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To Study the Prescribing Pattern of Respiratory Distress Associated with Wheezing in Pediatric Patients

Jocy Mathew[1], Dr. R. Ramanathan[2]

[1]Pharm D . [Intern], Department of Pharmacy, Annamalai University, Chidambaram, Tamilnadu

[2]Department of Paediatrics, RMMCH, Annamalai University, Annamalai University, Chidambaram, Tamilnadu

Abstract: ***Wheezing is a continuous and musical sound emerges from oscillations in narrowed airways. It's a clinical symptom present in asthma and other illness including bronchiolitis and other viral infections including wheezing associated lower respiratory infection. Study Place: The study will be conducted in department of paediatrics, RMMCH, Annamalai University , Annanagar, Tamilnadu which is 1200 bedded multispecialty tertiary care teaching hospital located in rural South India. Results: A total of 40 prescriptions were evaluated. Among the nebulising agents were prescribed Levosalbutamol , ipratropium, budesonide were the most commonly prescribed. Majority of patients receiving antibiotics along with antiasthmatic drugs. Combination therapy was used more commonly than monotherapy. Levosalbutamol and budecort are two most commonly prescribed drugs in paediatrics. Table1, 2, 3 ,4 & 5 summarises the pattern of use of antiasthmatic drugs in patients receiving combination therapy. Dual therapy is most common in prescribing. Combination of levosalbutamol and budecort was commonly prescribed. Among triple therapy levosalbutamol, budesonide and ipratropium and hydrocortisone is most commonly prescribed. Aim: To study the prescribing pattern of respiratory distress associated with wheezing in paediatric patients. Objectives: To identify the drug prescribing pattern among respiratory distress associated with wheezing in patients and to study the pattern of antiasthmatic drugs in paediatric patient treated with monotherapy and combination therapy. Plan of Work: Approval of selected title in consultation with hospital guide, Collecting of literatures, To obtain the patient data relevant to study from patient medical records, case sheets, patient follow up, Collection and analysis of data using appropriate statistical tools, Report writing. Methodology: Study Place: The study will be conducted in department of paediatrics, RMMCH, Annamalai University, Annanagar, Tamilnadu which is 1200 bedded multispecialty tertiary care teaching hospital located in rural South India. Study Period and Duration: 2 months. Study Recruitment Procedures: Patients visiting paediatrics department with respiratory distress disease who satisfy the inclusion and exclusion crit0eria. Subjects selected are the patients who referred or admitted to department of paediatrics in RMMCH. Patients including both previously operate (admitted due to complications) and new admissions were included. Inclusion Criteria:Patients admitted in paediatric ward for respiratory distress with wheezing with age limit of 2 months to 12 years, Patients of both genders who are below 6 months- 12 years. Exclusion Criteria: Patients and care givers from who follow up could not be done, Patient who don't having any co morbid condition. Study Method: Study will be conducted at RMMCH CHIDAMBARAM 1200 beded multispecialty tertiary care teaching hospital. Study methods involve selection of patients based on inclusion and exclusion criteria.***

Keywords: Paediatrics, Wheezing, Antiasthmatic,Bronchiolitis,Bronchopneumonia

1. Introduction

Wheezing is a continuous and musical sound emerges from oscillations in narrowed airways. It's a clinical symptom present in asthma and other illness including bronchiolitis and other viral infections including wheezing associated lower respiratory infection. Wheezing during infancy could be due to viral infections. Wheezing is mostly heard in expiration due to critical airway obstruction. Wide spread narrowing of airways leading to various levels of obstruction to airflow like asthma. It tends to be intermittent and is characterized by recurrent episodes of cough, chest tightness, and wheezing. Wheezing in asthma is recurrent and gets worse in night and seasonal and may be associated with allergic illness. There are some factors exacerbate asthma are allergens, respiratory infections, exercise, weather changes etc. in paediatrics all wheezing is not asthma. Wheezing is classified into

a) Infection

Viral: RSV

- Human metapneumo virus
- Influenza, parainfluenza
- Adenovirus

Rhinovirus

- Others: TB
- Chlamydia trachomatis

b) Asthma

- Transistent wheeze
- Persistent wheeze
- Late onset wheeze

Increased resistance and subsequent wheeze combine to make the infant more susceptible for airway collapse.

The incidence peaks at age 10–12 years, with about 30% of children wheezing annually. A range of specially designed spacers and face masks for use with pressurized metered dose inhalers is available for young children. Breath-actuated pressurized metered dose or dry powder inhalers are preferred for older children. Nebulised or oral medication may be used at any age, especially in infants and during severe attacks. Children vary enormously in their rates of mental and physical development, so the route of administration has to be tailored to their abilities and tolerance of treatment. Their parents or carers should be

educated to recognize the warning signs of deterioration and to know how to respond appropriately. Regular monitoring is especially important in this age group because their requirements change rapidly with age. Within these constraints, and with appropriate dosage, the management of childhood asthma is generally similar to that in adults. However, adrenergic bronchodilators are often ineffective in young children because only a small proportion of the dose may reach the lungs. It has been shown that a beta2-agonist bronchodilator used with a large volume spacer is more effective than a nebulizer in children aged over 3 years with acute asthma.

First-line prophylaxis against exercise-induced broncho-constriction includes low-dose corticosteroids or an SABA used before anticipated activity. Higher doses of inhaled corticosteroids, administered via spacer device are introduced. Early use of an inhaled corticosteroid may prevent the development of acute and severe airways obstruction. Oral corticosteroids must be avoided if possible because they retard the growth. Even if given in alternate-day dosage, but it has been shown that nebulised budesonide allows a dramatic reduction in oral corticosteroid use. Young children present special problems in diagnosis and treatment. The emotional response of the child (and its parents) to the knowledge that they have a potentially severe, chronic disease, and the loss of time from school, are also important, so careful counselling of the child and its parents, siblings and teachers (with the parents' permission), is essential. The purpose of this document is to highlight the key messages that are common to many of the existing guidelines, while critically reviewing and commenting on any differences, thus providing a concise reference. The principles of paediatric asthma management are generally accepted overall the treatment goal is disease control.

2. Patients and Methods

An observational study was conducted in the department of paediatrics, Raja Muthiah Medical Colleage Hospital Annamalai university, a 1200 multispecialty teaching hospital ,Chidambaram , Tamil Nadu. Patients with mild moderate and severe cases of respiratory distress are referred to the paediatrics department from out patient department. Patient included were those who are admitted in paediatric ward during the period of August and September 2016. The following data were collected: age, sex, in patient number, height, weight, diagnosis and duration of illness. Seeing the medical records of the patient which are well maintained in our hospital .Each drug prescribed to the patient was noted as follows: brand/ generic name, indication, route of administration, frequency of administration. Pattern of use of anti-asthmatic drugs in paediatrics patient treated with monotherapy and combination therapy. Patients in paediatrics of either sex will receive oral or nebulisation therapies until the symptom subsides.

3. Results

A total of 40 prescriptions were evaluated. Among the nebulising agents were prescribed Levosalbutamol, ipratropium, budesonide were the most commonly prescribed. Majority of patients receiving antibiotics along with antiasthmatic drugs. Combination therapy was used more commonly than monotherapy. Levosalbutamol and budecort are two most commonly prescribed drugs in paediatrics. Table1, 2, 3 ,4 & 5 summarises the pattern of use of antiasthmatic drugs in patients receiving combination therapy. Dual therapy is most common in prescribing. Combination of levosalbutamol and budecort was commonly prescribed. Among triple therapy levosalbutamol, budesonide and ipratropium and hydrocortisone is most commonly prescribed. 39.6% patients were receiving corticosteroid therapy were 47.32% patients receiving beta2 agonist therapy. Levosalbutamol- hydrocortisone (increased risk of hypocalcaemia) was found to be the drug- drug interaction in 7(17.5%) patients. Many children are exposed to treatment with antibiotics even though there is no evidence of indication. Antibiotics (57.5%)was found to be more prescribed along with antiasthmatic drugs. most commonly used dosage form is nebulisation 27(67.5%) and oral therapy 13(32.5%).

Table 1: Gender wise distribution

Gender wise distribution	No of patients	percentage of patient
Male	23	57.5%
Female	17	42.5%

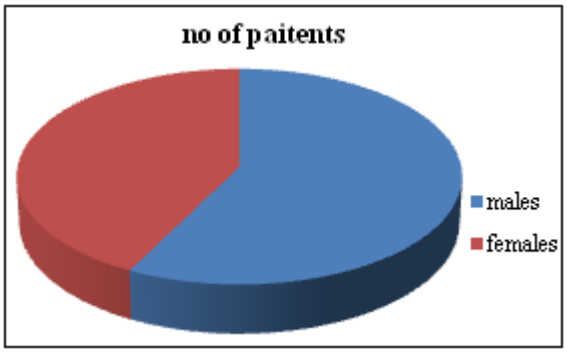


Figure 1

Table 2: Severity of illness

Degree of illness	No of patient	Percentage of patient
Mild	13	32.5
Moderate	18	45
Moderate- Severe	9	22.5

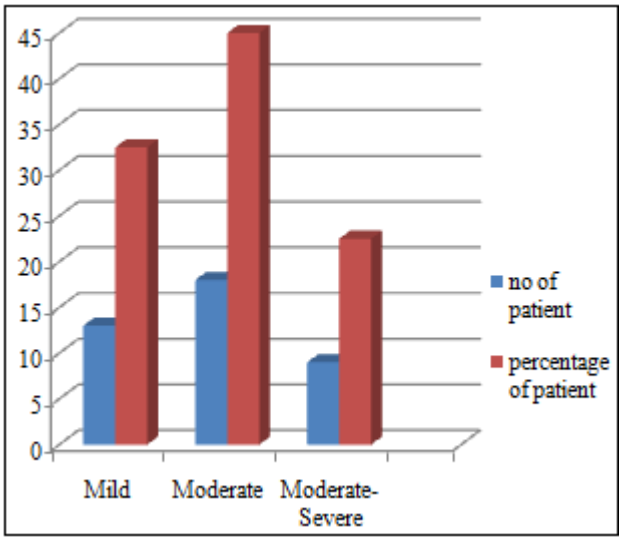


Figure 2

Table 3: Mode therapy of anti asthmatic drugs prescribed

Mode of therapy	No. of patients	% of patients
Monotherapy	8	20
Dual therapy	21	52.5
Triple therapy	7	17.5
Quadruple therapy	4	10

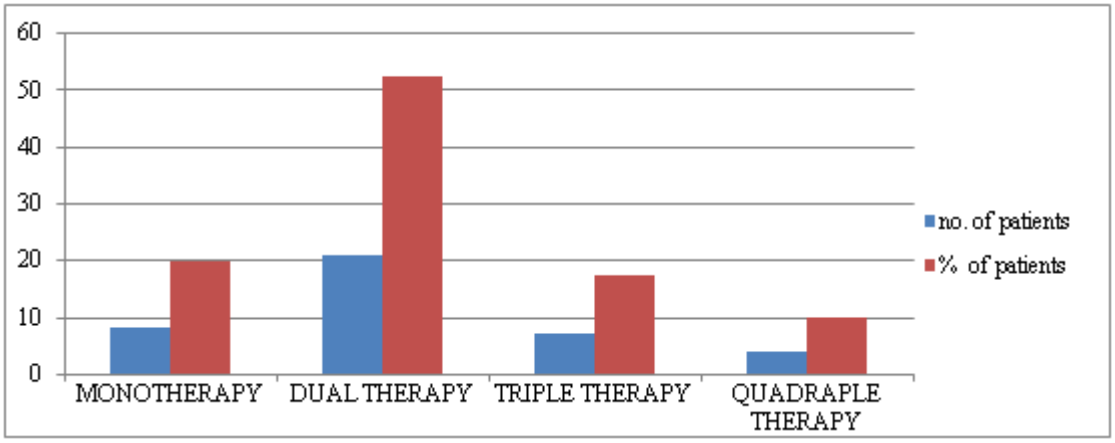


Figure 3

Table 4: Adverse Event During Respiratory Distress

Adverse event during respiratory distress	*No of patients*	*% of patients*
Loss of appetite	13	32.5
Sleep disturbances	10	40
Play disturbances	11	27.5

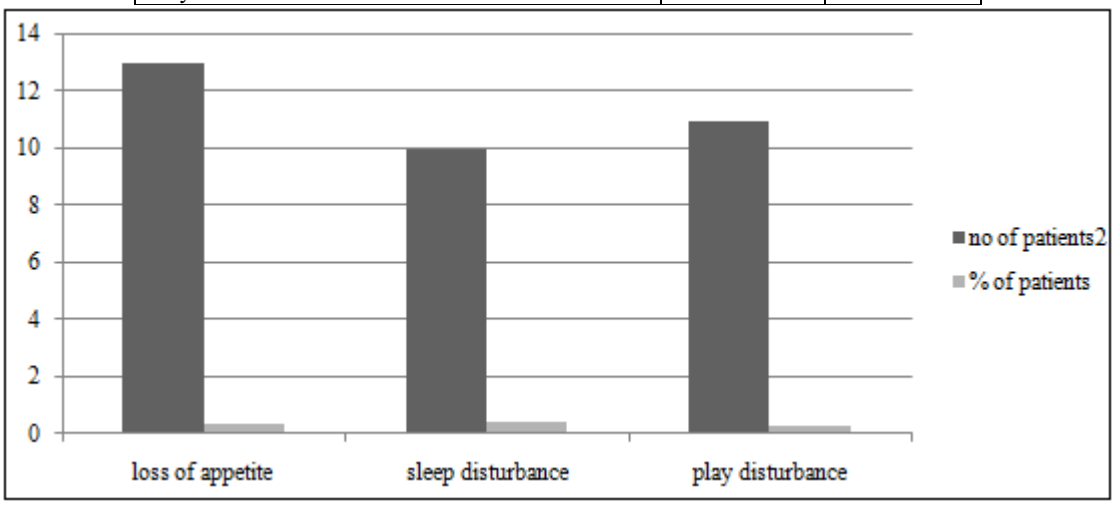
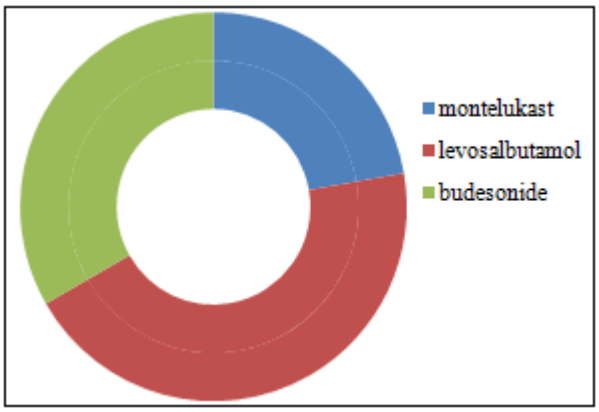
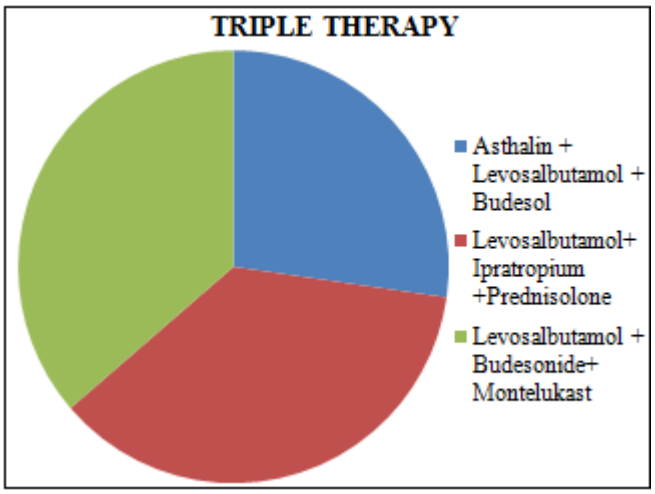


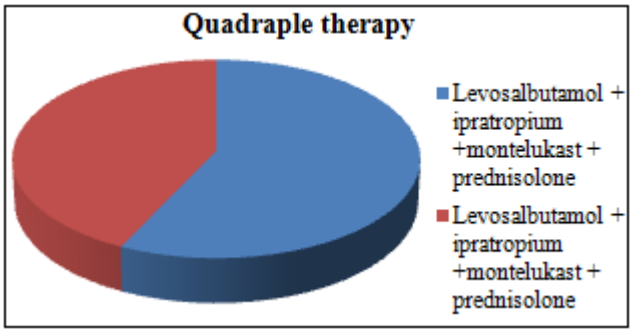
Figure 4

Table 5: Pattern of use of antiasthmatic drugs in paediatrics associated with wheezing treated with monotherapy and combination therapy

Monotherapy







4. Discussion

Asthma is the most common chronic lower respiratory disease in childhood throughout the world. Several guidelines and/or consensus documents are available to support medical decisions on pediatric asthma. Wheezing is common in infancy and may represent either a minor or a serious, life-threatening illness. The differential diagnosis is extensive and may include organ systems other than the respiratory tract. Prescription surveys are one of the pharmacoepidemological methods that provides a relatively unbiased picture of prescribing habits. Therefore, a careful and thorough approach to solving the problem is required. A systematic history, physical examination, and judicious choice of laboratory studies will enable the clinician to define the cause of the wheezing. It's the key public health problem in children globally. our results also clearly illustrate the significant burden that childhood asthma imposes on health care system in our community. Prevalence of current asthma defined as wheezing, the findings of this study are consistent with several other studies conducted elsewhere.

Majority of children having the moderate degree of illness. During respiratory distress children faced lots of adverse event during the period of hospitalisation. And our studies concluded that ditherapy is mainly used in our hospital for better effective.

The gender distribution in our study is consistent with findings by other investigators. some studies have noted a higher male: female ratio. Though there was no gender difference observed in two earlier studies. Male predominance may be related to a greater degree of wheezing liability in males. Several studies have reported a strong association between family history of atopic disorders and the prevalence of current asthma as well as total wheezing.

In our prescription analysis 39.6% were receiving corticosteroid therapy were as 47.32% patients recieves β2-agonist therapy. Many children are exposed to antibiotics 57.5% was found to be more prescribed along with antiasthmatic drugs. most commonly used dosage form was found to be nebulisation 67.5% and oral therapy 32.5%. Nebulised steroids should be restricted to asthma treatment in patient who are unable to use metered dose inhalers and croup treatment. Many children therefore receive therapies with inhaled steroids are not associated with serious adverse events, they may cause local side effects (cough, hoarseness, dermatitis, oral candidiasis) leading to discomfort in young children.

5. Conclusion

All the recent guidelines have stressed the difficulties in making a firm diagnosis of asthma in children under 5 and several wheezy phenotypes have been identified. following guidelines depend on factors within the guidelines themselves, social-cultural context of the strategies used to spread them and organizational, economic and political context for the implementation of guideline strategies for the under 5's we have a lot of information through extensive reviews of the available literature on studies of wheezing aetiology, phenotypes, natural history and pharmacotherapy which is consolidated in the available guidelines.

Following things were observed in our observational study of the prescription pattern of antiasthmatic drugs in paediatrics reveals that

- β2 agonist nebulisation were more prescribed
- More number of male children(between 1&5) were suffering with wheezing
- It was observed that combination drug therapy was more prescribed than single drug therapy

All the recent guidelines have stressed the difficulties in making a firm diagnosis of asthma in children under 5 and several wheezy phenotypes have been identified. The available guidelines do not adequately address the management of asthma or wheezing phenotypes for children under the age of 5 in the underdeveloped world where there is a lack of resources, but also because there is an absence of studies on asthma management in practice in the under 5's in these regions.

It would be prudent for regions and countries to consider all the available guidelines and to adapt then so that they are understandable in regional contexts and that the recommendations are in line with available resources in a particular region to facilitate their implementation and thus improve the management of asthma in young children around the world.

References

[1] EPR. Expert panel report: guidelines for the diagnosis and management of asthma (EPR 1991) Bethesda, MD: U.S. Department of Health and Human Services; National Institutes of Health; National Heart, Lung, and Blood Institute; National Asthma Education and Prevention Program; 1991. NIH Publication No. 91-3642

[2] EPR-2. Expert panel report 2: guidelines for the diagnosis and management of asthma (EPR-2 1997) Bethesda, MD: U.S. Department of Health and Human Services; National Institutes of Health; National Heart, Lung, and Blood Institute; National Asthma Education and Prevention Program; 1997. NIH Publication No. 97-4051

[3] Lemanske RF Jr, Busse WW. The US Food and Drug Administration and longacting beta2-agonists: the importance of striking the right balance between risks and benefits of therapy? J Allergy Clin Immunol 2010;126:449–452

[4] Brand PL, Baraldi E, Bisgaard H, Boner AL, Castro-Rodriguez JA, Custovic A, de Blic J, de Jongste JC, Eber E, Everard ML, Frey U, Gappa M, Garcia-Marcos L, Grigg J, Lenney W, Le Souef P, McKenzie S, Merkus PJ, Midulla F, Paton JY, Piacentini G, Pohunek P, Rossi GA, Seddon P, Silverman M, Sly PD, Stick S, Valiulis A, van Aalderen WM, Wildhaber JH, Wennergren G, Wilson N, Zivkovic Z, Bush A. Definition, assessment and treatment of wheezing disorders in preschool children: an evidence-based approach. Eur Respir J. 2008;32:1096–1110. [PubMed]

[5] Saglani S, Payne DN, Zhu J, Wang Z, Nicholson AG, Bush A, Jeffery PK. Early detection of airway wall remodeling and eosinophilic inflammation in preschool wheezers. Am J Respir Crit Care Med. 2007;176:858–864. [PubMed]

[6] Global Initiative for Asthma: Global strategy for the diagnosis and management of asthma in children 5 years and younger [Internet] 2009. Available from: www.ginasthma.org. [PubMed]