Research article   **Medical research**

Prevalence of asthma and associated factors at zewditu memmorial hospital emergency department, addis ababa, 2017G.C.

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ABSTRACT

Background

Asthma results significant health problem on individuals and clinical facilities.

Methods

Hospital based retrospective cross sectional study was conducted. Data was collected from patient record, who visited adult emergency room from February 1, 2016 to February 1, 2017. Finally it was analyzed with SPSS Version 20 and presented in tables and graphs.

Results

From total 120 patients studied 55 (45.8%) were males and 65(54.2%) being females and producing a 0.84 to 1.0 of male to female. Magnitude of Asthma produced as 1.5%. On average, respondents' age was 46.73 with standard Deviation of 17.5. Among respondents, 61(50.8%) affected with allergen, 21(17.5%) because of asthma, 13(10.8%) because of drug adherence and 25(20.8%) because of activities done and depression.

Conclusion

There was a low prevalence of asthma with no sex difference. The dominant symptoms found from the study subjects were wheezing, dyspnea and cough.

Keywords: *Asthma, Emergency department, Prevalence*

INTRODUCTION

Background

An explanation of asthma is a "chronic inflammatory disease of the airways" which results chest tightness, coughing, wheezing and difficulty of breathing.

This is considered as major public health problem globally. Asthma magnitude in developed states is 50%in the 20th century [1, 2].

Asthma is correlated with chronic rhinitis, in which most asthma patients nearly 75-80% had also rhinitis [2-4].

In Ethiopia state it becomes a double burden in addition with infectious diseases. Asthma is most common during childhood and affects at least 13% of Canadian children. It continues to become a big burden for those children that come at emergency department [5, 14].

Common factors for asthma occurrence were major asthma, drug compliance incorrect use of drugs and bad perception for asthma [7].

Asthma accounts for more than 15 million physician office and hospital outpatient department visits, and nearly 2 million emergency department visits each year. According to Statistics Canada, 8.5% of the populations (aged 12 and over) have been diagnosed as having asthma [10-12].

Burden of Asthma in Saudi patients is approximately 20-25%. Findings at Black Lion Referral Hospital 2015; asthma burden was 1.04 [13, 14].

METHODOLOGY

Research approach

Quantitative research approach was used for the present study

Research Design

Hospital based retrospective cross sectional study was conducted from February 1, 2016 to February 1, 2017G.C.

Setting

Adult Emergency Room in Zewuditu Memorial Hospital, Addis Ababa, Ethiopia. The study was conducted from December 2016 to June 2017.

Sample

All adult patients (whose age is >13 years) with bronchial asthma and visited adult emergency room of Zewuditu Memorial Hospital from February 1, 2016 to February 1, 2017 were included in the study. Patients without diagnosis of asthma,

incomplete cards, patients whose age <13 years were excluded from the study.

Sample Size

Asthma patients at Adult Emergency Room of Zewuditu Memorial Hospital from February 1, 2016 to February 1, 2017 was sampled.

Sampling Technique

A sampling technique of systematic random sampling conducted to run the paper.

Data Collection Tool

The required data was obtained by preparing a structured checklist from medical records. Data gathered by four BSC Nurse.

Quality Assurance

Quality of data assured through giving training for data collectors on how to use the questionnaire. The principal investigator supervised for quality assurance of the data.

Data Analysis

Data entry was done using epinfo version 7 and all analysis were performed using the SPSS version 20. Data was summarized using proportion, mean, standard deviation and median. Results were considered significant at **$P<0.05$** Then the generated data was compiled by frequency tables, charts and graphs.

RESULTS

Among 145 patients retrieved, 120 patients fulfill the eligibility criteria. From these 55 (45.8%) were males and 65(54.2%) were female giving a male to female ratio of 0.84 to 1.0. most were in 34-43 years and 54-63 that accounts 31(25.8%) and 25(20.8%) respectively. Only 7 (5.8%) were in 14-23 years. The mean age of the patient was 46.73. 83(69.2%) were urban and 37(30.8%) were rural residents. Majority were employee 61(50.9%) in government agencies (Table 1).

Table 1. Sociodemographics information *AER of ZMH from February1, 2016-February 1, 2017*

Characteristics	Frequency	Percentage (%)
AGE		
14-23	7	5.8
24-33	24	20
34-43	31	25.8
44-53	13	10.8

54-63	25	20.8
64-73	8	6.7
73-83	9	7.5
84-93	3	2.5
Total	120	100
SEX		
Male	55	45.8
Female	65	54.2
Total	120	100
RESIDENCY		
Urban	83	69.2
Rural	37	30.8
Total	120	100
OCCUPATION		
Farmer	19	15.8
Trader	15	12.5
Government employee	61	50.9
Self-employee	25	20.8
Total		100

Prevalence, Sign and Symptom

8030 patients visited Zewuditu Memorial Hospital from February1, 2016 - Feb1, 2017.From these 120 patients (1.5%) were asthma victims.

From 120 patients included in the study, 109 (90.8%) had wheezing, 97(80.8%) had cough, 102 (85%) dyspnea, 39(32.5%) rhinitis, 53(44.2%) sinusitis. 8(6.7%) atopic dermatitis (Table 2).

Table 2: Clinical manifestation of patients visited AER of ZMH from February1, 2016-February 1, 2017. Addis Ababa (n=120)

Clinical manifestations	Frequency	Percentage (%)
Wheezing		
Yes	109	90.8
No	11	9.2
Cough		
Yes	97	80.8
No	23	19.2
Dyspnea	102	85
Yes		
No	18	15
Limits daily activities		
Yes	95	79.1
No	25	20.9
Rhinitis		
Yes	39	32.5
No	81	67.5
Sinusitis		
Yes	53	44.2
No	67	55.8
Atopic Dermatitis		
Yes	8	6.7

No	112	93.3
Cyanosis		
Yes	35	29.2
No	85	70.8

Asthma categories

From patients included in the study (n=120), 63(52.5%) were moderate, 27 (22.5%) were mild and 30(25%) were severe asthma (fig.1).
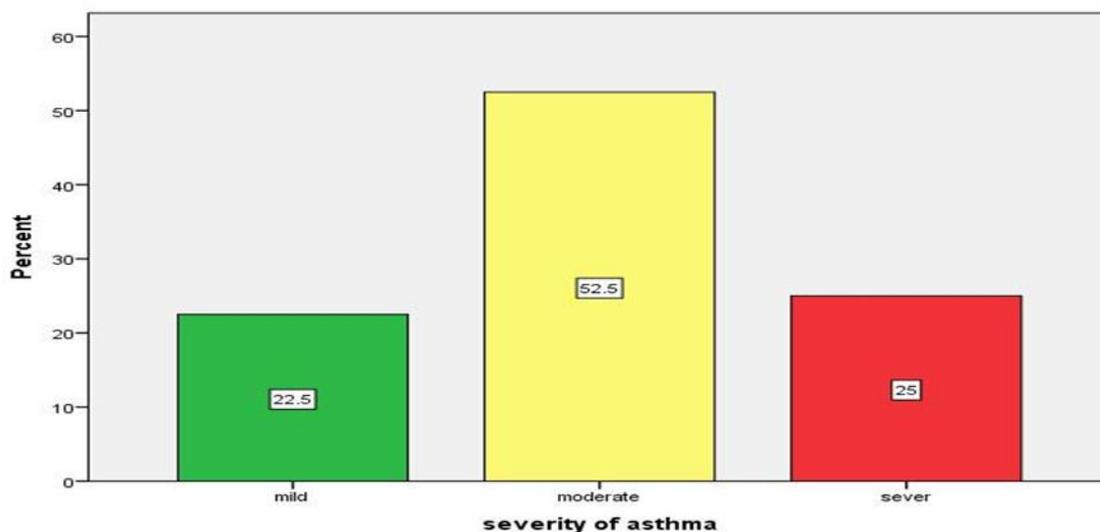

Fig.1 Categories of Asthma

Asthma versus Smoking

From the sample n=120, most patients 70(58.3%) asthma their smoking issue is not clear, 34(28.3%) are not smoked and 16(13.3%) were smoker (Fig.2).
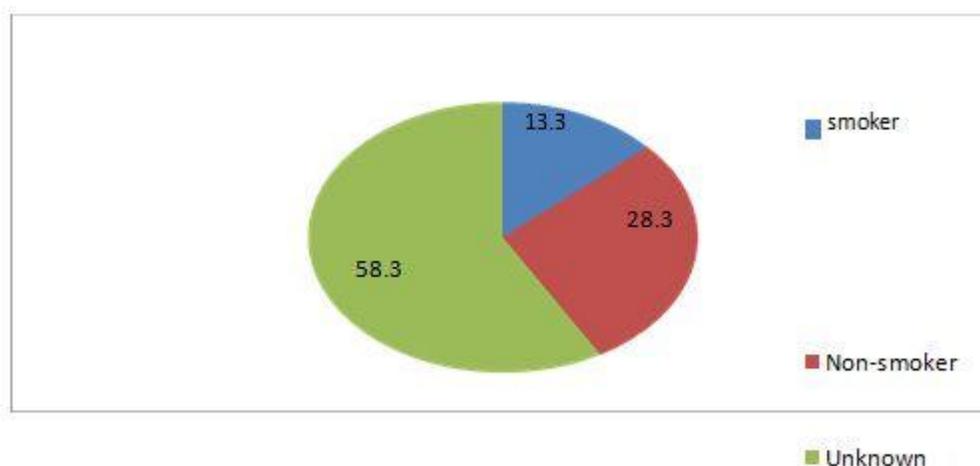

Fig.2 Asthma and Smoking

Asthma risks

61(50.8%) were due to allergens, 21(17.5%) due to severity of asthma, 13(10.8%) due to drug compliance, and 25(20.8%) due to activities done and depression (Table 3).

Table 3 asthma risks

Asthma risks	Number	Relative frequency
Allergens	61	50.8
Severity of asthma	21	17.5
With unknown cause		
Drug compliance	13	10.8
Others (stress, exercise…)	25	20.8

41(34.17%) patents have other diseases like diabetes, high blood pressure and chronic obstructive pulmonary disease.

From chi-square test, gender and residency were related to asthma in P value of 0.029 and 0.049 respectively. In AOR of 0.966 [0.114-8.195] P-Value=0.975, AOR=1.344 [0.134-13.483] respectively. On the contrary, age not related with asthma in logistic and chi square test with p value of 0.610 and 0.276 respectively (Table 4).

Table 4. Relation in sociodemographics and Asthma

Variable	characteristics	outcome improved	died		Odd Ratio(95%CI) COR	AOR	P- Value
Age	<54	73 (97.3%)	2	(2.7%)	0.589 [0.080-4.334]	0.573(0.067-4.876)	0.610
	>=54*	43 (95.6%)	2	(4.4%)	1.00		
Sex	Male	53 (96.4%)	2	(3.6%)	1.189 [0.162-8.728]	0.966 (0.114-8.195)	0.975
	Female*	63 (96.9%)	2	(3.1%)	1.00		
Residency	Urban	80 (96.4%)	3	(3.6%)	1.1296 [0.130-12.899]	1.344(0.134-13.483)	0.802
	Rural*	36 (97.3 %)	1	(2.7%)	1.00		

* reference, COR=crude odd ratio, AOR=adjusted odd ratio, IC= confidence interval

DISCUSSION

From 120 patients 55(45.8%) were male and 65(54.2%) were female giving a male to female ratio of 0.84 to 1.0. Which shows the prevalence with regard to sex is almost the same. There is a research done in Portugal which support this finding where females (57.3%) and male (42.7%) [8]. There was also a study done in Malaysia form 2007-2009 which shows it was slightly higher in females (9).

Most of the age group are found in the age interval of 24-63 account 66.6 % [8]. There was also a study conducted in black lion specialized hospital which was 79.7 % in this age group [14]. Because this age group is actively participating in different tasks and highly exposed to different allergens.

Magnitude of our finding was 1.5%. That is similar with global magnitude of asthma (1-18%) [6]. which is low than indian finding which was 2.38. Also from (Chandigarh=2.28, Delhi =1.9, Kamur=2.05 and Bangalore =3.47 [3]. This may be due to this country may highly industrialized than Addis Ababa.90.8 % had wheezing, 85% had dyspnea and 80.8 % had cough [14].

RECOMMENDATION

Health facilities should have up-to-date training for asthma. Emergency department patients should be considered an important target for asthma

education (ED staffs should teach about asthma triggering factors).

The government should focus on the sanitation of urban environment to minimize asthma prevalence urban setting.

REFERENCES

[1]. Jason Y. Adams &Mark E. Sutter Timothy E. Albertson. The Patient with Asthma in the Emergency Department; Clinic Rev Allergy Immunol 2011. DOI 10.1007/s12016-011-8273-z

[2]. Davies adeloye, kit yeechaigorvudan and harry compel, an estimate of asthma prevalence in Africa, Croatian medical journal, 54(6), 2013, 519-531

[3]. A, N.aggarwal, K.Chaudhury, S.K.chabra, prevalence and risk factor for bronchial asthma in Indian adults, Indian journal of chest disorder allied science 48, 2006, 13-22

[4]. S Musafri, G joos, and J P van meerbeeck, asthma, atopic, and COPD in sub-Sahara countries; challenges, African journal of respiratory medicine, 7(1), 2011.

[5]. Demeke, Andualem, Mossie, clinical effects of yoga on asthma journals of health science, 20(2), 2010.

[6]. An S Amoah, A G Forson, and D a Boakye, a review of epidemiological studies of asthma in Ghana, Ghana medical journal, 46, 2012, 23-28.

[7]. Hamdan Al-Jahdali, Ahmed Anwar, Salim bathrooms, factors associated with patients visit to the emergency department for asthma therapy, BMC, PUL. MED, 12, 2012, 80.

[8]. Ana Sa-Sousa, Mário Morais-Almeida, [...], and João Almeida Fonseca, Prevalence of asthma in Portugal - The Portuguese National Asthma Survey, BIO MED CENTRAL, Clin Transl Allergy. 2, 2012, 15.

[9]. R Ngui, Y A L Lim,S C Chow, J A de bruyne, prevalence of bronchial asthma among orang asli in peninsular malysia, medical journal MALAYSIA, 20(66), 2011.

[10]. Joshoa a Lawson, an Jansen and William picket, asthma incidence and risk factor in a national longitudinal sample of adolescent Canadians, prospective cohort studies, bio med central pulmonary medicine, 6, 2014.

[11]. United States environmental protection agency; Indor environment al division office of air and radation (6609T), 2015.

[12]. Robert Oliphant; asthma society of Canada, 2014.

[13]. Al Frayh AR, Shakoor Z, Gad El Rab MO, Hasnain SM: Increased prevalence of asthma in Saudi Arabia. Ann Allergy Asthma Immunol. 86(3), 2001, 292-296. 10.1016/S1081-1206(10)63301.

[14]. Mulat Tadele: assessment of prevalence and patterns of medication prescription for bronchial asthma at adult emergency room of Tibur Anbesa Specialized Hospital, 2015.