



To Study The Impact Of Acute And Chronic Cough Associated With Respiratory Tract Infection On Quality Of Life In Paediatric Patients And Their Parents.

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Abstract: The project entitled “To Study the Impact of Acute and Chronic Cough Associated with Respiratory Tract Infection on Quality of Life in Paediatrics Patients and their Parents” was conducted in the department of paediatrics of a 1000 bedded multispecialty private hospital. The prospective observational study was conducted for a period of 6 months. A total of 100 samples were collected and study was conducted to assess and compare the impact of acute and chronic cough and the QOL of paediatric patients and their parents. A cough specific parent proxy QOL questionnaire was prepared to study and compare the QOL of acute and chronic cough in paediatric patients and their parents. The study population consist of 100 paediatric patients below the age of 14 years have been participated in the study as per the inclusion and exclusion criteria. Among 100 population, 66 were male patients, and 34 were female patients. The results reveal that male population is more prevalent than female population in acute and chronic cough. Age distribution of the study population was analyzed and found that maximum number of patients (50%) were under the age of 1 to 4 years. Based on the diagnosis LRTI (51%) was observed to be the most prevalent diagnosis. Based on length of stay in the hospital, 53 patients with acute cough and all 12 patients with chronic cough was admitted in the hospital. Based on the cough specific parent proxy QOL questionnaire we have prepared; the results shows that the QOL of chronic cough patients and their parents were more affected than acute cough patients and their parents.

keywords - Quality of life (QOL), Paediatric population, Parent proxy Questionnaire, Acute and chronic cough.

I. INTRODUCTION

Pediatrics is a branch of medicine concerned with the development, care and disease of babies and children. Infants and childhood are a period of rapid growth and development. The various organs, body systems and enzymes that handle drugs develop at different rates, hence drug dosage, formulations, response to drug and adverse drug reactions vary throughout childhood. Compared with adult medicine, drug use in children is not extensively researched and the range of licensed drugs in appropriate dosage forms is limited^[1]

Age Groups:

Age group	Age range
1. Neonates	Birth to 4 weeks
2. Infants	4 weeks to 1 year
3. Children	1 to 12 years

RESPIRATORY TRACT INFECTIONS:

RTIs are extremely common in pediatric patients and can affect:

- **Upper Respiratory Tract (URTI)** – e.g. Tonsillitis, pharyngitis, Otitis media etc.
- **Lower Respiratory Tract (LRTI)** – below the vocal cords e.g. Bronchitis, Pneumonia

LRTIs are generally more serious and remain a leading cause of infectious mortality in children.^[2]

DEFINING COUGH IN CHILDREN:

One of the most common and persisting symptom of respiratory tract infection among children is cough. It is defined as an explosive expiration that provides a normal protective mechanism for clearing the tracheobronchial tree of secretions and foreign material. It can be considered a complex reflex involving coordination between various muscles and neural pathways. It is also a protective mechanism for the respiratory system, helping to keep the airways clear of substances that could potentially cause harm or hinder normal breathing which ensures the removal of mucus, noxious substances and infectious organisms from the larynx, trachea and large bronchi. Cough can prevent pulmonary aspiration, promote ciliary activity and clear airway debris etc. It can be considered both as an important physiologic component of lung defence and a cardinal indicator of disease. Cough can be categorized based on time frame (i.e. duration of cough), quality (e.g. dry or wet, brassy, or staccato) or suggested aetiology.^[3] Normal children cough 11 times/day when they are well. During winter when upper respiratory tract infections are frequent this can increase in frequency and severity. In majority of children acute cough resolves by the third week of infection and is usually associated with an acute viral infection.^[4]

TYPES & PATHOPHYSIOLOGY:

There are 3 phases of a cough: Inhalation phase: which generates enough volume for an effective cough, Compression phase: with pressure against a closed larynx by the contraction of the chest wall, diaphragm, and abdominal muscles and Expiratory phase: begins when the glottis opens, resulting in high airflow. A cough can be a voluntary or involuntary act. A voluntary cough is manifested by cough inhibition

or initiation. The central projections of vagal afferents, specifically those involved in the cough reflex, terminate in the brainstem.^[4] Based on the duration of symptoms cough can also be divided into acute cough and chronic cough. Acute cough is defined as cough present for 3 weeks or less. It is mostly caused by viral infection of the Upper respiratory tract infection “common cold” or Lower respiratory tract infection acute bronchitis.^[5] Symptomatic URTI with cough in school children typically occurs around 7–10 times per year. The majority of children with acute coughing with a simple head cold have an associated bronchitis and the coughing typically abates by 10 to 14 days.^[6] Chronic cough is defined as unremitting cough in children lasting for more than 4 weeks and affects 5% to 10% of the paediatric population. Age of onset duration of symptoms are important considerations. Determining the frequency and progression of the chronic cough helps in assessing whether the child is having episodes of resolving acute cough or potentially serious underlying respiratory condition.^[7] Often a child’s cough naturally resolves following episodes of upper respiratory tract infections (URTIs). Timely intervention can limit the progressive damage and burden associated with conditions such as bronchiectasis, aspiration lung disease and foreign body inhalation.

IMPACT OF COUGH ON QOL IN PAEDIATRIC PATIENTS AND THEIR PARENTS

Cough can impact a child’s Quality Of life (QOL), such as the ability to play, sleep well, or school attendance and is often a source of parental anxiety. The cough can be very distressing for parents to watch especially if it interferes with daily activities and often disturbs both the parents and child’s sleep. The parents worry about their children’s cough can reach extreme levels, including the fear that the child may suffocate and suffer from pulmonary damage or infective complications affecting the lower airways. Besides anxiety and fear, parents do not sleep well when there is a child in the home who coughs during the night, and the sense of unease persists throughout the whole day.^[8] About 66% of 1–4-year-old children with acute cough improve by 2 days, even if the cough itself and the nasal secretions persists for at least 1 week in 50% of children and for 3 weeks or more in 10%-20%. From the parental perspective, acute cough is therefore not a trivial illness, considering that some children remain unwell for 3-4 weeks. The persistence of cough, its intensity, its impact on the quality of life, often lead parents to consult their paediatrician.^[9]

II. RESEARCH METHODOLOGY

The study was conducted at a private corporate Hospital in Coimbatore. It is a 1000 bedded multi-specialty medical institution.

STUDY DESIGN: A Prospective, Observational study was conducted to assess the quality of life in acute and chronic cough associated with respiratory tract infections in paediatric patients and their parents. The

consent of the patients was taken and the study was carried out. **STUDY SETTING** The hospital identified for the purpose of this study is Sri Ramakrishna Hospital, which is a 1000 bedded hospital situated in Coimbatore. This hospital provides both inpatient and outpatient healthcare services to people in and around

Coimbatore district in all fields of medical sciences such as General Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Neurology, Nephrology, Orthopaedics, Oncology.

INCLUSION CRITERIA: Patients below <14 years of age. Patients having acute/chronic cough associated with respiratory tract infections visiting outpatient/Inpatient departments of paediatrics.

EXCLUSION CRITERIA: Patients with previously diagnosed chronic illness. Patients above >14 years. Patients with organ failure.

MATERIALS AND METHODS: All the patients admitted to paediatrics ward will be reviewed daily to identify the patient's cough associated with respiratory tract infection. Those patients who met the study criteria will be enrolled in the study. A suitable data collection form will be designed to collect all the necessary and relevant information. The demographic details of the patient such as name, age, and sex, clinical data such as diagnosis and clinical condition, and therapeutic data such as the dose, route, frequency, duration of therapy and other relevant details should be collected by reviewing the case notes, and treatment charts of the patient. The study will be done on the basis of chronic cough guidelines American college of chest physicians. All the patients should be monitored from the day of admission till the day of discharge, during the treatment, the patient will be evaluated clinically every day to access the clinical outcome.

III.RESULTS

The respiratory tract infections associated with cough in paediatrics were more prevalent among the male population (66%) than female population. Acute and Chronic cough in paediatrics were predominantly present in the patients of age group (1-4 years). LRTI was found to be most commonly diagnosed condition (51%) among the study population. 88% of paediatric patients were diagnosed with acute cough and 12% of paediatric patients were diagnosed with chronic cough. In chronic cough 8 patients had cough for 26 to 30 days, while 4 patients had cough for 21 to 25 days. In acute cough 45 patients had cough for less than 5 days, 26 patients had cough for 6 to 10 days and 16 patients had cough for 11 to 15 days. Most commonly prescribed drug for cough in paediatrics is a fixed dose combination of Syrup. LEVOSALBUTAMOL SULPHATE (1mg) +AMBROXOL HYDROCHLORIDE (30mg) + GUAIPHENESIN (50mg). Inj. Ceftriaxone was most commonly prescribed antibiotic among the study population. In total number of populations, among 88 acute cough patients, 51 patients had to use nebulization, few of the patients used multiple nebulization and all 12 cough patients had to use nebulization and multiple nebulisations. Nebulizer(budesonide) was most commonly administered for acute cough patients. Out of 88 acute cough patients, 51(57.9%) patients were treated with nebulizers. All 12(100%) patients with chronic cough were treated with nebulizers. In total 100 patients, 12 patients were having chronic cough and 88 patients had acute cough.

TABLE NO: 1

PARAMETERS		NO OF PATIENTS N=100	PERCENTAGE (%)
1. GENDER			
MALE		66	66
FEMALE		34	34
2. AGE	1-4	50	50
	5-8	30	30
	9-12	20	20
3. DIAGNOSIS	URTI	39	39
	LRTI	51	51
	VIRAL RTI	10	10
4. ACUTE AND CHRONIC COUGH IN (AGE)	1-4 YEARS	50	50
	5-8 YEARS	30	30
	9-12 YEARS	20	20
5. DURATION OF COUGH IN (DAYS)	0-5	45	45
	6-10	26	26
	11-15	16	16
	16-20	3	3
	21-25	4	4
	26-30	8	8

TABLE NO: 2
COUGH PREPARATIONS USED IN THE STYUDY POPULATION
(N=100)

DRUGS	NO. OF PATIENTS
1. Syp. PHENYLEPHRINE HYDROCHLORIDE (5mg) + CHLORPHENIRAMINE MALEATE (1mg).	16
2. Syp. LEVOSALBUTAMOL SULPHATE (1mg) + AMBROXOL HYDROCHLORIDE (30mg) + GUAIPHENESIN (50mg)	50
3. Syp. LEVOCLOPERASTINE FENDIZOATE (35.4mg)	4
4. Syp. BROMHEXINE HYDROCHLORIDE(2mg) + GUAPHENESIN (50mg) + MENTHOL(0.5mg) + TEBUTALINE SULPHATE (1.25mg)	4
5. Syp. CHLORPHENIRAMINE MALEATE + DEXTROMETHORPHAN HYDROBROMIDE (4/10mg)	2
6. Syp. MONTELUKAST + LEVOCETIRIZINE DIHYDROCHLORIDE (4/2.5mg)	2
7. Syp. BROMHEXINE HYDROCHLORIDE(2mg) + GUAPHENESIN (50mg) + TEBUTALINE SULPHATE (1.25mg)	4

FIG No: 1
ANTIBIOTICS USED IN TREATMENT PLAN FOR IN PATIENTS

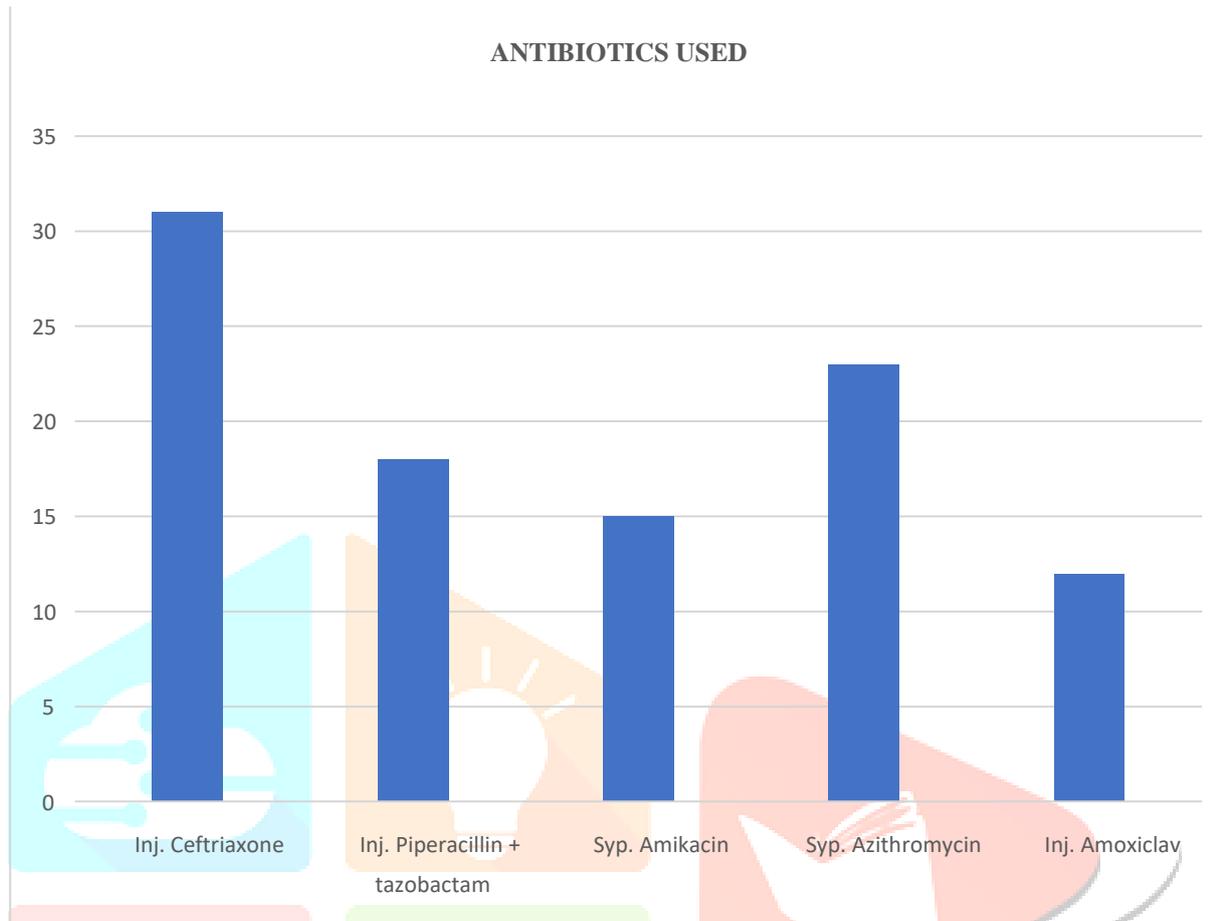


TABLE No: 3
NEBULIZERS USED IN PATIENTS

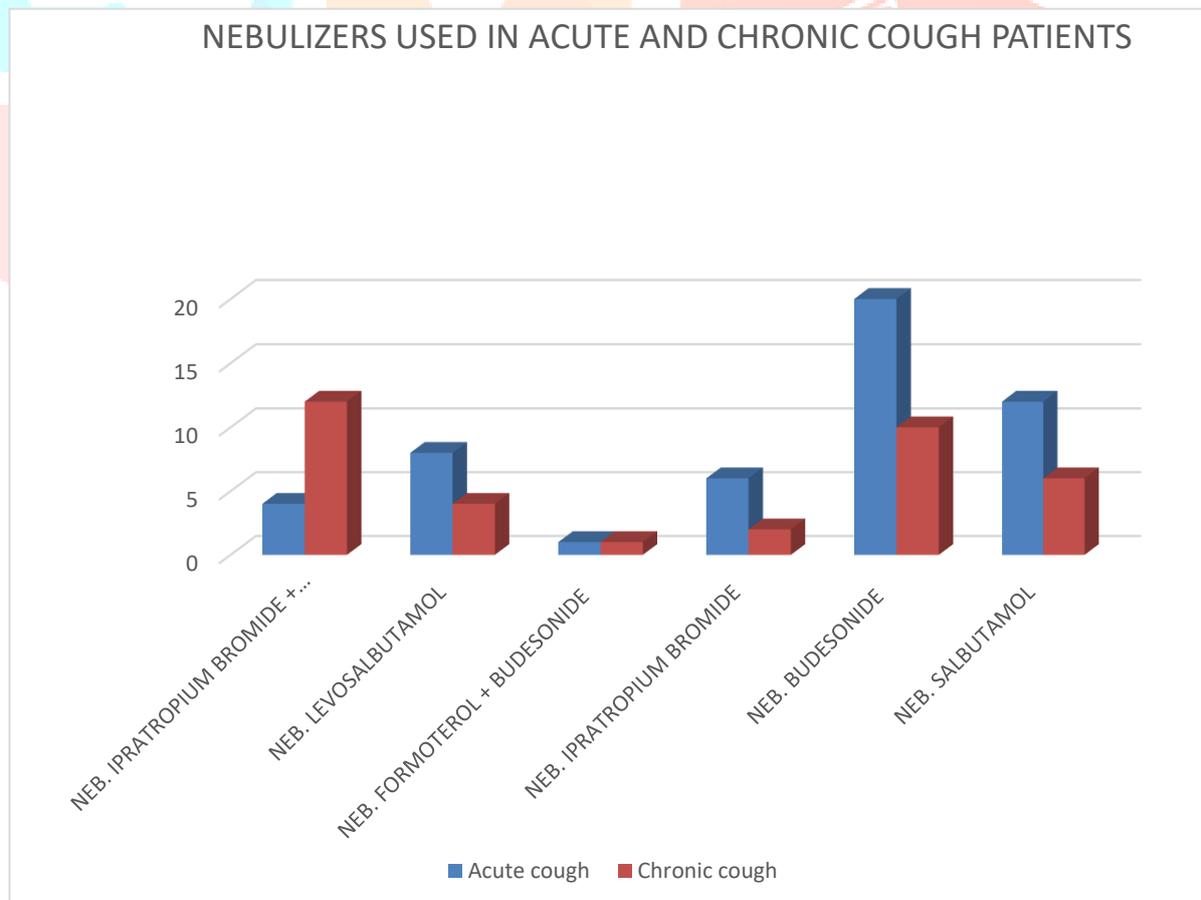
NO. OF. PATIENTS USING NEBULIZATION	
ACUTE	CHRONIC
51	12

TABLE No: 4

NEBULIZERS USED IN ACUTE AND CHRONIC COUGH

DRUGS	ACUTE	CHORNIC
NEB.IPRATROPIUM BROMIDE + LEVOSALBUTAMOL	4	12
NEB.LEVOSALBUTAMOL	8	4
NEB.FORMOTEROL + BUDESONIDE	1	1
NEB.IPRATROPIUM BROMIDE	6	2
NEB.BUDESONIDE	20	10
NEB.SALBUTAMOL	12	6

FIG No: 2



QUALITY OF LIFE QUESTIONNAIRE

ITEM (PARENTS PROXY QUESTIONNAIRE)	NO. OF PATIENTS WITH YES RESPONSE (ITEM MEAN)	NO. OF PATIENTS WITH NO RESPONSE (ITEM MEAN)
1.Does you/she/he cough often?	84 (0.84)	16 (0.16)
2.Did you/she/he become tired of coughing?	48 (0.48)	52 (0.52)
3.Did you/she/he miss play time?	50 (0.50)	50 (0.50)
4.Did you/she/he miss going to school because of the cough?	50 (0.50)	50 (0.50)
5.Has you/she/he had chest or stomach pain as a result of the cough?	22 (0.22)	78 (0.78)
6.Does the cough worsen during night?	68 (0.68)	32 (0.32)
7.Did you/she/he have sleepless nights due to cough?	66 (0.66)	34 (0.34)

ITEM (PARENTS QUESTIONNAIRE)	NO. OF PATIENTS WITH YES RESPONSE (ITEM MEAN)	NO. OF PATIENTS WITH NO RESPONSE (ITEM MEAN)
1. Did your child's cough interfere with your job or work around the house?	58 (0.58)	42 (0.42)
2. Did you feel anxious about your child's cough?	46 (0.46)	54 (0.54)
3. Were you worried/concerned about your child's cough lasting a long time?	64 (0.64)	36 (0.36)
4. Did you have a sleepless night because of your child's cough?	54 (0.54)	46 (0.46)
5. Did you face any loss of pay as you missed work due to your child's cough?	24 (0.24)	76 (0.76)
6. Were you worried/concerned About your child's performance of normal activities?	100 (1)	0

DISCUSSION:

QUALITY OF LIFE ASSESMENT

The Quality-of-Life Questionnaire on child's cough reveals the significant impact on both the child and their parents. According to parent responses, 84% reported that their child coughed often, and 68% noticed that the cough worsened during the night. Half of the children missed either playtime or school due to coughing, while 66% experienced sleepless nights. About 22% of children suffered from chest or stomach pain as a result of the cough. From the parents' perspective, 58% felt that their child's cough interfered with their job or household responsibilities, and 46% reported feeling anxious about it. Moreover, 64% of parents were concerned about the cough lasting a long time, and 54% experienced sleepless nights. Although only 24% faced a loss of pay due to missed work, 100% of parents expressed concern over their child's ability to perform normal activities. These findings highlight the physical, emotional, and social toll on how a persistent cough can affect both the child and their caregivers.

CONCLUSION:

The project entitled “To Study the Impact of Acute and Chronic Cough associated with Respiratory Tract Infection on Quality of Life in Paediatrics patients and their Parents” was a prospective observational questionnaire-based research study carried out for a period of 6 months. A significant minority of children cough for longer than 3 weeks after a simple viral cold. This study sought to generate a reliable and valid paediatrics QOL instrument for children with acute and chronic cough. The QOL instrument measures the impact of cough on a child’s own reported wellbeing and burden across multiple dimensions. The clinical and sociodemographic factors like age, awareness of disease, Income, health insurance, knowledge about vaccinations associated with the QOL in the paediatric patients with acute and chronic cough and their parents can be studied in the future.

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