

DRUG PRESCRIBING PATTERN IN FEVER IN A PAEDIATRIC WARD IN A TERTIARY CARE HOSPITAL OF INDIA

Pharmacology

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KEYWORDS:

Introduction

Fever is one of most common clinical symptoms managed by paediatricians and other health care providers and accounts up to one-third of all presenting conditions in children. [1]

Fever is not an illness but a physiologic mechanism that has beneficial effects against infection.[2-4] Fever primarily enhances neutrophil production and T-lymphocyte proliferation, retards the growth and reproduction of bacteria and viruses, and aids in the body's acute-phase reaction.[5-9] Data show beneficial effects on certain components of the immune system in fever, and limited data have revealed that fever actually helps the body recover more quickly from viral infections, although the fever may result in discomfort in children.[5, 10-12]

The degree of fever does not always correlate with the severity of illness. Most fevers are of short duration, benign, and may actually protect the host,[9] but many of the times when a child is admitted with the primary complain of fever, there is an underlying cause like serious infection, connective tissue disorder etc. Even child hood malignancy may present with fever.

Present study was conducted with the objective to find out the pattern of prescription in different diseases which presented with primary complain of fever in the paediatric in-patient department of a tertiary care hospital.

Materials and Methods

This cross-sectional, descriptive study was conducted in the paediatrics in-patient department of Burdwan Medical College and Hospital. Burdwan Medical College and Hospital is a tertiary care centre situated in Burdwan district, one of the largest districts of the state West Bengal. Data were collected on three days of every week during October, 2012 - December, 2012. Study population comprised of patients who were admitted in paediatrics in-patient with primary complain of fever. Thus, all the patients admitted on the data collection period were covered and it came to 500 by complete enumeration method. Patient related information (age, sex, diagnosis) and drug-related information (drugs, dose, dosage form, route of administration) were collected in a pre-designed, structured schedule in accordance with WHO criteria for Drug Utilisation Survey and Research. [13]. Indoor ticket, treatment sheets, case records of patients, doctors' prescription and notes were other study tools. Study technique was being record review. The study was approved by Institutional Ethics Committee (IEC) of the institute. Data were collected only after having informed verbal consent from the patient or legal guardian (when patient is not able to give consent) after explaining the purpose of the study and the confidentiality of the documents.

Statistical analysis: Collected data were compiled in Microsoft Excel worksheets (Microsoft, Redwoods, WA, USA). Data were presented both in tabular and graphical form. Categorical data were expressed in percentages and continuous data were expressed in mean values. Standard deviation (SD) was computed to see the dispersion of data.

Result

Table 1: Distribution of the study population according to different demographic pattern. (N = 500)

Age	No.	Percentages
1month -1 year	73	14.5
1 yr- 5 years	246	49.3
>5 years	181	36.2
Sex	No.	Percentages
Male	350	69.9
Female	150	30.1
Religion	No.	Percentages
Hindu	307	61.4
Muslim	193	38.6
Weight (kg)	No	Percentages
< 6	60	12
6-12	217	43.3
12-18	139	27.7
18-30	84	16.8

Comment: The most common age group was 1yr to 5 yr (49.3%); followed by age group more than 5 years (36.2%). Male (69.9%) were more common than female (44.9%). Hindus (61.4%) were more common than Muslims (38.6%) in the study population. Body weight of most of the study population (43.3%) was in between 6 kg to 12 kg; followed by weight group 12 to 18 kg (27.7%) and then 18-30 kg (16.8%).

Table 2: Distribution of patients according to final diagnosis.

FINAL DIAGNOSIS	No	%
L R T I	97	19.4
Lobar Pneumonia	6	1.2
Bronchopneumonia	6	1.2
Empyema	6	1.2
Spasmodic Bronchitis	6	1.2
CNS Infection	18	3.6
Coagulation Disorder	6	1.2
Gastro intestinal infections	107	21.4
Inguinal Abscess	12	2.4
Psoas Abscess	6	1.2
Sepsis	6	1.2
UTI	71	14.2
Viral fever	87	17.4
Undiagnosed fever	66	13.2

Comments: Gastro intestinal infections (104 cases) followed by Respiratory Tract Infection (97 cases) was diagnosed as the most common cause of admission of fever patients. 87 cases were declared as viral fever whereas 66 (13.2%) cases remained undiagnosed. Out of 71 cases diagnosed as Urinary Tract Infection, 25 cases had no documentation of culture and sensitivity report.

Table 3: WHO recommended Prescribing Indicators N = 500

Average number of drugs prescribed per day	3.5
Percentage of the drugs prescribed by generic name	24.39%
Percentage of the drugs prescribed from essential drug list	76%
Percentage of the drugs supplied from hospital pharmacy	65.71%
Percentage of inject able drugs prescribed per day	67.60%

Percentage of prescription containing antimicrobial agent	98.8%
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Comment: Average number of drugs prescribed per day was 3.5. Average number of antibiotics prescribed per day was 1.21. Percentage of prescriptions containing antimicrobial agent was 98.8%. Percentage of injectable drugs prescribed per day 67.6%. Percentage of the drugs supplied from hospital pharmacy 65.71%. Percentage of the drugs prescribed from essential drug list was 76%. Percentage of the drugs prescribed by generic name is 74.39%.

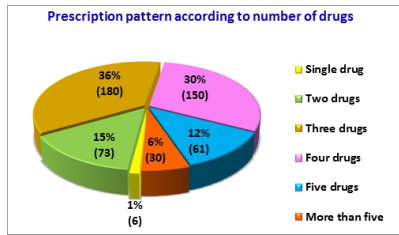


Figure 1: Pie diagram showing pattern of prescriptions in fever according to number of drugs. Values in parentheses indicate numbers of prescriptions. (N = 500)

Comment: More than 96.4% of prescriptions were containing at least two drugs. Three drug containing prescription was most common 36.1%, followed by four drug containing (30%) and two drug containing (14.5%) prescription.

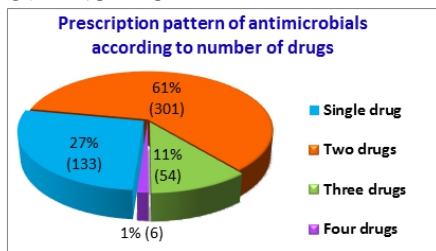


Figure 2: Pie diagram showing pattern of prescriptions of antimicrobials in fever according to number of antimicrobials. Values in parentheses indicate numbers of prescriptions. (N = 494).

Comment: As high as 98.8 % prescription contain at least one antimicrobial agent. Most commonly two antimicrobials prescribed (61%) followed by single agent (26.9%). Percentage of prescriptions without antimicrobial was 1.2%.

Table 4: WHO Complimentary Indicators:

Indicator	Cost (in INR)
Average cost burden for patient of drug per day per prescription	89.20 ± 5.10
Median Cost	75
Cost spent on antimicrobial drugs (% of total)	94.54

Comments: Majority of the cost for the medication was due to antimicrobial drugs (94.54%).

Table 5: Categories of drugs prescribed in fever in Paediatric indoor. (N = 500)

Drug Category	No of prescriptions	% use
Antipyretic	500	100
Antibiotics	494	98.8
Antispasmodic	112	22.4
Analgesic	74	14.8
Antiemetic	73	14.8
Bronchodilators	67	13.4
Antiulcer agent	61	12.2
Vitamin and Mineral	30	6
Cough syrup	24	4.8
Steroid	3	0.6
Nasal Drop	1	0.2
Antiallergic	1	0.2
Purgative	1	0.2

Comments: Antipyretic group of drugs were prescribed in 100% cases where Paracetamol was the only antipyretic used. Antispasmodic drugs were the third most commonly prescribed medication. Among them Dicyclomine (75 prescriptions) and Drotaverine (37 prescriptions) were common agents. Ibuprofen (43 prescriptions) and Diclofenac (29 prescriptions) were commonly used as analgesics. Most commonly prescribed antiemetic was Ondansetron (54 prescriptions), followed by Domperidone (11 prescriptions) and Metoclopramide (8 prescriptions). Sulbutamol was used mostly via Nebulisation as bronchodilators (67 prescriptions). Proton pump inhibitors (35 prescriptions) were most commonly used anti ulcer drugs followed by H2 blockers (26 prescriptions).

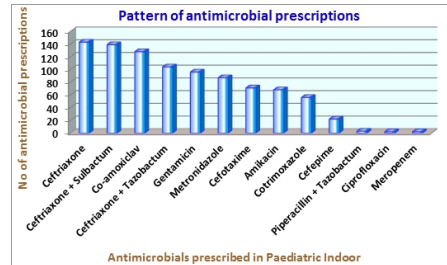


Figure 3: Bar diagram showing pattern of antimicrobial prescriptions for patients of fever in Paediatric indoor. (N = 500)

Comments: In 500 patients total 921 antibiotics were prescribed (in some cases more than one agent were used). Most commonly prescribed class of antibiotic was Cephalosporin. Third generation Cephalosporin Ceftriaxone (total 386 prescriptions) was the most commonly prescribed antibiotic – either alone or in combinations (with Sulbactam or Tazobactam). Other third generation Cephalosporin Cefotaxime was prescribed in 71 cases. Fourth generation cephalosporin, Cefepime was also prescribed in 22 cases. Aminoglycoside was second most prescribed antibiotic group. In this group, Gentamicin (96 prescriptions) was more commonly prescribed than Amikacin (68 prescriptions). Metronidazole – either alone or in combination with other drugs were prescribed in 87 cases. Cotrimoxazole were prescribed in only 56 cases.

Discussion:

Admission rate in paediatric wards was noted to be high in case of male children and in patients of 1 year to 5 years of age. These might be related to increased prevalence of infectious diseases in these segments of paediatric populations.

Antibiotic use is seemed to be indiscriminate as 98.8% of patients admitted with fever got at least one antimicrobial drug whereas documented diagnoses revealed that in 13.2% cases the cause was viral.

18% (91 patients) of prescriptions contain five or more drugs which is considered as polypharmacy. 12% of the patients who received antimicrobial drugs, got three or more antibiotics simultaneously which might predispose to increased chance of antibiotic resistance. Moreover in 25 prescriptions of UTI, culture and sensitivity reports were not documented which indicate those patients were treated empirically with antimicrobial drugs.

Percentage of injectable drugs prescribed per day was 67.6% and 65.71% of the drugs supplied from hospital pharmacy. That means patients had to purchase 34.29% of the prescribed drugs from the outside market. Moreover generic prescribing was noted to be 74.39% only which led to increased cost burden on patients. Antibiotics contributed to the majority of the proportion of cost.

Percentage of the drugs prescribed from essential drug list was 76%. It might indicate that the drugs outside the essential drug list were needed to treat the special situations of admitted patients which might indirectly raise the debate that many life saving drugs are still out side the essential drug list.

Paracetamol was the only antipyretic used.

Though there is no proven activity of cough syrup in respiratory infections but in 4.8% prescriptions it was advised.

Ceftriaxone and Co-amoxiclav were very commonly used among antibiotics. Probable reason might be their availability through hospital pharmacy and their efficacy and safety in children. Ciprofloxacin was used in combination with other antibiotics in only 2 cases of sepsis which might be desperate attempt for survival of the patients.

Conclusion: Frequent use of antibiotic without frequent culture sensitivity, leads to high cost burden and resistance to antibiotics. This situation comes from parents' pressure of quick relief using strong medication.

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