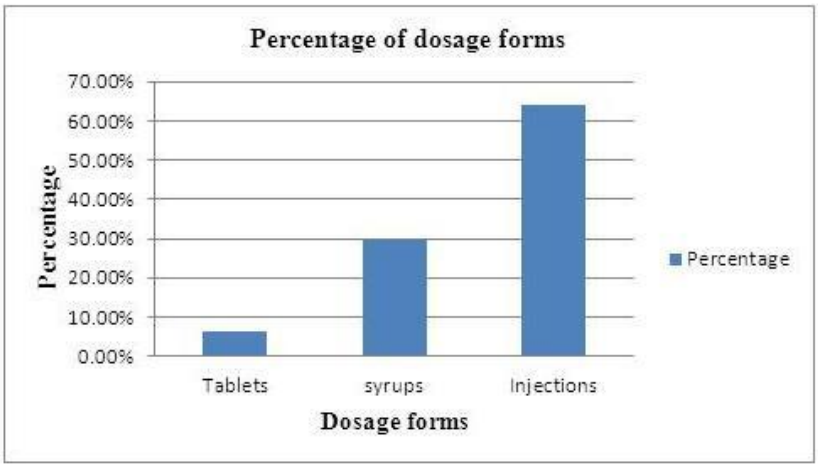

Figure5.Dosageforms Paediatric in patient exposure to antibiotics.

As per the WHO prescribing indicators in order to assess the % of antibiotics encountered we categorized the prescriptions with number of antibiotics prescribed as shown in the table 6.

Table 6.Paediatric in patient exposure to antibiotics:

S/NO	Number of Antibiotics	Number of prescriptions	%Of prescriptions
1.	single	55	34%
2.	Two	88	55%
3.	Three	16	10%
4.	Four	0	0
5.	Five	1	1%

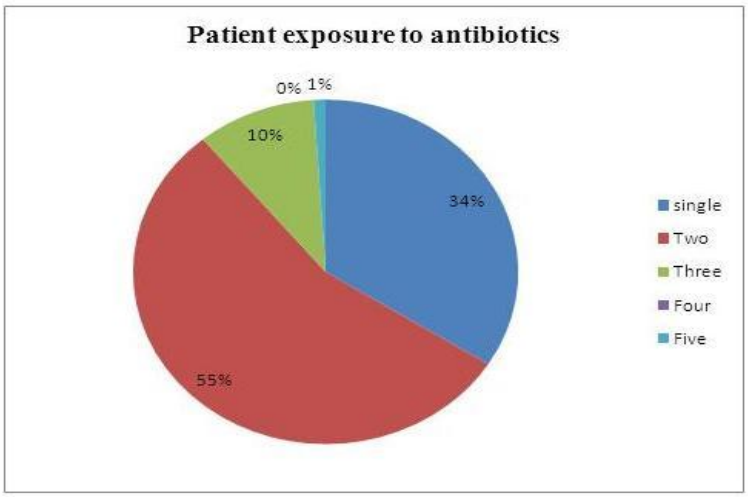

Figure 6.Paediatric in patient exposure to antibiotics:

Prescribing Indicators

Average number of drugs per encounter was 5.2. Antibiotics were 79.6% per encounter. Most of drugs were prescribed from EDL of hospital. Most of the drugs prescribed were injections. The majority (84.5%) of the drugs were prescribed in generic name

Table7.: Analysis of information present on prescriptions to study prescribing indicators.

S/NO	Prescribing Indicators	NO	%
1.	Average number of drugs		5.2
2.	Percentage of drugs prescribed by generic name	871	84.5%
3.	Percentage of encounters with an antibiotic prescribed	160	79.6%
4.	Percentage of encounters with an injection prescribed	659	64.01%
5.	Percentage of drugs from EDL/formulary	1031	100%

DISCUSSION

In our study the total percentage of male paediatric patients were comparatively more(58%) than that of female paediatric patients (42%) with a similar findings were found in Guwahati hospital by Choudhary DK , et al study(2013)[6].With regard to the age ,maximum (38.8) were in the age group of 1month- 1 year had received more number of antibiotics when compare to other age groups with a similar results were found in the North Indian University Teaching Hospital by MS Akhtar et,al (2012).This may be due to a higher susceptibility of Infections at a younger age and need a greater concern for infants health relatively.[7] Bronchiolitis is most common in children below 1year (19%).

In the present study we observed that Cephalosporin's groups of antibiotics are most commonly prescribed followed by Aminoglycosides, Pencillins, Fluroquinolones, and Macrolides. Among Cephalosporin's, Ceftriaxone was the most commonly prescribed antibiotic in Fever, acute GE, Dengue, Seizures, Combination and other diseases. Amikacin is the most commonly prescribed antibiotic for the treatment of Bronchiolitis and LRTI. Fluroquinolones by 1% of total antibiotics reminds that no Quinolones were used by Paediatric services because of their toxic effects in children below 12 years of age. Ciprofloxacin is one of the frequently prescribed Quinolone, deserves continued monitoring which is similar to Palikhe et al.study (2004) [8].

We observed that most of prescriptions were prescribed with two antibiotics (54%), single antibiotic (32%), three antibiotics (13%), and (1%) prescription was prescribed with five antibiotics.

In our study we observed that average number of drugs per encounter was 5.3. Antibiotics were prescribed with 79.6% per encounter and most of drugs were prescribed from EDL of the hospital. The excessive use of parenterals is common in many developing countries. In This study 96 % of antibiotics were given by Parenterals which is more and similar to Palikhe et al study (2004) [9].The majorities (84.5%) of the drugs were prescribed in generic name.

CONCLUSION

In our study total percentage of male paediatric patients were more than the female patients. Most of antibiotics were prescribed in the age between 1month to 1 year. Bronchiolitis is most common disease observed in our study. Cephalosporin's are most commonly prescribed class of antibiotic. Generic prescribing is comparatively higher and mainly prescribed from Essential Drug List. The use of antibiotics is markedly higher. The main challenges in prescription of Antibiotics are to achieve a rational choice and appropriate use of antibiotics and to recognize their potential problems.

BOTTOM LINE:

Physicians must keep a clear understanding of need for use of antibiotics and make good judgement in clinical situations. They need to minimise the usage of antibiotics to prevent the resistance of drugs in paediatrics and also minimise the use of parenteral route of administration.

ABBREVATIONS:

WHO : World Health Organisation
EDL : Essential Drug List
LRTI : Lower Respiratory Tract Infection
GE : Gastro Enteritis

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CONFLICT OF INTEREST:

The authors declare no conflict of interest.

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