

Analysis -the prevalence rate of Bronchial Asthma and Allergic Rhinitis in Pediatric patients attending Child Care Clinic in Tamilnadu.

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Abstract: Bronchial asthma (BA) and allergic rhinitis (AR) are thought to share a common pathogenesis in many patients. There is no published population-based epidemiologic study about allergic diseases in south India. Analysis the prevalence rate of Bronchial Asthma and Allergic Rhinitis in pediatric patients attending child care clinic. prospective study was carried based on the international study of asthma and allergies in childhood (ISAAC) questionnaire in Erode, Tamil Nadu, Indian total of 537 patients were enrolled in this study, 519 (96.64%) patients were had symptoms of allergic rhinitis. 511 (95.15%) patients were had symptoms of asthma, 493 (91.81%) patients had the symptoms of (co-morbidity) both Allergic rhinitis and Asthma, severity of asthma 192 (35.74%) patients were suffered by severity of Mild intermittent asthma, 133 (24.76%) Mild persistent asthma, 119 (22.16%) Moderate persistent asthma, 85 (15.82%) severe persistent asthma. In allergic rhinitis 121(22.34%) patients not at all having nose problem also does not interfere with daily activity, 54(10.05) little nose problem also interfere with daily activity, moderate nose problem interfere with daily activity 42 (7.82%), only 8(1.48%) a lot of nose problem interfere with daily activity. The high prevalence of childhood asthma and AR co-morbidity in this area of Bhavani, Tamil nadu.

Keywords: allergic rhinitis, asthma, co-morbidity.

Introduction:

Asthma and rhinitis are common co-morbidities suggesting the concept of **one airway one disease**. Epidemiological studies have consistently shown that asthma and rhinitis often co-exist in the same patients. Among college students in the US, 85.7% of patients with BA had a history of AR. It appears that at least 60% of asthmatics suffer from rhinitis. Furthermore, around 20-30% of patients with allergic rhinitis also have asthma. Patients with non-allergic asthma also commonly present with rhinitis. Non-specific bronchial hyperactivity is more common in patients with rhinitis than in the general population.¹

In normal subjects, the structure of the airway mucosa of the nose and the bronchi share similarities. The major difference is that in the nose there is a rich

vascular supply that accounts for nasal obstruction during the inflammation of rhinitis, whereas, in the bronchi, smooth muscles account for bronchospasm during the inflammation of asthma.²

According to WHO estimates, 300 million people suffer from asthma and 255 000 people died of asthma in 2005. Asthma is the most common chronic disease among children. Asthma is one of the most important diseases of childhood, causing substantial morbidity. Increases in the rates of hospital admission and primary care contacts for asthma in childhood have led to concern that the prevalence or severity of wheezing illness maybe increasing in children.³

Asthma is not just a public health problem for high income countries: it occurs in all countries regardless of level of development. Over 80% of

asthma deaths occur in low and lower-middle income countries. Asthma is under-diagnosed and under-treated, creating a substantial burden to individuals and families and possibly restricting individual's activities for a lifetime.⁴

Methods:

This study was carried out in multicenter (kavin hospital, balaji child care hospital and vignesh child care centre) duration between June to December 2010 at bhavani, Erode district, Tamil Nadu, South India. The total no of patients was enrolled in this study is 537, Inclusion criteria are below 18 year old, inpatients and outpatients, both allergic rhinitis and asthma patients. Exclusion criteria are Psychiatric patient, Above 18 yrs old, Asthma and allergic rhinitis co morbidity with other disease.

Questionnaire:

The patients were requested to answer a questionnaire of following question: patients were asked, "Do you suffer with a blocked nose/stuffy nose/catarrh/sneezing/runny nose/itchy eyes/ears/roof of mouth?" "Do you suffer with asthma (wheezing/tight chest/cough/shortness of breath)?" "In the last month, have you suffered with any of these symptoms even when taking your regular medicine?" Waking in the night because of asthma, Shortness of breath, Wheezing, Tight chest, Cough, A blocked nose, Stuffy nose, Catarrh, Sneezing, Runny nose, Itchy eyes, Itchy ears, Itchy roof of mouth.

Core questionnaire Wheezing

"Have you ever had wheezing or whistling in the chest at any time in the past?" "Have you had wheezing or whistling in the chest in the last 12 months?" "How many attacks of wheezing have you had in the last 12 months?" "In the last 12 months, how often, on average, has your sleep been disturbed due to wheezing?" "In the last 12 months, has wheezing ever been severe enough to limit your speech to only one or two words at a time between breaths?" "Have you ever had asthma?" "In the last 12 months, has your chest sounded wheezy during or after exercise?" "In the last 12 months, have you had a dry cough at night, apart from a cough associated with a cold or a chest infection?" "Check which time of year your child has the most difficulty breathing (cough, wheeze, chest tightness), Family history of Asthma?" "How often are breathing problems, coughing or wheezing Occurring during the DAY?" "How often are breathing problems, coughing or wheezing Occurring during the NIGHT?" "Does physical activity cause breathing problems,

coughing or Wheezing? How often is an inhaler or nebulizer used to treat these Problems?" The severity of asthma was classified according to the Global Initiative for Asthma (GINA) report and allergic rhinitis according to ARIA

Core questionnaire Allergic Rhinitis

All questions are about problems which occur when you DO NOT have a cold or the flu.

"Have you ever had a problem with sneezing, or a runny, or a blocked nose when you DID NOT have a cold or the flu?" "In the past 12 months, have you had a problem with sneezing, or a runny, or a blocked nose when you DID NOT have a cold or the flu?" "In the past 12 months, has this nose problem been accompanied by itchy-watery eyes?" "In which of the past 12 months did this nose problem occur?" "In the past 12 months, how much did this nose problem interfere with your daily activities? Have you ever had hay fever?"⁵

In the patients with childhood asthma and allergic rhinitis, the mothers or adult attendants answered the questions if the patients seemed unable to understand the questionnaire.

Result and Discussion

Prospective study was carried out in multicenter (kavin hospital, balaji child care hospital and vignesh child hospital). Duration of study between June 2010 to December 2010. This study was carried out in Five hundred and thirty seven (537) patients.

Co-Occurrence of the Symptoms Of asthma and allergic rhinitis

Type of disease

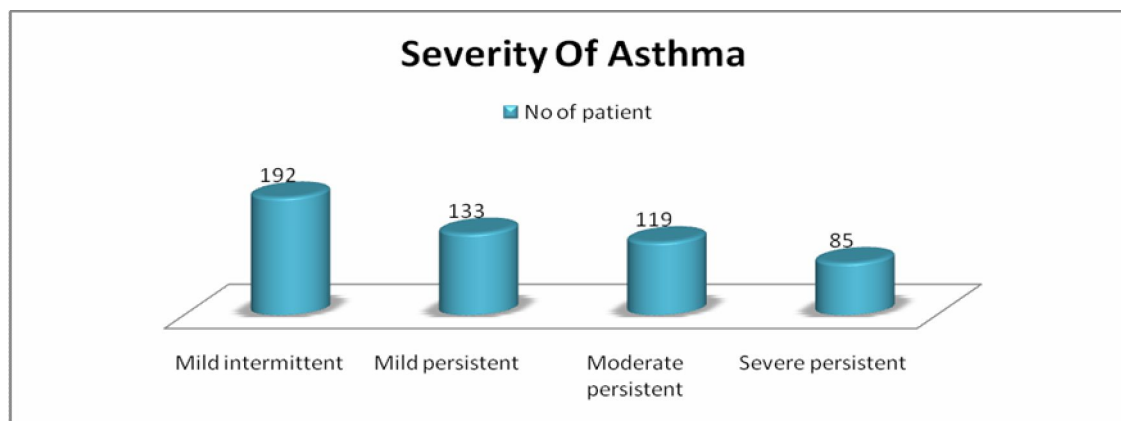
This study includes totally 537 patients in this 519 (96.64%) patients were had Allergic rhinitis symptoms, in this 317 (61.05%) patients were Male and 202 (38.94%) patients were Female.

By this study reveals that 511 (95.15%) patients showed symptoms of Asthma, From this data 312 (61.07%) patients were Male and 119 (38.92%) patients were Female, and also 493 (91.81%) patients had the symptoms of both Allergic rhinitis and Asthma, in this group 305 (61.18%) patient are Male and 188 (38.13%) patients are Female.

26 (4.84%) patients had symptoms of asthma only, in that 18 (69.93%) patients were male and 8 (30.76%) patients were female, more over 18 (3.35%) patients showed only allergic rhinitis symptoms, in that 11 (61.11%) patients are male and 7 (38.88%) patients are female. (Table no:1)

Table no: 1 Type of disease

Type of disease	Total No of patient	Male	Female
Allergic rhinitis	519 (96.64%)	317 (61.05%)	202 (38.94%)
Asthma	511 (95.15%)	312 (61.07%)	199 (38.92%)
A+AR	493 (91.81%)	305 (61.18%)	188 (38.13%)
Asthma only	26 (4.84%)	18 (69.23%)	8 (30.76%)
Allergic rhinitis only	18 (3.35%)	11 (61.11%)	7 (38.88%)

Graph no:1 Severity of asthma**Table no: 2** Nose problem interfere with daily activity

Nose problem interfere with daily activity	No of patient
Not at all	120 (22.34%)
A little	54 (10.05%)
A moderate	42 (7.82%)
A lot	8 (1.48%)

Severity of asthma:

This revealed that 192 (35.74%) patients were suffered by severity of Mild intermittent asthma, 133 (24.76%) patients were suffered by severity of Mild persistent asthma, and 119 (22.16%) patients were having Moderate persistent asthma and 85 (15.82%) Patients are suffered by severe persistent asthma. (Graph no:1)

Nose problem interferes with daily activity:

From this study 121(22.34%) patients not at all having nose problem also does not interfere with daily activity, 54(10.05%) patients having little nose problem also interfere with daily activity, moderate nose problem interfere with daily activity showed by 42(7.82%) patients, only 8(1.48%) no of patients having a lot of nose problem interfere with daily activity. (Table no: 2)

Co-Occurrence of the Symptoms of BA and AR

⁶AR was a very common co-morbid illness, as shown by the fact that 77% of them had symptoms of

AR in the previous 12 months and among these, 96% had a previous diagnosis of AR. Interestingly, patients with asthma and concomitant AR tended to be younger, had more intermittent than persistent asthma compared to asthmatics without AR.

Allergic rhinitis is very common in patients with asthma, with a reported prevalence of up to 100% in those with allergic asthma. In a recent review, the point prevalence of AR ranged from 24% to 94% and lifetime prevalence ranged from 50% to 100% among adults with asthma in Europe and in the United States.⁷

In ambulatory-based studies, the prevalence rates of asthma and AR co-morbidity range from 30 to 90%. In a study from Turkey, 68.8% of 369 children and adolescents aged from 3 to 16 years with asthma also had AR. Similar findings were described by Sichletidis *et al.* from Greece, in a cross-sectional study in which 69% of children with asthma also presented symptoms of AR.⁸

The prevalence of allergic rhinitis among subjects with asthma in previous studies varies widely. Studies carried out in large population samples report

prevalence's of between 80% and 95% of patients. In a study carried out in 3916 adults, 82% of subjects with asthma had rhinitis. Some studies point out that the prevalence of rhinitis in adult patients with asthma is as high as 99%, and in young people it can reach 95%.⁹

The recognition and treatment of asthma and AR co morbidity in clinical practice and by public health authorities is crucial. Several studies suggest that improvement in asthma and AR control leads to a reduction in healthcare resource use; it has been demonstrated that untreated AR hinders asthma control, and can lead to an increase in exacerbations and medication use.¹⁰

In present study also showed that 91.81% of patients are affected with both asthma and allergic rhinitis symptoms. So this study also reported that both asthma and allergic rhinitis share common pathogenesis in the upper and lower airway

Severity of asthma and allergic rhinitis:

The severity of asthma was classified as intermittent (39%), mild persistent (30%), moderate persistent (27%), and severe persistent (4%). Rhinitis was classified as mild intermittent (24%),

moderate/severe intermittent (22%), mild persistent (19%) and moderate/severe persistent (35%).⁹

In this study showed that (35.74%) patients were suffered by severity of Mild intermittent asthma, (24.76%) patients were suffered by severity of Mild persistent asthma, (22.16%) patients were having Moderate persistent asthma, (15.82%) Patients are suffered by severe persistent asthma, in allergic rhinitis patients nose problem interfere daily activity, 22.34% Not at all, 10.05% A little, 7.82% a moderate, 1.48% a lot.

Conclusion:

This study provided evidence that AR and BA are strongly associated with each other and the co-occurrence of the symptoms of the two diseases suggests that AR and BA share a common pathogenesis and should be treated as a single airway disease. Allergic rhinitis was more common in younger (below 18 year) asthma patients and also increases the burden of symptoms. The need for additional medication but was associated with improved asthma control.

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