



A Study on the Clinical Profile of Late Onset Asthma in Females in a Tertiary Care Centre in South Kerala

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Abstract

Introduction: *Asthma is a chronic inflammatory disorder of the airways. Adult onset asthma generally refers to the onset of asthma for the first time in some one of middle age or older. It is more common in females. It is postulated to be due to the effect of sex hormones in women. Studies have shown that women with adult onset asthma have increased risk of coronary heart disease and stroke. The aim of the study was to study the clinical profile and pulmonary function abnormalities in these patients, find out the aetiological factors for adult onset asthma in these patients and to know whether late onset asthma has any relation with coir industry which is a common industry in this area.*

Materials and Methods: *Fifty female patients presenting with episodic wheezing with the onset of symptoms after the age of 40 years were included in the study. A detailed history, physical examination, blood investigations including the absolute eosinophil count, chest radiography and pulmonary function tests were done in them. Skin tests were done only in those patients with history of allergy.*

Observations: *In our study majority of the patients were in the age group 40-49 and 50-59 years. Age of onset of symptoms was below 50 years for 46% of patients. 82% patients were living in costal areas. 30 patients (60%) reported history of allergic rhinitis. Of the total 30 patients with allergic rhinitis, 46% had onset of asthma symptoms before 50 years of age and 80% of patients had asthma symptoms before 60 years. FEV1 values were analyzed in relation with age of patient and duration of symptoms and no correlation was found. FEV1 reversibility was less in coir workers compared to housewives. Patients in the older age group had lower PEF 25-75 values compared to those in the younger age group. Allergy testing was done in 10 patients, of this 4 patients were found to be sensitive to various allergens like house dust, wheat dust etc. All these 4 patients had allergic rhinitis.*

Conclusions: *Allergic symptoms are common in these patients and atopy may be a reason for development adult onset asthma. In women exposure to kitchen smoke could be an etiological factor for development of asthma. Adult onset asthma was found to be more common in workers in coir industry. FEV1 reversibility was less in coir workers compared to other occupational groups. Small air way dysfunction was more common in older age group patients with late onset asthma.*

Keywords: *Late onset asthma.*

Introduction

Asthma is a chronic inflammatory disorder of the airways. The chronic inflammation is associated with airway hyper responsiveness leading to recurrent episodes of wheezing, breathlessness, chest tightness and cough. The prevalence of asthma is increasing. The trigger factors for asthma include indoor and outdoor allergens, microbes, diet, tobacco smoke, air pollution etc. According to etiology, asthma may be classified as extrinsic or intrinsic. Extrinsic asthma is asthma that occurs in atopic individuals i.e., people with an increased amount of immunoglobulin E antibodies against common environmental allergens. Asthma induced by unknown causes in non-atopic individuals is defined as intrinsic asthma. Adult onset asthma generally refers to the onset of asthma for the first time in some one of middle age or older^[1]. It is more common in females. It is postulated to be due to the effect of sex hormones in women^[2]. Studies have shown that women with adult onset asthma have increased risk of coronary heart disease and stroke^[3]. The usual symptoms of asthma are generally present with varying degrees of breathlessness, wheeze and cough in adult onset asthma also. It is generally believed that true allergic asthma starts very seldom in old age and atopy is less common in those with late onset asthma^[4]. The role of air pollution^[5], tobacco smoke^[6], vapor dust^[7], smoke, respiratory infections^[8], obesity^[9], rhinitis and occupational exposures^[10] in the development of adult onset asthma is well documented. The differential diagnosis for chronic dyspnoea and cough is broad in elderly and includes COPD, congestive cardiac failure, bronchiectasis, obesity, lung cancer etc. It is important to make a correct diagnosis in this situation as the treatment of these conditions varies. Demonstration of reversible airway obstruction in pulmonary function testings help in arriving at a correct diagnosis. Studies have postulated the role of various allergens, infections, and tobacco smoke, and rhinitis, medications like beta blockers, foods, and allergens at work place in the development of

adult onset asthma. Dust, smoke etc can precipitate adult onset asthma and can lead to exacerbation of asthma. This is particularly significant in women exposed to domestic smoke. Occupational asthma may account for a significant proportion of adult onset asthma. Kerala is an important producer of coir –a natural fiber obtained from coconut. Coconut husk is immersed in water for many months and then it is beaten and fibres are removed and the fibers are spun to make coir. This is mainly done as a cottage industry and women are mainly employed in this. Coir is processed in factories to make different coir products. The women in this work are exposed to dust and dampness and respiratory diseases are common in them.

Materials and Methods

This study was conducted at a tertiary care centre in South Kerala. 50 women with symptoms of adult onset asthma were included in the study. The aim of the study was to study the clinical profile and pulmonary function abnormalities in these patients, find out the aetiological factors for adult onset asthma in these patients and to know whether late onset asthma has any relation with coir industry which is a common industry in this area. Fifty female patients presenting with episodic wheezing with the onset of symptoms after the age of 40 years were included in the study. Patients with history of any significant respiratory disease before the age of 40 years were excluded. Patients with any abnormality in the chest x-ray were also excluded. Written informed consent was obtained from all the patients. A detailed history including age of onset of symptoms, duration of symptoms, allergy history, occupation, family history of allergy etc was taken. A detailed clinical examination, blood examination including absolute eosinophil count, chest x-ray and pulmonary function testing were done for all patients. Kit Micro computerized pulmonary function apparatus was used. PFT was done in the morning between 9am and 11am. Patients were asked to skip their morning dose of

oral and inhaled bronchodilators on the day of testing. While doing spirometry test was repeated three times and the best value was taken as the test value. After this patients were nebulised using 1 ml salbutamol nebulizer solution diluted in 3 ml normal saline for 10 minutes. Spirometry was repeated after 10 minutes and FEV1 reversibility was assessed. Allergy testing was done for 10 patients with allergy history. These patients were asked to stop antihistamines 2 weeks prior to allergy testing. Aqueous extract of purified allergens were obtained from Bioproducts and Diagnostics Pvt Ltd. The allergens included ants,

mosquito, cockroach, housefly, aspergillus flavus, aspergillus fumigates, aspergillus niger, aspergillus tamari, aspergillus versicolor, cotton dust, house dust, wheat dust, candida albicans and mucor. A control using normal saline was also included. 0.2 ml of purified allergen extracts were injected intradermally using 26 g needle on the volar aspect of forearm. Results were read after 20 minutes. An induration of more than 3 times control was taken as a positive test.

Observations

Total 50 patients were included in the study.

Figure 1: Age distribution of patients

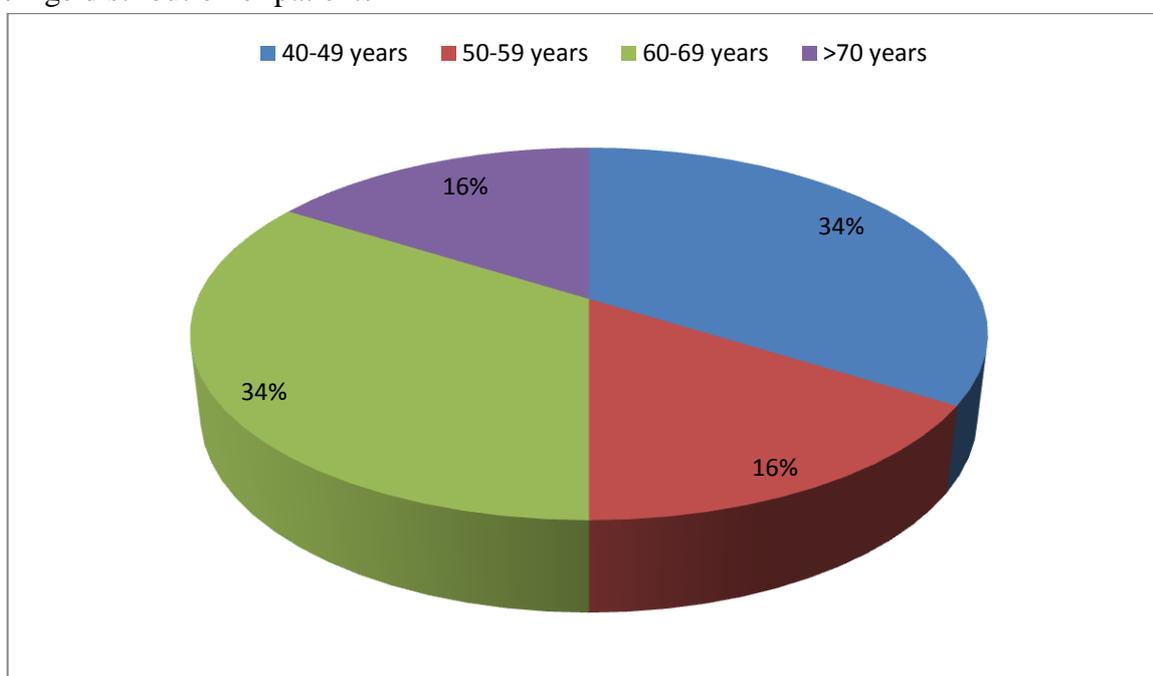


Table 1: Age of onset of symptoms:

Age group	Number	Percentage
40-49 years	23	46
50-59 years	16	32
60-69 years	9	18
>70 years	2	4
TOTAL		50

Figure 2: Duration of symptoms:

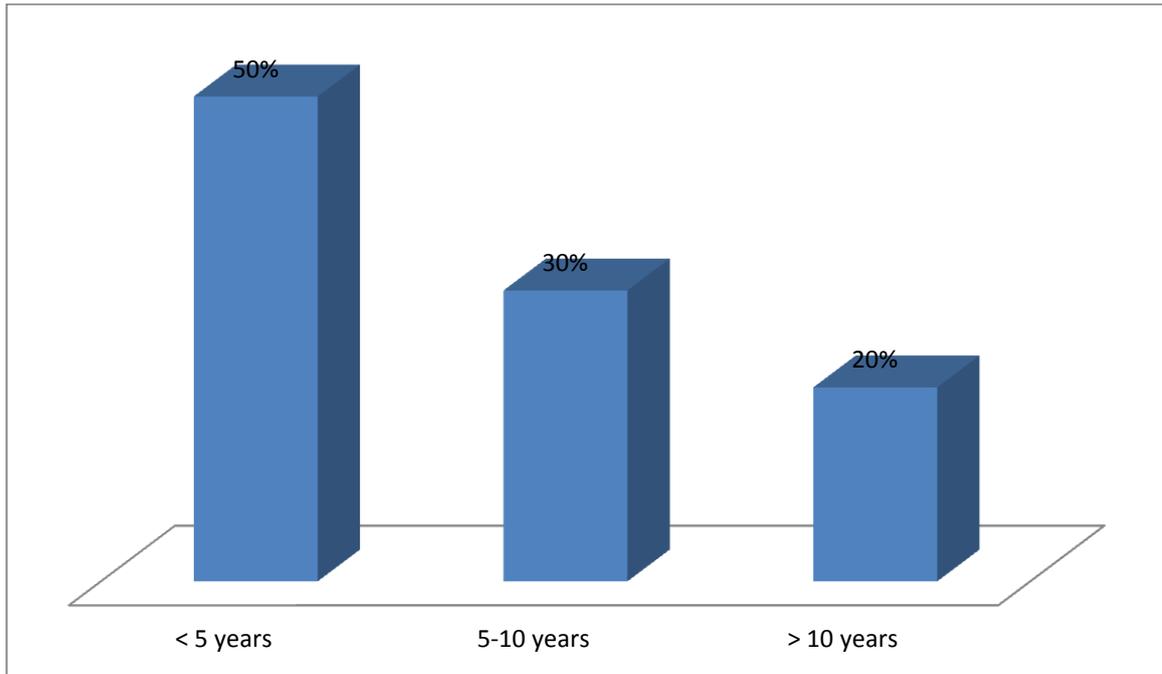


Table 2: Proximity to factory:

Proximity to factory	Number	Percentage
Coir factory	8	16
Spinning mill	2	4
Flour mill	1	2

Figure 3: Occupation of patients

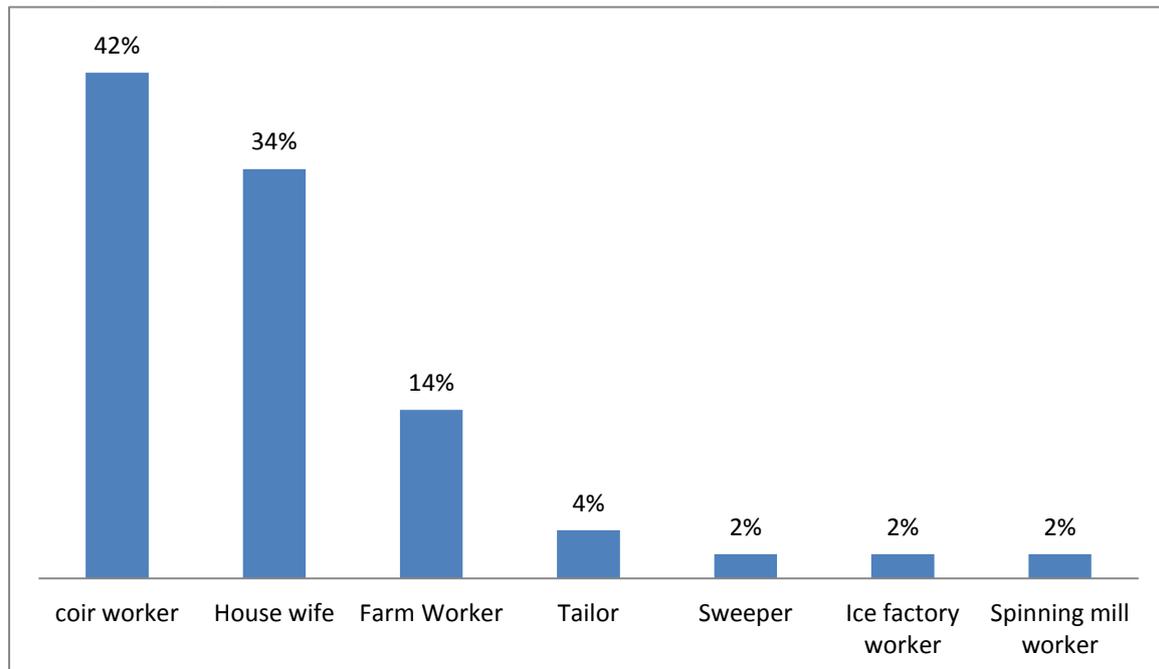


Table 3: Presence of other allergic disease

Other allergic disease	Number	Percentage
Allergic Rhinitis	30	60%
Allergic conjunctivitis	15	30%
Rhinitis and conjunctivitis	13	26%

Table 4: Presenting symptoms:

Symptoms	Number	Percentage
Wheezing	3	6%
Wheezing and cough	47	94%
Total	50	100%

Table 5: Type of fuel used for domestic cooking:

Type of fuel	Number	Percentage
Firewood	50	100%
Firewood and gas	10	20%
Firewood and kerosene	4	8%
Firewood , gas and kerosene	2	4%

Figure 4: Exposure to passive smoking

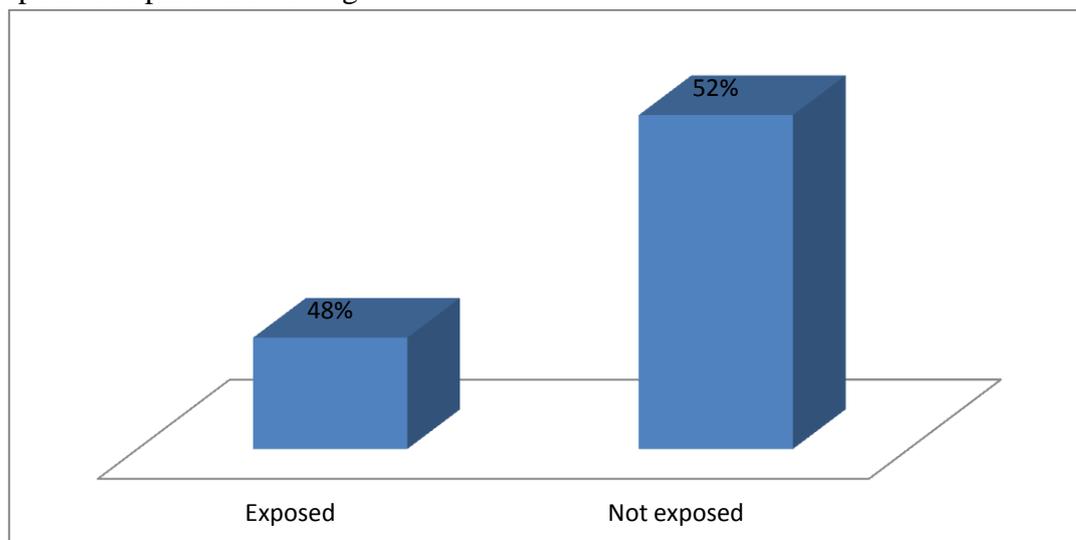


Table 6: Presence of Eosinophilia:

Absolute Eosinophil Count	Number	Percentage
>500	19	38%
<500	31	62%
Total	50	100

Figure 5: FEV1 and Age group:

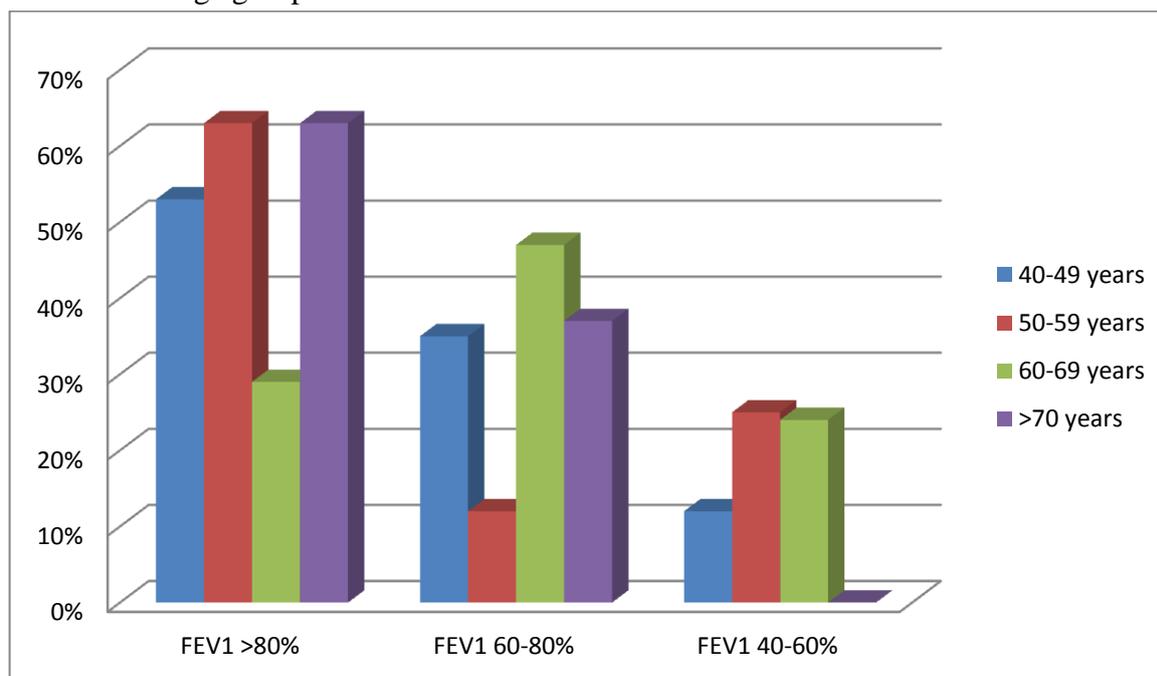
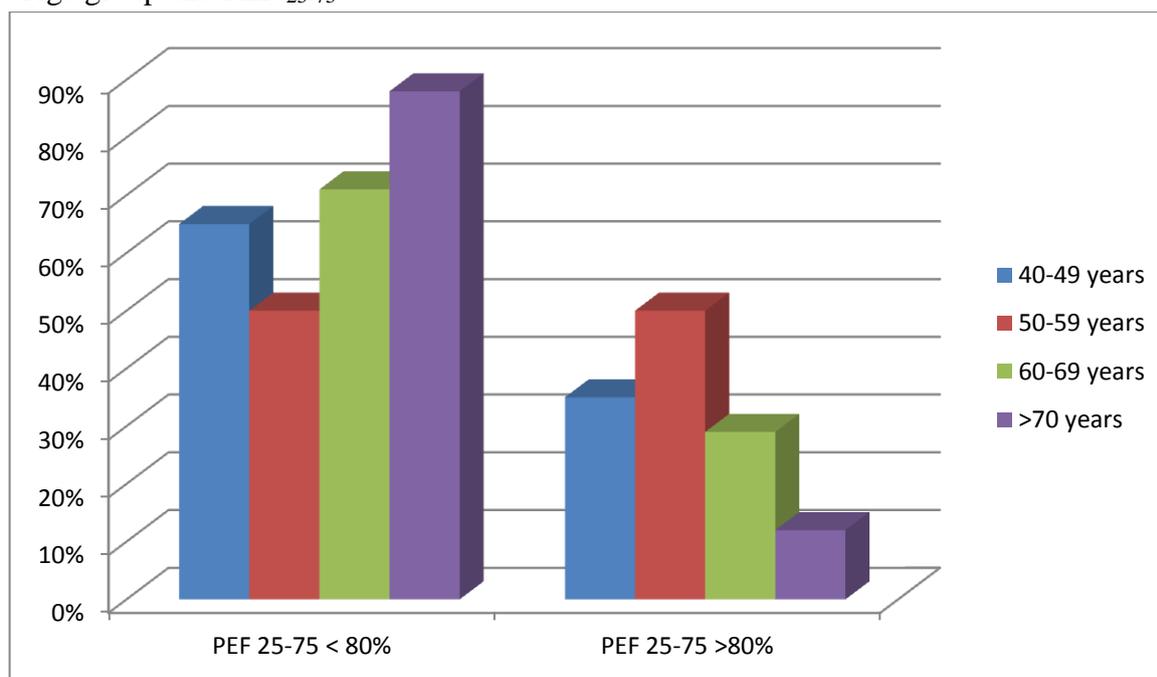


Figure 6: Age group and PEF₂₅₋₇₅



Discussion

In our study majority of the patients were in the age group 40-49 and 50-59 years. Age of onset of symptoms was below 50 years for 46% of patients. 82% patients were living in costal areas. 30 patients (60%) reported history of allergic rhinitis. Of the total 30 patients with allergic rhinitis, 46% had onset of asthma symptoms before 50 years of age and 80% of patients had asthma symptoms

before 60 years. In a study by Ariano et al^[11] reported that 72% of late onset asthma cases are allergic. Another study by Toren et al^[12] also reported association between allergic symptoms and late onset asthma. Many other studies have reported that adult onset asthma is non atopic^[4]. Rhinitis itself can be a risk factor for development of late onset asthma^[13]. Out of 21 coir workers, only 4 gave a family history of asthma indicating

that majority of coir workers with late onset asthma were not atopic. Studies have postulated that allergic reaction to coir dust, fungi in moist dusty atmosphere or chemicals used in coir industry as the possible cause of respiratory symptoms in coir workers^[14]. All the patients were exposed to kitchen smoke. Studies have shown increased risk of asthma in people exposed to smoke^[5,6]. FEV1 values were analyzed in relation with age of patient and duration of symptoms and no correlation was found. FEV1 reversibility was less in coir workers compared to housewives. 18% of housewives had FEV1 reversibility more than 30%, whereas only 10% of coir workers had FEV1 reversibility more than 30%. PEF 25-75 is a measure of small airway function. Patients in the older age group had lower PEF 25-75 values compared to those in the younger age group. 40% of patients below 60 years had PEF25-75 value more than 80%, whereas only 20% of patients above 60 years had PEF25-75 value above 80% of predicted value. This indicates that small airway obstruction was more common in older age groups. Allergy testing was done in 10 patients, of this 4 patients were found to be sensitive to various allergens like house dust, wheat dust etc. All these 4 patients had allergic rhinitis.

Conclusion

Adult onset asthma is a common problem. Allergic symptoms are common in these patients and atopy may be a reason for development adult onset asthma. In women exposure to kitchen smoke could be an aetiological factor for development of asthma. Adult onset asthma was found to be more common in workers in coir industry. FEV1 reversibility was less in coir workers compared to other occupational groups. Small air way dysfunction was more common in older age group patients with late onset asthma.

Limitations

Sample size was not uniform in each age group. Allergy testing was not done in all the patients

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