

## LIFESTYLE FACTORS AS MAIN CAUSATIVE FACTORS APART FROM ALLERGEN SENSITISATION IN THE DEVELOPMENT OF PERSISTENT NATURE OF ASTHMA FROM AN INTERMITTENT ONE

Purushotam D<sup>1</sup>, Muntajibuddin Arif Ahmed<sup>2</sup>

<sup>1</sup>Medical Officer, Mandore Satt. Hospital, Jodhpur, India.

<sup>2</sup>Associate Professor, Department of Paediatrics and Allergy, Shadan Medical College, Hyderabad, India.

---

### ABSTRACT

---

#### BACKGROUND

We all know asthma as a chronic inflammatory condition of allergic aetiology, so we tried to know factors responsible for development of persistent asthma in atopic patients who previously were intermittently symptomatic.

#### METHOD

We took 25 patients of persistent asthma as of recent origin (Criteria: need of regular preventive inhalational medications on regular basis since last 1-5 years) and analysed their lifestyle of previous 5 years on 6 below mentioned points:

1. Change to sedentary lifestyle.
2. Weight gain.
3. Any form of mental stress.
4. Change in dietary factors.

We took patients coming to our secondary referral hospital for continuous need of preventive inhalers, we took patients from middle age, i.e. from 30 to 35 years of age only of both sexes.

#### RESULTS

**Out of 25 patient's results for various factors were as follows:**

1. Sedentary lifestyle: - Out of 25 patients, 20 developed need for regular medication use after their routine changed in such a way that most part of their job needed sedentary lifestyle and most of them do not pursue any regular exercise pattern.
2. Most of them gain weight in excess, after which they needed preventers on regular basis.
3. Interestingly many of them started using preventers on regular basis after a severe emotional stress of medium duration, as determined by use of hypnotics or antidepressant medication. In our study, we found that depression was a major risk factor for development of persistent symptoms in already intermittently symptomatic patients.
4. Interestingly majority of patients started needing preventers after they switched their diet from home-based low fat diet to hotel-based high fat diet, from regular frequent small meals to irregular large meals.

#### CONCLUSION

In conclusion we found that apart from allergic sensitisation, lifestyle factors are key causative factors in transformation from intermittent-to-persistent symptomatology in allergic-asthmatic patients, establishing that persistent asthma is a chronic inflammatory disorder like diabetes and ischemic heart disease in genetically predisposed individuals needing multidisciplinary measures to prevent and treat persistent asthma apart from allergen avoidance and pharmacotherapy.

#### KEYWORDS

Persistent Asthma, Intermittent Asthma, Lifestyle Factors, Atopy, Chronic Inflammation.

---

**HOW TO CITE THIS ARTICLE:** Purushotam D, Ahmed MA. Lifestyle factors as main causative factors apart from allergen sensitisation in the development of persistent nature of asthma from an intermittent one. *J. Evolution Med. Dent. Sci.* 2016;5(32): 1716-1718, DOI: 10.14260/jemds/2016/405

---

#### INTRODUCTION

- We all know that asthma is a chronic inflammatory disease of airways of allergic aetiology, but recently asthma is also being considered as lifestyle diseases like diabetes and ischemic heart disease due to chronic systemic inflammation.
- Recent drastic changes in lifestyle including diet and psycho-emotional stress, are responsible for slow chronic inflammation.

#### MATERIALS AND METHODS

We took a sample of 25 people of age between 30 and 35 of both sexes, coming to our secondary referral hospital for regular need of preventive inhalers.

We took patients of recent onset of persistent asthma, i.e. daily need of preventive inhalers since last 1-5 years only, before they were intermittently symptomatic.

We also took 25 patients for control from nearby village of the same age group of both sexes with history of no chronic illness.

**We tried to analyse their lifestyle in last 5 years on below mentioned 4 points**

**Sedentary Lifestyle:** We asked them 2 questions.

1. Job requiring continuous sitting of more than 8 hours in last 5 years.
2. Physical exercise or moderate physical activity of less than 25 minutes per day.

---

*Financial or Other, Competing Interest: None.*

*Submission 11-02-2016, Peer Review 09-03-2016,*

*Acceptance 14-03-2016, Published 20-04-2016.*

*Corresponding Author:*

*Dr. Muntajibuddin Arif Ahmed,*

*Masha Medical Centre,*

*11-4-637/1 A. C Guard,*

*Hyderabad-500004.*

*E-mail: arifahmed1960@gmail.com*

*DOI: 10.14260/jemds/2016/405*

---

**We divided patients and control in 3 groups as following Sedentary Lifestyle**

- **GROUP 1:** Daily schedule or job needing working hours more than 8 hours of continuous sitting and exercise or moderate physical activity of less than 25 minutes per day.
- **GROUP 2:** Daily schedule or job needing continuous sitting of less than 8 hours, but no exercise or moderate physical activity of 25 minutes per day.
- **GROUP 3:** Physically active and less sitting.

**WEIGHT GAIN**

**Weight Gain:** Here we compared their recent weight to that of 5 years before, we called it base value and calculated their change in BMI and divided in 3 categories depending on increase in BMI.

1. Increase of BMI more than 3.
2. Increase of BMI between 1 and 3.
3. Less than 1.

**MENTAL STRESS**

**Mental Stress:** Here we formulated our own questionnaire and divided patients of our sample and control group in 3 categories.

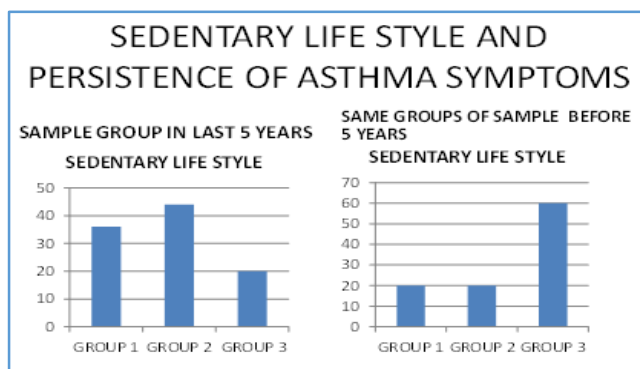
1. History of medically diagnosed and treated major depression in last 5 years, we designated it as A Group.
2. History of irregular sleep pattern and use of frequent sleeping pills and/or history of mental setback, e.g. death of close relative, loss of job, divorce or emotional trauma in any other form in last 5 years designated as B Group.
3. No significant history indicative of mental stress designated as C Group.

**DIET**

**Change in Dietary Pattern:** Here we categorized sample and control group in 2 categories depending on their dietary patterns.

1. Those having home-based low-fat diet and regular frequent small diet Group A.
2. Those having restaurant-based high fat diet and irregular large meals Group B.

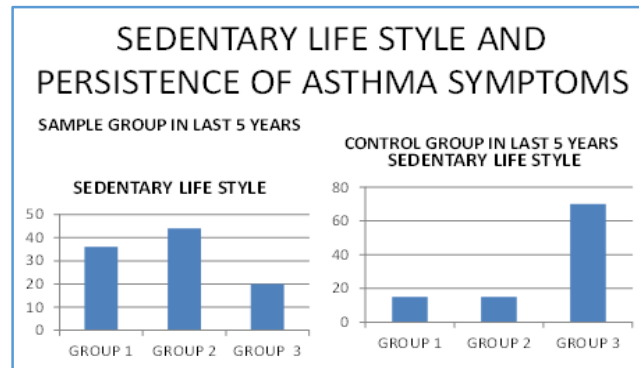
**SEDENTARY LIFESTYLE AND PERSISTENCE OF ASTHMA SYMPTOMS**



**GROUP 1:** Daily schedule or job needing working hours more than 8 hours of continuous sitting and exercise or moderate physical activity of less than 25 minutes per day.

**GROUP 2:** Daily schedule or job needing continuous sitting of less than 8 hours, but no exercise or moderate physical activity of 25 minutes per day.

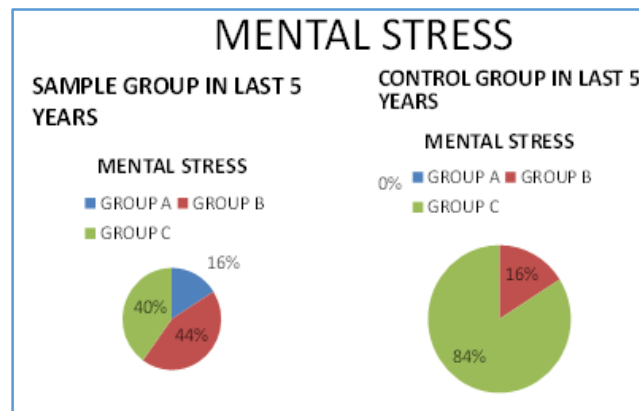
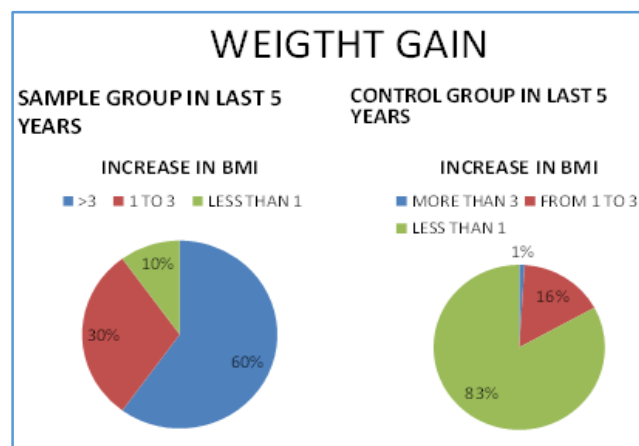
**GROUP 3:** Physically active and less sitting.



**GROUP 1:** Daily schedule or job needing working hours more than 8 hours of continuous sitting and exercise or moderate physical activity of less than 25 minutes per day.

**GROUP 2:** Daily schedule or job needing continuous sitting of less than 8 hours, but no exercise or moderate physical activity of 25 minutes per day.

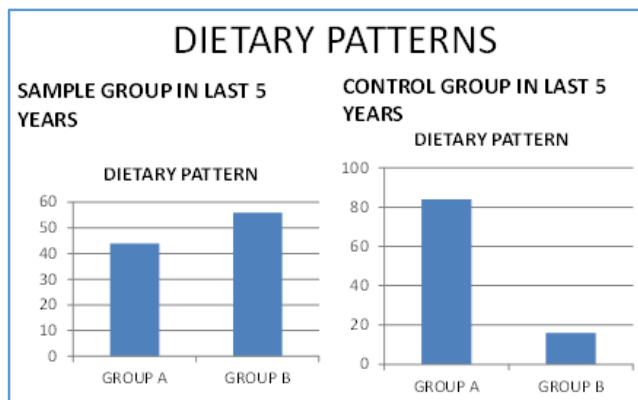
**GROUP 3:** Physically active and less sitting.



**Group A:** History of medically diagnosed and treated major depression in last 5 years.

**Group B:** History of irregular sleep pattern and use of frequent sleeping pills in last 5 years and/or h/o emotional trauma.

**Group C:** No significant history indicative of mental stress.



1. Those having home-based low-fat diet and regular frequent small diet Group A.
2. Those having restaurant-based high-fat diet and irregular large meals Group B.

### DISCUSSION

As postulated by theory of disturbances in resoleomics our genes and physiology are still identical to our ancestors of thousands years before.<sup>1</sup> Through western lifestyle, body is exposed to various type of stress which it could not cope with and result in slow chronic inflammation resulting in exponential increase in lifestyle diseases in recent times.

Physical activity and asthma.

- Sedentary lifestyle through various mechanisms may aggravate asthma.
- Lack of physical activity cause poor mucociliary clearance and decreased epithelial stimulation leading to excessive mucus and oedema.<sup>2,3</sup>
- It is postulated that continuous sitting leads to decreased periodic expansion of the chest and that could lead to nonspecific bronchial hyper-responsiveness of airways.<sup>2</sup>
- It is also noted that deep inspiration during physical activity decreases airway resistance in patient with bronchoconstriction.<sup>2</sup>
- Central stress axes and chronic inflammation.
- Chronic mental stress may lead to overproduction of catecholamines and pro-inflammatory cytokine leading to delayed resolution of inflammation and give rise to chronic inflammatory diseases.

### Obesity and Asthma

- There is postulated interlink between obesity and mast cell. Other than that obesity also increases demand for medications contributing to disease aggravation.<sup>4</sup>
- It has been recently postulated that mast cells are involved in both asthma and obesity being the target and source of adipocytokines.<sup>5</sup>
- Obese patients are less sensitive to glucocorticoids and bronchodilators.

### Dietary Pattern and Asthma

- Dietary changes in form of increased saturated fat, refined carbohydrates and altered ratio of omega-6 to omega-3 fatty acids and decreased intake of natural antioxidant results in add in slow chronic inflammation leading to increase in asthma and other chronic inflammatory diseases.<sup>6</sup>

### CONCLUSION

- After exponential increase in asthma in last 3-4 decades, which is explained by modern lifestyle changes {0041 part from allergic sensitization} management of asthma should also focus on lifestyle modifications in addition to pharmacotherapy and allergens avoidance.
- We should live as near to nature as possible.

### REFERENCES

1. Bosma-den Boer MM, van Wetten ML, Leo Pruimboom. Chronic inflammatory diseases are stimulated by current lifestyle: how diet, stress levels and medication prevent our body from recovering. *Nutrition & Metabolism* 2012;9(1):32.
2. Clark, Christopher J, Lorna M Cochrane. Physical activity and asthma. *Current opinion in pulmonary medicine* 1999;5(1):68.
3. Abramson Jerome L, Viola Vaccarino. Relationship between physical activity and inflammation among apparently healthy middle-aged and older US adults. *Archives of internal medicine* 2002;162(11):1286-92.
4. Shore, Stephanie A, Jeffrey J Fredberg. Obesity, smooth muscle, and airway hyper responsiveness. *Journal of Allergy and Clinical Immunology* 2005;115(5):925-7.
5. Shore, Stephanie A, Richard A Johnston. Obesity and asthma. *Pharmacology & therapeutics* 2006;110(1):83-102.
6. Romieu Isabelle, Mannino DM, Redd SC, et al. Dietary intake, physical activity, body mass index, and childhood asthma in the third national health and nutrition survey (NHANES III). *Pediatric pulmonology* 2004;38(1):31-42.