

# A Perspective Study of Asthma and its Control in Assam (India)

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**Abstract**—The main objective of our study is to collect data about the profile of the asthmatic patients in Assam and thereby have a comprehensive knowledge of the factors influencing the asthmatic patients of the state and their medication pattern. We developed a search strategy to find any publication about the community based survey asthma related and used. These to search the MEDLINE (1996 to current literature) CINAHL DOAJ pubmed databases using the key phrases, Asthma, Respiratory disorders, Drug therapy of Asthma, database decision support system and asthma. The appropriate literature was printed out from the online source and library (Journal) source. The study was conducted through a set of structured and non-structured questionnaires targeted on the asthmatic patients belonging to the rural and urban areas of Assam, during the month of Dec 2006 to July 2007, 138 cases were studied in Gauwathi Medical College & Hospital located in Bhangagarh, Assam in India. The demographic characteristics a factor in 138 patients with asthma with allergic rhinitis (cases) gives the detail profile of asthmatic patient's distribution of Assam as classified on the basis of age and sex. It is evident from the study that male populations (66%) are more prone to asthma as compared to the females (34%). Another striking features that emerged from this survey is the maximum prevalence of asthma in the age group of 20-30 years followed by infants belonging to the age group of 7 (0.05%) 0-10 years among both male and female populations of Assam. The high incidence of asthma in the age group of 20-30 years may probably be due to the allergy arising out of sudden exposure to dust and pollen which the children face while playing and going to the school. The rural females in the age group of 30-40 years are more prone to asthma than urban females in the same age group may be due to sex differentiation among the tribal population of the state. Pharmacists should educate the asthmatics how to use inhalers considering growing menace of asthma in the state. Safer drugs should be produced in the form of aerosol so that easy administration by the asthmatic patients and physicians of the state is possible for curing asthma. The health centers should be more equipped with the medicines to cure asthma in the state like Assam.

**Keywords**—Asthma, Respiratory disease, Smoker.

## I. INTRODUCTION

**I**N recent years respiratory diseases like asthma and chronic obstructive pulmonary disease (COPD) were ranked as the

top killer diseases in urban India. Despite advances in understanding of diseases and availability of improved medications and information on treatment, the morbidity and mortality of these two diseases are increasing [1]. Asthma is a complex disease of varied etiology triggered by a number of factors such as allergens, drugs, chemicals, exercise, cold dry air, infections and emotions. Despite major advances in understanding the etiology and pathophysiology of asthma and the development of new therapeutic modalities, the prevalence, severity, and mortality from asthma have all increased five-fold for children over the past 20 years. Mortality appears to be particularly high in urban and rural minority populations. Asthma continues to place a heavy burden on patients and their families as well as the health-care system. This is the time to establish well-designed clinical trials to allow rapid evaluation of new and existing therapeutic approaches for asthma. Asthma is a disorder caused by inflammation in the airways (called bronchi) that lead to the lungs. This inflammation causes airways to tighten and narrow, which blocks air from flowing freely into the lungs, making it hard to breathe. Symptoms include wheezing, breathlessness, chest tightness and cough, particularly at night or after exercise/activity. The inflammation may be completely or partially reversed with or without medicines [2]. Therefore present study was conducted to analyses the disease status and its prevention in the state of Assam (India).

## II. OBJECTIVE

The main objective of our study is to collect data about the profile of the asthmatic patients in Assam and thereby have a comprehensive knowledge of the factors influencing the asthmatic patients of the state and their medication pattern. On the basis of the study, we have analyzed the factors responsible for the spreading of these diseases and thereby suggested some preventive measures for asthma.

## III. METHODOLOGY

We developed a search strategy to find any publication about the community based survey asthma related and used. These to search the MEDLINE (1996 to current literature) CINAHL DOAJ pub med databases using the key phrases, Asthma, Respiratory disorders, Drug therapy of Asthma, database decision support system and asthma. The appropriate literature was printed out from the online source and library (Journal) source. The study was conducted through a set of structured and non-structured questionnaires targeted on the

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asthmatic patients belonging to the rural and urban areas of Assam, during the month of Dec 2006 to July 2007, 138 cases were studied in Gauhati Medical College & Hospital located in Bhangagarh, Assam in India. The questionnaires consists of (1) Patient details (age, sex, occupation, income), (2) Social status, (3) Family history of illness, (4) Past medical history, (5) Signs and Symptoms or Complaints for which the consultation sought, (6) Diagnosis, (7) Medication, (8) Instruction for diet, (9) Exercise, and Duration of illness etc. The feedback of the patients were cross checked by the responses questionnaire collected from the physicians after giving sufficient time to the Physicians to respond to the questionnaires. In the next phase, the data obtained from the patients and physicians were consolidated and critically analyzed in order to have a detailed knowledge of the different factors influencing the asthmatic patients of Assam.

#### IV. RESULT

The demographic characteristics a factor in 138 patients with asthma with allergic rhinitis (cases) are presented in Table I gives the detail profile of asthmatic patient's distribution of Assam as classified on the basis of age and sex. It is evident from the study of the Table I that male populations (66%) are more prone to asthma as compared to the females (34%). Another striking features that emerged from this survey is the maximum prevalence of asthma in the age group of 20-30 years followed by infants belonging to the age group of 7(0.05%) 0-10 years among both male and female populations of Assam. The high incidence of asthma in the age group of 20-30 years may probably be due to the allergy arising out of sudden exposure to dust and pollen which the children face while playing and going to the school. The rural females in the age group of 30-40 years are more prone to asthma than urban females in the same age group may be due to sex differentiation among the tribal population of the state. However, the fairly high incidence of asthma in the age group of 0-10 years probably is due to low immunity and sudden exposure of infants to the polluted environment. Incidence of asthma was found to decrease gradually with increase in age after 30 years till 80 years which may be due to the development of resistance or due to alertness among the asthma patients to consume anti-asthmatic drugs and perform regular exercise. The marketing personnel are more exposed to allergens (dust) resulting in their suffering from asthma more than that of other professionals. A significant rise in asthmatic patients found after the age of 20-40 years among both males and females in both urban and rural sector may be due to the lowering down of resistance level with the age of negligence of taking anti asthmatic drugs regularly. Table II gives the detailed asthmatic patient distribution region wise on the basis of age.

#### V. DISCUSSION

The literature reveals many reports on the psychological status of patients with asthma. Previous studies showed either Younger [3, 4] or elderly [5] patients with asthma suffered from psychological depression. Adams *et al* [6] documented that psychological distress and decreased feelings are common

in asthmatics. In clinical samples of children and adolescents, asthma has been associated with presence of an anxiety disorder [7] and depressive symptoms among youth with moderate-to-severe persistent asthma [8]. Jansen *et al*, [9] were unable to find significant evidence that asthmatics had more anxiety and depression than non-asthmatics. However panicker *et.al* [10] was able to find significant evidence that asthmatic had more psychological distress in patient suffering from asthma. In our study, we found that a comparative low incidence of asthma in urban population **4(0.3%)** in the age group of **10-20 years** as compared to that of rural population **13(0.9%)** of the same age group is due to the availability of advanced health care facility in different hospitals and nursing homes in the cities of Assam. However environmental pollution in town is proved to be one of the major reasons of increase in the asthmatic patients in the urban area in age group from **20-80 years**. Improper awareness, self medication, poverty are some of the probable reasons for the sudden increase in the asthmatic patients after **20 years** in the rural population. It seems from the survey that smokers are more prone to asthma than the non-smokers. Environmental pollution, indiscriminate smoking and congested habitat without proper sanitation are the major reasons for the occurrence of asthma among urban populations. Aerosols containing salbutamol are found to be the most preferred route of drug administration among asthmatic patients for convenient and prompt relief. Asthmatic should avoid the practice of self-medication and consult doctors who may prescribe different corticosteroids and other suitable medications for long term cure. Corticosteroids, bronchodilators like theophylline, salbutamol etc. are some of the most important drugs used for treating asthma (Table III List of antiasthmatic drugs used with dose).

#### VI. CONCLUSION

The following guidelines may be followed to control such widespread occurrence of asthma in Assam.

1. Means to control environmental pollution in urban areas by controlling the vehicular exhaust, industrial effluents, smoke from industry and may be pollen (seasonal) are very essential the use of masks may be a preventive measure.
2. The health centers should be more equipped with the medicines to cure asthma in the state like Assam. Easy availability of the drugs in the community pharmacy should be ensured.
3. Arrange periodic free health check up for poor tribal in primary health centers and hospitals by experienced physicians and preventing the practice of self-medication in the state.

4. Identify and develop population-based and individual solutions for controlling asthma
5. To help more partner organizations implement and evaluate programs to reduce the incidence and severity of asthma and build capacity of educational agencies and national non governmental organizations to address asthma in schools
6. Our study warrants further research on folklores used by the tribal's for curing asthma scientifically investigated and any chance of toxic manifestation should be highlighted during discussion with them.

TABLE I  
SEX AND AGE-WISE DISTRIBUTION OF THE ASTHMATIC PATIENTS

| SEX         | RURAL    | URBAN    | TOTAL    |
|-------------|----------|----------|----------|
| 0-10 years  | 0 (%)    | 03 (02%) | 03 (02%) |
| 10-20 years | 13 (09%) | 04 (03%) | 17 (12%) |
| 20-30 years | 15 (11%) | 18 (13%) | 33 (24%) |
| 30-40 years | 15 (11%) | 09 (06%) | 24 (17%) |
| 40-50 years | 08 (06%) | 02 (01%) | 10 (07%) |
| 50-60 years | 11(08%)  | 02 (01%) | 13 (09%) |
| 60-70 years | 13 (09%) | 04 (03%) | 17 (12%) |
| 70-80 years | 10 (07%) | 05 (04%) | 15 (11%) |

TABLE II  
REGION AND AGE WISE DISTRIBUTION OF ASTHMATIC PATIENTS

| SEX         | RURAL    | URBAN    | TOTAL    |
|-------------|----------|----------|----------|
| 0-10 years  | 0 (%)    | 03 (02%) | 03 (02%) |
| 10-20 years | 13 (09%) | 04 (03%) | 17 (12%) |
| 20-30 years | 15 (11%) | 18 (13%) | 33 (24%) |
| 30-40 years | 15 (11%) | 09 (06%) | 24 (17%) |
| 40-50 years | 08 (06%) | 02 (01%) | 10 (07%) |
| 50-60 years | 11(08%)  | 02 (01%) | 13 (09%) |
| 60-70 years | 13 (09%) | 04 (03%) | 17 (12%) |
| 70-80 years | 10 (07%) | 05 (04%) | 15 (11%) |

TABLE III  
LIST OF ANTI ASTHMATIC DRUGS USED WITH DOSE

| DRUG                  | FORMULATION                 | DOSE                      | BRANDS  |
|-----------------------|-----------------------------|---------------------------|---|
| <b>Aminophylline</b>  | Tablets and Injection       | 100mg (bid)<br>250mg/2ml  | Aminophylline<br>Minophyl                               |
| <b>Bambuterol</b>     | Tablets and Solution        | 10-20mg,<br>1mg/ml(tid)   | Bambudil,Betaday,et<br>c.                               |
| <b>Beclomethasone</b> | Inhaler                     | 50-200mcg<br>2-4times/day | Beclate,Becoridebe,B<br>event                           |
| <b>Betamethasone</b>  | Tablets,Drops and Injection | 0.6-7.2mcg/day            | Belar,betalar,Betneso<br>l,solubet                      |
| <b>Budesonide</b>     | Inhaler                     | 100-200mcg(bid)           | Budecord,Budez,Pul<br>micort                            |
| <b>Salbutamol</b>     | Tablets,Inhaler and Syrup   | 100-250mcg(bid)           | Asthline,Salbu,Bron<br>chotab,Ventrolin.                |
| <b>Theophylline</b>   | Tablets,Injection and Syrup | 80-240mg(tid)             | Deriphylline,<br>Phylobid, Phyloday,<br>TheoPA, TheoSR. |

#### REFERENCES

- [1] R.K. Shabaraya, A.Vishnusharma, S.D. Rajendran and B. Suresh, "Impact of patient education on pulmonary function outcomes in Asthmatic patients" IJHP, 2008: 45: 16-19.
- [2] J. Shaji, and S. Lodha, "Management of Asthma – A Review" IJHP, 2008: 45: 88-100
- [3] C.A Dyer, S.I.Hill, R.A Stockley and H.J.Sinclair, "Quality of life in elderly subjects with a diagnostic label of asthma from general practice registers" Eur Respir J 1999: 14: 39-45.
- [4] G.C Lyketsos, A.Karabetsos, J. Jordanoglou, T. Liokis, A.Armagianidis and C.G Lyketsos "Personality characteristics and dysthymic states in bronchial asthma".Psychother Psychosom 1984: 41: 177-85.
- [5] M.Bonsignore, K.Barkow, F.Jessan and R. Heun "Validity of the five item WHO Well being index questionnaire (WHO-5) in an elderly population".EurArch Psychiatryclin Neurosci 2001:251:1127-31.
- [6] R.J, Adams, D.H Wilson, A.W Taylor, A. Daly, d .Tursan E. Espiagnet Dal and E Grande, "Psychological factors and asthma quality of life. A population based study" Thorax 2004:59:30-5.
- [7] A.N.Ortega, S.E Huertas, G.Canino, R.Ramirez andS. M "Rubio-Childhood asthma, Chronic illness and psychiatric disorders" J Nerv Ment Dis 2002:190:275-81.
- [8] G.Vila, C.Nollet-clemencon, J.de Blic, M.C Mourensimeoni and P Scheinmann ".Asthma severity and psychopathology in a tertiary care department for children and adolescent."Eur Child Adolesc Psychiatry 1998:7:137-44.
- [9] C.Janson, E. Bjornsson, J.Hetta and G.Boman "Anxiety and depression in relation to respiratory symptoms and asthma"Am J Respir Crit Care Med 1994:149:930-4.
- [10] N.R,Panicker, N.P. Sharma A.L-Duwaisan "Psychological distress and associated risk factors in bronchial asthma patients in Kuwait "Indian J Med sciences online 2008:62:No.1.