

International Journal of Pulmonary and Respiratory Research

www.pulmonologyjournal.in Online ISSN: 2664-6684, Print ISSN: 2664-6676 Received Date: 01-11-2018 Accepted Date: 02-12-2018; Published: 02-01-2019 Volume 1; Issue 1; 2019; Page No. 01-04

Respiratory symptoms and asthma prevalence in Indian students due to adaptation reactions of cold climate

Saptarshi Pal

Department of Propaedeutics of Internal Diseases, Acad. E.A. Wagner Perm State Medical University, Perm, Russia

Abstract

Asthma and allergic rhinitis are chronic diseases are worldwide. Several factors which increased the prevalence of respiratory symptoms are environmental conditions, family history, exposure to cigarette smoking. Respiratory symptoms are prone to cold weather [1]. The objective of our study was to investigate the prevalence of respiratory symptoms and asthma in Indian students in the city of Perm, Central Russia due to adaptation reaction.

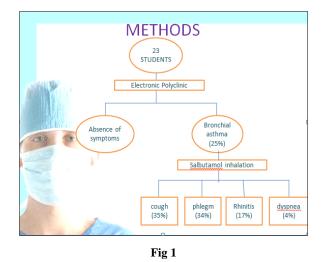
Keywords: asthma, adaptation, peak flow meter

Introduction

Asthma is a chronic inflammatory disorder of airway of lungs. Suspected individuals show a symptoms of airway inflammation including wheezing, nasal congestion, dyspnea and coughing. The prevalence of asthma has dramatically increased in many countries like India (10-15%) and Russia (7.4-10.6%) according to recent reports that is higher than the normal rate ^[1]

Materials and Method

We used respiratory survey which includes 200 questions for different respiratory problems. Our questionnaire assed the presence of following symptoms: wheezing, coughing, dyspnea, congestion etc. Information about smoking status, family history of asthma use of inhalers were also collected. Indian students of the third year 20-27 years old were asked to fill the questionnaire "Electronic polyclinic" in asthma evaluating test. Based on the data of questionnaires, students were divided into two groups: one with severe bronchial asthma and other with absence of symptoms. One with presence of bronchial asthma were asked for reexamination of Peak Expiratory Flow using Peak Flow Meter by deeply inhaling and exhaling into the device and measuring the highest air velocity. Previously we encountered with 6 students who were supposed to be suffering with bronchial asthma were asked to continue their examination by using Peak Flow Meter in 15 minutes after salbutamol inhalation. The comparison was done with 30 Russian students (aged 19-21 years 13 males and 17 females).



Results and Discussion

A total of 23 students (16 boys and 7 girls) participated in this survey. The most frequently clinical sign was captured by cough which was revealed in 35% of Indian students followed by phlegm which was seen in 26% dyspnea, nasal congestion 13% and suffocation was seen in 4% only. After Peak Flow Meter technique and bronchodilating test we found that only 2 students i.e. about 8% were suffering from bronchial asthma. In the group which comprised of Russian students revealed only 14, 3% signs of bronchial obstructive syndrome. We had used the program *Statistica 10.0* for results evaluation.

International Journal of Pulmonary and Respiratory Research

							rên (RESPIRA	FORY	SURVEY ON	STUDE	NTS	FR	OM INDIA	1		
EX	AGE	HEIGHT (o	r BODY VEIGHT BI	Mikałma	DATE	CONCERNING				CRE DRUG USED TO STOP					-	EDIFFICULT COND	VORST
EMAL		157					YES	NO	YES	NO	ND	NO	NO	NO	NO	NO	NO
EMAL	21	164	60			YES	NO	NO	YES	YES	YES	NO	NO	NO	NO	NO	NO
ALE	27	170	58			NO	NO	NO	NO	NO	ND	YES	NO	NO	NO	NO	NO
ALE	21	182	99	25		YES	YES	NO	NO	NO	ND	NO	NO	NO	YES	YES	YES
ALE	23	16	65			YES	YES	NO	YES	YES	YES	NO	NO	NO	NO	NO	NO
1ALE	20	163	58	2		YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES	YES
1ALE	21	193	76	20.4		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	YES	NO
1ALE	20	164	60	22.3		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
EMAL	. 20	164	40	15.03		NO	NO	NO	NO	NO	ND	NO	NO	ND	NO	NO	NO
EMAL	. 20	168	45		*****	YES	YES	NO	YES	YES	YES	NO	NO	NO	NO	NO	NO
EMAL	. 21	160	61	23		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
ALE	21	167	77	27.8		YES	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
1ALE	25	167	75	26		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
EMAL	. 21	167	68	24.38		YES	YES	NO	YES	YES	YES	NO	NO	NO	NO	NO	NO
EMAL	. 21	155	49	20		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ALE	22	162	55	2		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
ALE	22	157	52	21.4		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
1ALE	22	182		26.5		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
1ALE	23	175	74	24		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1ALE	23	177	72			NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
1ALE	23	168	78	27.8		NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
1ALE	24	172	67	22.7		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1ALE	22	167	63			NO	NO	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO
1ALE	25	180			*****	NO	NO	NO	NO	NO	ND	NO	NO	ND	NO	NO	NO
EMAL	. 20	175			*****	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ALE	20	175			*****	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
EMAL		156	58		*****	ND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1ALE	21	178			*****		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1ALE	20	164			*****		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1ALE	21	173			*****		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1ALE	20	175			*****		NO	NO	NO	NO	NO	NO	NO	ND	NO	NO	NO
EMAL		164			*****		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ALE	20	175			*****	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
IALE	19	175			*****		NO	NO	NO	NO	ND	YES	YES	ND	NO	NO	NO
1ALE	20	157			*****	ND	NO	NO	NO	NO	ND	NO	NO	ND	NO	NO	NO
1ALE	21	18			*****	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EMAL		157			*****		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
1ALE	22	178			*****		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ALE	20	170	63			YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

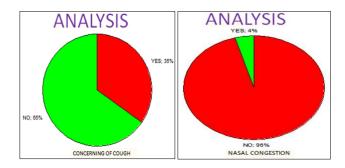
Fig	2
116	-

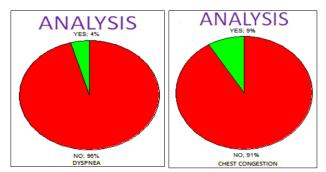
NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
V0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YE\$	NO
10	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO
(ES	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YE\$	YES
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES	NO	NO	NO	NO	NO
(ES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
0	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
0	NO	NO		NO		NO	NO	NO	NO	NO		NO	NO	NO	NO
NO	NO		NO NO	NO	N0 N0	NO	NO	NO	NO	NO	NO NO	NO	NO	NO	NO
		NO						NO							
10	NO NO	NO	NO	N0	NO	NO	NO		NO	NO	NO	NO	N0	NO NO	NO
10	NO	NO	NO	N0	NO	NO	NO	NO	NO	NO	NO	NO	N0	NO	NO
10	NO NO	NO	NO	N0	N0	NO	NO	NO	NO	NO	NO	NO	N0	NO NO	NO
0	NO NO	NO	NO	N0	N0	N0	NO	NO	NO	NO	NO	NO	N0	NO NO	NO
0	NO	NO	NO	N0	NO	NO	NO	NO	NO	NO	NO	NO	N0	NO NO	NO
0	NO NO	NO	NO	N0	NO	NO	NO	NO	NO	NO	NO	NO	N0	NO VER	NO
0	NO	NO	NO NO	N0	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	NO
10	NO	NO	NO	N0	NO	NO	NO	NO	NO	NO	NO	NO	NO.	NO	NO
ES	YES	YES	NO VEA	NO	N0	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ES	YES	YES	YES	YES	N0	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES
0	N0	NO	NO	N0	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
0	NO	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
10	NO	NO	NO	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
10	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES
10	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
0	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
(ES	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YE\$	YES	YES	YES	YES

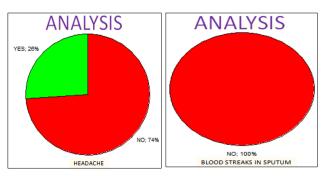
International Journal of Pulmonary and Respiratory Research

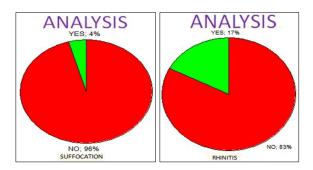
NO	ND	NO NO	ND	NO CILINA MILINA	NO NO	NO NO		NO NO	ND	NO	NO NO	71-90	90/60-130/80	REATHING RATE per DISTANCE OF WALKING WITHOU 16 >550
							NO							
NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO	71-90	30/60-130/80	16 150-300
V0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	60-70	90/60-130/80	16 150-300
V0	NO	NO	NO	NO	NO	NO	NO	NO	ND	NO	NO	71-90	30/60-130/80	16 >550
V0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	11-90	90/60-130/80	16 >550
10	ND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	90/60-130/80	16 >550
10	NO	NO	NO	YES	YES	YES	NO	NO	NO	YES	NO	71-90	30/60-130/80	16 >550
10	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	11-90	90/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	60-70	30/60-130/80	16 >550
0	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	11-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	90/60-130/80	16 >550
0	ND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO	NO	71-90	90/60-130/80	16 >550
D	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-30	30/60-130/80	16 >550
D	NO	NO	NO	ND	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
D	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	90/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	90/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	90/60-130/80	16 >550
	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	ND	NO	NO	11-90	90/60-130/80	16 >550
0	NO	NO	NO	NO	YES	NO	NO	YES	NO	YES	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	11-90	90/60-130/80	16 >550
0	ND	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-90	30/60-130/80	16 >550
0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	71-30	30/60-130/80	16 >550
D	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO	11-30	30/60-130/80	16 >550
D	ND	NO	NO		NO	NO	NO	NO		ND	NO	71-90	30/60-130/80	16 >550
				NO					NO					
ES	YES	ND	YES	YES	YES	YES	YES	YES	YES	YES	YES	11-90	90/60-130/80	16 >550
ES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	60-70	90/60-130/80	16 >550
ES	NO	YES	NO	NO	YES	YES	YES	YES	NO	NO	NO	60-70	30/60-130/80	16 >550
ES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	11-90	90/60-130/80	16 >550
ES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	50-60	30/60-130/80	16 >550
ES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	60-70	30/60-130/80	16 >550
ES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	60-70	90/60-130/81	16 >550
ES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	60-70	30/60-130/82	16 >550
0	NO	NO	NO	YES	YES	YES	YES	YES	NO	YES	YES	60-70	30/60-130/83	16 >550
10	NO	NO	NO	YES	YES	YES	YES	YES	NO	NO	NO	60-70	30/60-130/84	16 >550

Fig 4











Conclusions

The prevalence of respiratory symptoms in our study was higher than expectations with a difference between Indian and Russian students. The prevalence of respiratory symptoms in Russian students were found to be 14% while in Indian it is 35%, means (2X) higher. The explanation of increased numbers of respiratory symptoms in Indian students suggested the adaptation reaction to cold climate in Russian Federation as cold weather mainly affects the respiratory tract.

References

1. Moslem Mohammadi, ¹Behzad Parsi, Prevalence of Asthma and Respiratory Symptoms among Students in Sari. 2016; 15(1):1-8.