

## DRUG PRESCRIBING PATTERNS IN CHILDREN REGISTERED IN THE DEPARTMENT OF PEDIATRICS OF JIZAN GENERAL HOSPITAL OF JIZAN, KSA

NAKUL GUPTA<sup>1\*</sup>, MOHAMMED M. SAFHI<sup>1</sup>, JAMEEL M.Y. SUMAILY<sup>2</sup>, MEETU AGARWAL<sup>1</sup>

<sup>1</sup>College of Pharmacy, Jazan University, <sup>2</sup>Department of Pharmacy, Jizan General Hospital, Jizan, Kingdom of Saudi Arabia.  
Email: drnakulmgupta76@gmail.com

Received: 20 Jul 2013, Revised and Accepted: 12 Sep 2013

### ABSTRACT

**Objective:** This study was carried out to find the types of diseases and the drug prescribing patterns in the children registered in the department of pediatrics of Jizan general hospital, Jizan, KSA.

**Methods:** A prospective, cross sectional (descriptive) study was carried out in 1024 registered pediatric patients randomly selected from the month of November 2012 to April 2013 which consists of:

1. Types and percentage of diseases
2. Average number of drugs per prescription
3. Percentage of category of drugs prescribed

**Results:** The major diseases found during this study were Respiratory Tract Infections [Upper (sinusitis, tonsillitis and rhinitis) and Lower (bronchitis, bronchial asthma, pneumonia, tuberculosis)] along with some skin diseases like eczema and dermatitis (diaper, seborrheic, and intertriginous), and others like leishmaniasis, gastroenteritis, and parotitis.

The average number of drugs used per patient was  $3 \pm 1$ , and antibiotics were used most frequently than others. Prescription pattern of the drugs was like Antibiotics, Analgesics and Antipyretics were prescribed nearly all the patients, in some cases two antibiotics were also prescribed. Nasal decongestants, Anti-histaminic, expectorants and bronchodilators, germicidal & disinfectant, corticosteroids, antispasmodic, Gastric acid suppressants, Multi vitamins & iron supplements were also the part of prescriptions.

**Conclusion:** In summary, there is a high level of exposure to medication in paediatric populations. The most frequently prescribed medications were antibiotics, Analgesics and Antipyretics, and Nasal decongestants. This is a reflection of the high frequency of infections and respiratory diseases in paediatric populations.

**Keywords:** Pediatrics; Drug pattern; Jizan general hospital; Antibiotics.

### INTRODUCTION

The city of Jizan is situated on the eastern flank of the Red Sea and considered as one of the fastest growing cities in the Kingdom of Saudi Arabia, about 1000 km southwest of Riyadh.[1]

Infections are the largest cause of morbidity and mortality worldwide. The course and severity of infection depend on a variety of factors, including the virulence of the strain of infecting organism, the resistance of the individual, which may be reduced by famine or intercurrent disease, social factors such as lack of sanitation, poor housing and contaminated water supply; and the availability of medical facilities providing vaccination or diagnosis and treatment.[2] Infants and children suffer from frequent but usually non-serious illnesses and infections. Most of these are self-limiting and are often treated not only inappropriately, but also resorting to polypharmacy.[3] Unnecessary drugs are sometimes prescribed for example, antibiotics, for patients without evidence of bacterial illness [4] or multivitamins in large quantities for patient without nutritional problems.[5]

There are many potential difficulties involved with prescribing to children. There is a paucity of randomised clinical studies designed to test medication use in children. Prescribers need to take into account the way in which the disposition of drugs in children differs from adults both pharmacokinetically and pharmacodynamically.[6]

Prescribers and the consumers are flooded with a vast array of pharmaceutical preparations with innumerable trade names, available often at an unaffordable price. Epidemiological evaluation of medicine use in the elderly is now a highly visible topic, but drug utilization studies in pediatric population have been limited. The assessment of medicine utilization is important for clinical, educational and economic purposes.[7]

In recent years, drug utilization studies are found to be useful tool to facilitate rational use of drugs in health care delivery systems. It truly reflects the status of health care system. In order to be rational, use of a drug must be effective, safe, prescribed for the proper therapeutic indication and the correct dosage in an appropriate formulation, easily available and of a reasonable cost.[8,9] The ultimate goal is to achieve rational and cost effective medical care, particularly in the economically developing countries. Considering these facts, this study was planned to find the medicine prescribing pattern in children taking outpatient treatment in the pediatric department of Jizan General Hospital in Jizan City, in the south-west region of Saudi Arabia.

### MATERIAL AND METHODS

This prospective cross sectional (descriptive) study was carried out in Paediatrics department of pediatric department of Jizan General Hospital in Jizan City.

The study was designed to obtain information regarding the prescribing pattern of drugs by the medical prescribers in the pediatric population. Duration of study period was Six Months (November 2012 to April 2013). A total of 1024 prescriptions belonging to the patients below age of 6 years were collected from the hospital's pharmacy department located in the hospital from November 2012 – April 2013. The indicators assessed during the current study were types and percentage of diseases, average number of medicines prescribed per patient encounter, and percentage of category of drugs prescribed (Prescribing Indicators).

### RESULTS AND DISCUSSION

The major diseases found during this study were Respiratory Tract Infections (35.62%), both Upper 21.92% (sinusitis, tonsillitis and rhinitis) and Lower 13.70% (bronchitis(8.90%), bronchial

asthma(2.74%), pneumonia(1.37%), and tuberculosis(1.37%)} along with some skin diseases(12.33%) like diaper dermatitis, pyogenic

granuloma, seborrheic & intertriginous dermatitis, eczema, and others like leishmaniasis, gastroenteritis, & parotitis. (Table no. 1)

**Table 1: It shows the diseases of the pediatric age group found during the study (November 2012 to April 2013)**

Diseases	Percentage
<b>Respiratory Tract Infections</b>	
<b>Upper:</b> Sinusitis, Tonsillitis, Rhinitis	27.85
<b>Lower:</b>	17.15
Bronchitis	8.90
Bronchial asthma	4.95
Pneumonia	1.65
Tuberculosis	1.65
<b>Skin diseases:</b> Diaper dermatitis, Seborrheic & Intertriginous dermatitis, Pyogenic granuloma, Eczema	32.33
<b>Others:</b> Malaria, Leishmaniasis, Gastroenteritis, Parotitis, Cuts and Wounds	22.67

The average number of drugs used per patient was 3±1, and antibiotics were used most frequently than others. Prescription pattern of the drugs was like Analgesics and Antipyretics 97.56%, Antibiotics 93.55% (out of which 29.41% were prescribed two antibiotics), Nasal decongestants 23.54%, Anti-histaminic 19.73%, Multi vitamins and iron supplement

16.21%, Expectorants and bronchodilators 8.89%, Germicidal & disinfectant 8.01%, Anti-diarrhoeal 4.69%, Antispasmodic 4.49%, Corticosteroids 3.13%, Gastric acid suppressants 3.03%, Anti- emetics 1.95%, Anti-asthmatics 1.37%, Anti-helmentics 0.88%, and Anti-malarial 0.29% of prescriptions. (Table no. 2)

**Table 2: It shows the drug category used in the diseases of the pediatric age group found during the study**

Most common pharmacological group (Drug Category)	No. of patients	Percentage
Analgesics and Antipyretics	999	97.56
Antibiotics	958	93.55
Nasal decongestants	241	23.54
Anti-histaminic	202	19.73
Multi vitamins and iron supplement	166	16.21
Expectorants and bronchodilators	91	8.89
Germicidal & disinfectant	82	8.01
Anti-diarrhoeal	48	4.69
Antispasmodic	46	4.49
Corticosteroids	32	3.13
Gastric acid suppressants	31	3.03
Anti- emetics	20	1.95
Anti-asthmatics	14	1.37
Anti-helmentics	9	0.88
Anti-malarial	3	0.29

## DISCUSSION

There is a strong call for studies into how medicines are being prescribed to children in various settings and populations.[10] Studies that have investigated prescribing in paediatric populations have found high prescribing rates, although a limited formulary of medications is used.[11,12] More medicines increase the risk of drug interactions, adversely affect the patient compliance and hike the cost of treatment.[13]

In discriminate or prolonged prophylactic use of new antibiotics has been shown to contribute to the emergence of multi-resistant hosocomiat strains in the hospital setting.[14] As with antibiotics, it is difficult to justify the use of analgesics on such a large scale, taking into account that prolonged and excessive use of analgesic compounds may be potential hazards.[15]

In this study general practice prescribing for patients (age less than six yrs) were examined, and it provides important data about the prescribing patterns in pediatric population of Jizan City. The results indicate high rates of exposure to medication when consulting at general practice for this age group. This was especially evident for this pediatric group, with an average prescription rate of 3+1 per consulting child. This high rate of prescribing may be a reflection of increased vulnerability of children to various illnesses. Prescribing for children was from a limited formulary of medications, which is consistent with evidence found in other countries.[11]

In summary, there is a high level of exposure to medication in paediatric populations. The most frequently prescribed medications were antibiotics, Analgesics and Antipyretics, and Nasal decongestants. This is a reflection of the high frequency of infections and respiratory diseases in paediatric populations. This data can provide the justification and direction for future research and can

become the baseline data set for future studies examining trends in disease occurrence, prescription patterns and therapeutic strategies for selected populations.

## CONCLUSION

The highest prescribed antibiotic was Augmentin although lower antibiotics are also available for the same purpose. Nasal Decongestant (Xylometazoline) was prescribed inadvertently and also in below six years of age for chronic use which should be prescribed cautiously.

This is the fact that children and infants are at risk of receiving multiple courses of antibiotics and other drugs. We suggest the use and proper drugs for these pediatric patient's populations to be controlled. However, it can be concluded that there are scopes for improvement by introducing appropriate educational intervention for rational prescribing. This may be considered as an effort to improve the quality of health care.

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