

Research Paper



**Topic; ASSESMENT of PREVALENCE and PATTERN OF
MEDICATION Prescription for BRONCHIAL ASTHMA, AT
ADULT EMERGENCY DEPARTMENT of TIKUR ANBESA
SPECIALISED HOSPITAL**

Level: MSC in Emergency Medicine & Critical Care

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ABSTRACT

Background; Bronchial asthma is a chronic inflammatory disorder of the airways. Asthma imposes a large burden on the individual and on health care systems.(1) Currently, asthma prevalence is approximately 10%-13%globaly.(1) WHO estimates globally,300 million are suffering with bronchial asthma with approximately 25,000 asthma related annual death.(6) in Africa estimated that a prevalence of 11.7% for asthma.(2)

Objective; The main objective of this study was assessing the prevalence of bronchial asthma and pattern of medication prescription for bronchial asthma on adult patients visiting adult emergency department of TIKUR ANBESA SPECIALISED HOSPITAL from November 1-2012 to November 1-2014 according to national asthma prevention and education programme (NAEPP) and global initiative for asthma management(GINA).

Method; this study was descriptive, crosssectional, retrospective study. It was conducted in January to February 2015 in adult emergency department of Tikur Anbessa specialized hospital. The necessary data was collected from record of the patient who visited from November 1-2012 to November 1-2014.

RESULT, 78(52.7%) were males giving a male to female ratio of 1.11 to 1. the prevalence of bronchial asthma was 1.04% with severity of 65(43.9%) moderate, 62(41.9%) were mild, and 21(14.2%) severe. 136(91.9%) had wheezing, 131(88.5%) dyspnea, 125(84.5%) cough,

Conclusion, There was low prevalence of bronchial asthma in the emergency department with no difference in sex. Wheezing and Cough were the predominant symptoms and signs seen. Treating and managing patients with accordance to GINA is low. Patients who took low dose SABA were 78(52.7%), medium dose 64(43.2%), high dose 5(3.4%), systemic CS 97(65.5%), oxygen 122 (84.4%), adjective therapy 34(23.0%).

Recommendation, Health authorities of the country should ensure the availability of nationally appropriate asthma management guidelines.

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ACRONYMS

- CDC, center for disease control
- CSA, central statistical agency
- ED, emergency department
- GBAR, global burden of asthma report
- GINA, global initiative for asthma management and prevention
- ICS, inhaled corticosteroid
- LABA, long acting beta 2 agonist
- LMIC, low and middle income countries
- NAEPP, national asthma education and prevention programme
- PEF, peak expiratory flow rate
- SABA, short acting beta 2 agonist
- SaO₂, arterial oxygen saturation
- SC, systemic corticosteroid
- TASH, tikur anbesa specialized hospital
- WHO, world health organization

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Asthma is defined by the global initiative for asthma management and prevention GINA as a chronic inflammatory disorder of the airways, in which many cells and cellular elements play a role. The chronic inflammation is associated with airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread, but variable airflow obstruction within the lung that is often reversible either spontaneously or with treatment. (14)

Asthma imposes a large burden on the individual and on health care systems. Currently, asthma prevalence is approximately 10%-13% globally. Unexplained temporal and geographic variations in asthma prevalence have also been reported with asthma prevalence increasing over the past few decades and higher asthma prevalence in Westernized nations (1).

Asthma prevalence is substantially higher in children than in adults and varies by sex where it is higher among women. While asthma and wheeze phenotypes and the natural history of disease with identification of environmental risk factors have been frequently studied in younger children but, adolescents remain a largely understudied population with regard to asthma and its potential determinants. Given the difference in disease timing, there are likely different underlying etiologies in the adolescent developmental period compared to earlier development (1)

There is a dearth of prospective studies investigating asthma, especially in adolescents. There have been variable reports of study conducted in Canada on asthma incidence among adolescents ranging from 5.2 per 1000 person- to 24.6 per 1000 person. Several

potential explanations are of interest including differences in diagnostic practices, engagement in health risk behaviors, and aspects of the environment.(1)

In Africa, problems including those arising from the over-utilization of health services, lack of trained staff and diagnostic apparatus, and non-availability and unaffordability of inhaled medications have hindered efforts to improve the management of asthma. The lack of organized health promotion programs, such as effective control strategies for environmental triggers, air pollutants, and occupational dusts have also contributed to the growing burden (2).

The WHO has reported that the levels of asthma control and health responses in the continent have been below recommended standards, and that these have contributed to the size of the disease burden (2). In addition, although many African countries have national guidelines for the management of asthma and other CRDs, these guidelines has not been implemented in most rural areas (2). Economic analyses in many African settings have shown that direct costs from asthma are usually greater than the indirect costs. It has been suggested that education of health care providers and the public is a vital element of the response to the challenge posed by asthma in Africa (2).

Asthma medication if used appropriately leads to reduced asthma morbidity and mortality but most of the countries especially low income and middle income countries are not following the international guide line for asthma medication. Most international asthma management guidelines recommend that patients initially diagnosed with asthma receive short acting beta₂ agonist (SABA), preferably by inhalation, combined with inhaled steroid. If poor response is noted, the patient should be prescribed a long acting beta₂ agonist (LABA), combined with inhaled steroid. During exacerbations patients should receive systemic steroid, nebulized SABA and oxygen until the patient is stable and then controlled with inhaled beta agonist and steroid. (14)

In Ethiopia this problem is coming another burden for the country next to those communicable diseases (5). In one study conducted, in south west Ethiopia, asthma accounted for 2% of outpatient and 5.4% of medical admission.(5) and different risk

factors are responsible for this problem like poor compliance for the drugs, lack of awareness about the disease, low socio economic status, hyper sensitivity.(1)

1.2 statement of the problem

Bronchial asthma is a major cause of chronic morbidity and mortality worldwide and represents a substantial economic and social burden throughout the world.(4) even though asthma most commonly developed in early child hood and more than three quarters of children who develop asthma symptoms before age 7,asthma can develop at any age in life including adult hood(9).some 235 million people worldwide suffer by this non communicable diseases. The cause of asthma are not well understood but effective medicines are available that can treat it. Unfortunately for many people with asthma, particularly for the poor, this effective treatment are too costly or not available at all.(9)

According to the CDC(center for decease control)report,10-11 million persons had acute attacks in 1998,which results in 13.9 million outpatient visits,2 million requests for urgent care and 423,000 hospitalizations with a total cost of >6 billion dollar.(5)

Bronchial asthma is often diagnosed after a long time because of the patients low medical seeking behavior and not knowing the exact triggering factor, this may be an important factor for increasing morbidity and mortality as a result of asthma.(4)

There are many factors that lead patients to visit the ED. The most common reported factors include asthma severity, poor compliance, the inappropriate use of inhalers, incorrect perceptions about bronchial asthma as a disease or about its medication, the cost of medication, lack of an asthma action plan, co morbidities, over reliance on short acting bronchodilators, pollution and changes in the weather, the patient's level of education and low socioeconomic status(10).to decrease this in USA, it has been done that preparing specialty clinic for asthma, providing training for health professionals to give asthma education, giving enough information for patients about the diseases type ,aggravating factors, use of inhalers.(10)

Most of the asthma medications prescribers do not follow asthma management guidelines in many Low and Medium Income Countries (LMIC).the research done in Uganda in 2012 shows only 32.2% of patients diagnosed with asthma receives recommended medications according to the international asthma management. This will directly influence and bring about for the miss management of the diseases. It might be due to in availability of the drugs, in ability to afford, limited trainings of health professionals about the management of bronchial asthma according to international guide line. (14)

Taking all this problems in to consideration to decrease the severity and recurrence of asthma, Tikur Anbesa specialized hospital had begun specialty clinic which is chest clinic.

1.3 significance of the study

This study will add knowledge on understanding of the prevalence and pattern of medication prescription of bronchial asthma. In addition the study may provide a base line information about prevalence and pattern of medication prescription of bronchial asthma and it may be important for researchers who are interested. The data obtained in this study may be used by concerned bodies such as policy makers, clinicians for planning and evaluating the management of bronchial asthma. The recommendations given if considered are going to benefit the community at large on management of bronchial asthma.

CHAPTER TWO

LITERATURE REVIEW

Global estimates

Bronchial asthma is a major cause of morbidity and mortality and WHO estimates globally, 300 million are suffering with bronchial asthma with approximately 25,000 asthma related annual deaths. (6)

The global initiative for asthma (GINA) estimates that the global prevalence of asthma ranges from 1 to 18% of total population of different countries (6). Though the prevalence and incidence of asthma is difficult to assess with certainty because of lack of reliable population based figures which used uniform diagnostic criteria, however, it has been suggested that approximately 5% of adult in USA and Australia have the disorder. (5)

There was a study conducted in Portugal on Prevalence of asthma which states that the prevalence of 'Diagnosed asthma' was 5.0% (95%CI 4.2-5.8) and the 'Lifetime asthma' prevalence was 10.5% (95%CI 9.5-11.6). In those with 'Lifetime asthma', 72.8% had their first asthma attack before 18 years old, 25.5% between 19 and 64 years old and 1.7% after 65 years old. Prevalence was similar in men and women and in all age (11). and the study done in the Kingdom of Saudi Arabia in 2001, the prevalence of asthma was 12%. (12) While in Malaysia, 73% outpatient clinic attendants are treated for respiratory symptoms and asthma is one of the major cases. It is estimated that there is 1.6 to 2 million asthmatics in Malaysia (13). The second Malaysian health and morbidity (MHM SUR II) conducted in 1996, had showed that the prevalence of asthma among the general population of Malaysia was 4.6% in children and 4.1% in adults respectively. (13). It also revealed that 9.9% and 2.7% of asthma cases were moderate and severe forms, that required hospitalization, respectively. There was a cross-sectional study from 2007-2009 in Malaysia in orang Asli area showed that 1.2% of prevalence in adults and (1.7%) in children. with regard to gender, it is slightly higher in females (1.7%) while (1%) in males. (13). Whereas the systematic

analysis done on an estimate of asthma prevalence in Africa estimated that a prevalence of 11.7% for asthma, totaling over 74 million people in 1990, and our 2010 prevalence was 12.8%, about 120 million people. all the above result indicates the prevalence is significant.(2) From studies based on written questionnaires, “asthma ever” (cumulative prevalence of asthma) was highest in South Africa (53%, 5-12 years) in 1997, followed by Egypt (26.5%, 11-15 years) in 2005, Nigeria (18.4%, 15-35 years) in 1995, and Ethiopia (16.3%, >20 years) in 1997. The lowest prevalence was recorded in Gambia (1.9%, >15 years) in 1997. “Current wheeze” (wheeze at rest-12-months) was consistently high in South Africa, 26.8% (13-14 years) in 1994, 23.9% (5-12 years) in 1998, and 20.3% (13-14 years) in 2003. From studies based on video questionnaires, “current wheeze” was highest in Morocco (12.9%, 6-7 years) in 2003 and Tanzania (12.3%, 9-10 years) in 2008, with South Africa recording the lowest prevalence (6.5%, 6-7 years) in 1995 and 2000, respectively ; there was no reported prevalence of “asthma ever” from studies based on video questionnaires. However, from all studies, the pooled crude prevalence (weighted means) for “current wheeze” was 13.2% (male 10.8%, female 13.1%, mean age 18.4 years), and “asthma ever” was 6.6% (male 6.7%, female 6.3%, mean age 22.9 years) . The study indicated that crude prevalence were consistently higher among urban dwellers than rural dwellers. “Current wheeze” was 9.6% (male 12.1%, female 7.0%, mean age 19.6 years) in urban settings and 7.0% (male 5.5%, female 3.8%, mean age 17.5 years) in rural settings. “Asthma ever” prevalence was 5.9% (male 5.6%, female 3.9%, mean age 22.9 years) and 5.1% (male 4.2%, female 3.1%, mean age 17.5 years) in urban and rural dwellers, respectively (2).

Public health experts have reported that increasing tobacco smoking without appropriate legislation and implementation of relevant health promotional measures in many (low and middle income countries) LMIC, especially in Africa, may also be responsible for the increase in asthma and other chronic respiratory diseases’ burden in the region. In addition, the Global Burden of Asthma Report (GBAR) reported an increasing trend of asthma globally .GBAR estimated over 235 million asthma cases worldwide, and about 50 million people living with asthma in Africa in 2004, with the highest prevalence (8.1%) recorded in South Africa . The authors argue that this increasing trend is expected due to

rise in atopic sensitizations, allergic conditions, and changing patterns of environmental triggers (associated with environmental smoking exposure in children, population growth, and urbanization) in Africa over the last two decades. These factors may therefore be indicative of our reported high estimates.(2) in Africa it accounts for 2-10% of medical admissions. studies suggest that asthma is not just a public problem for high income countries but it is increasingly becoming a wide spread in the developing world with most asthma related deaths occurring in low and lower middle income countries including sub Saharan countries.(5)

The recommendation given by this study was there should be a need to identify and prioritize feasible strategies that can be adopted to promote the implementation of effective interventions that will address this increasing burden in Africa. There is also a need for African national governments to also consider effects of associated risk factors in public health policy planning on this topic with a focus on reducing environmental triggers, placing restrictions on tobacco adverts, and appropriately educating health care personnel and the public on the management of the disease and the preventive measures.(2)

There were a research done in Uganda on march 2012 on the proportion of asthma and pattern of asthma medication and the result showed that At the accident and emergency department four hundred and sixteen (416) patients out of 16 800 (2.5%) were diagnosed with asthma. Sixty nine point seven (69.7%) were female. The median age was 29 years (IQR, 19–42). Wheezing was the commonest presenting symptom (55%). Recommended asthma therapy prescriptions were 32.2% of the patients at A&E department received asthma therapy prescriptions as recommended for asthma exacerbations management during hospitalization. The result tells us there is a gap in following the international asthma management guide lines. The recommendation given was there should be training on management of asthma for health professionals and local guide line on asthma management should be developed. (14)

The study conducted in Ethiopia in 1997, the prevalence was 16% in adults (>20years),(2) but there was a decline in prevalence in study conducted by global initiative for asthma in 2003 that shows the prevalence of asthma on adults(>20 years) was 4%.(15)

In south west Ethiopia asthma accounted for 2% of outpatient and 5.4% medical admission. (5)

CHAPTER THREE

Objectives of the study

3.1 general Objective

The general objective of this study was to assess the prevalence and patterns of medication prescription for bronchial asthma of adult patients visiting adult emergency department of Tikur Anbessa specialized hospital Addis Ababa, Ethiopia, from November 1-2012 to November 1-2014 according to international asthma management and prevention guideline.

3.2 specific objectives

- To assess the prevalence of bronchial asthma in adult emergency department of Tikur Anbessa Specialized hospital.
- To determine the pattern of medication prescription for bronchial asthma of patients visiting adult emergency department of Tikur Anbessa specialized hospital according to global initiative for asthma and international asthma management and prevention guideline.
- To assess the major presenting symptoms and signs seen in patients with bronchial asthma.

CHAPTER FOUR

Methodology

4.1. Study area and study period

4.1.1. Study area

The study was conducted in Addis Ababa which is the capital city of Ethiopia. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), Addis Ababa has a total population of 2,739,551, of whom 1,305,387 are men and 1,434,164 women; all of the populations are urban inhabitants.

The city has 49 hospitals. Thirteen are public hospitals. Of these public (governmental) hospitals six of them are under Addis Ababa city administration.

Tikur Anbessa Specialized Hospital is the largest of all the Hospitals in Ethiopia and provides a tertiary level referral treatment and is also open 24 hours for emergency service. The hospital is administered by Addis Ababa University and is the largest and oldest teaching hospital among all in Ethiopia providing teaching for about 300 medical students and 350 Residents every year. The hospital offers diagnosis and treatment for approximately 370,000- 400,000 patients a year and is situated at the heart of the capital city on Churchill Avenue. The hospital has 800 beds, the outpatient is consists of 16 regular OPD and two emergency (adult and pediatric) department. The adult emergency is found in front of the southern gate. This department serves about 20 patients per day .it has 15 beds divided into medical, surgical and orthopedic corners. The room has triage and resuscitation areas. Emergency physicians, different residents, interns and nurses are doing for 24 hours.

4.1.2. Study period

The study period was from January to february-2015

4.2 design

The study was cross-sectional, retrospective document review.

4.3 source population

All adult patients visited adult emergency department from November-1-2012 to November-1 2014.

4.3.1 Study population

In this study, the study population included all adult clients who were diagnosed with bronchial asthma and visited adult emergency department of TASH.

4.4 Inclusion and exclusion criteria

4.4.1. Inclusion criteria

- All adult (age greater than 13 years of age) patients with bronchial asthma visited from nov.1-2012 to nov.1-2014.

4.4.2 Exclusion criteria

- Patients without the diagnosis of bronchial asthma,
- Incomplete card.
- Patients whose ages were less than 12 years

4.4 sample size determination

All adult patients visited adult ED of TASH from nov.1.2012 to nov-1- 2014 were selected.

4.5 sampling procedure

All adult patients visited adult ED of TASH from nov-1-2012 to nov-1-2014 were selected.

4.6 methods of data collection

The data was collected through gathering all medical records of patients with bronchial asthma who came in the study period. The data was collected by the researcher and by other two assistants after given a proper training.

4.6.1 Data collection tool

The required data was obtained by preparing a structured check list table

4.7. Study variable

4.7.1 Dependent variables;

- Severity of bronchial asthma
- type of medication given

4.7.2 Independent variables

- age
- sex
- Smoking behavior,
- occupational status
- co morbid diseases
- Allergy
- respiratory infections

4.8 Data entry and analysis

Data entry and analysis was done using epiinfo version 6 and spss version17.0 for windows. The data have been double entered and cleaning was done. the generated data was compiled by frequency tables, charts and graphs.chi square and fishers exact test was used to analyze categorical variables and significance will be set at p value of<0.05.

4.9 Operational definitions

- Bronchial asthma; is a common chronic inflammatory diseases of the air ways characterized by variable and recurring symptoms, reversible air way obstruction and bronchospasm.
- Wheezing; is a continues ,coarse, whistling sound produced in the respiratory air ways during breathing.
- Coughing; is a sudden and often repetitively occurring reflex which helps to clear the large breathing passages from secretions, irritants ,foreign particles
- Dyspnea; is the feeling or feelings associated with impaired breathing.
- Allergy; is a hypersensitivity disorder of the immune system. Intermittent asthma; symptoms (difficulty breathing, wheezing, chest tightness and coughing) occur on fewer than 2 days a week and not interfere with normal activity.
- Mild asthma, if the speech is in sentences, , not use accessory muscle, respiratory rate is in 12 to 20,heart rate is in 60 to 100,oxygen saturation is > or =95%.
- Moderate asthma, if the speech is in phrases, mental status is agitated, sometimes use of accessory muscle, respiratory rate is in 20 to 30,heart rate is in 100 to 120,oxygen saturation is in 90% to 95%.
- Severe asthma, if the speech is in words, mental status is distressed, use of accessory muscle, respiratory rate is >30,heart rate is >120,oxygen saturation <90%
- Mild persistent asthma; symptoms occur on more than 2 days a week but don't occur every day and interfere with daily activity.
- Moderate persistent asthma; symptoms occur daily and interfere with daily activity.
- Sever persistent asthma; symptoms occur each day and severely limit daily physical activities.
- Adjunctive therapy; these are not standard treatment of bronchial asthma but necessary for refractory and non reversible asthma for standard therapies.

4.10 Ethical considerations

The research proposal was sent for approval to the Research and Ethics Committee at College of Health Science, Addis Ababa University before I proceed to the study. Permission was obtained from hospital administration and the head nurse emergency department of the hospital to conduct the study.

4.11 Dissemination of result

The final report of the study will be presented and discussed in Department of Emergency Medicine, College of Health Sciences, Addis Ababa University. Finally the results of the study will be disseminated to Department of Emergency Medicine, Society of Ethiopian Emergency Medicine Professionals' Federal Ministry of Health.

CHAPTER FIVE

RESULTS

Sociodemographic results: from the total 148 patients studied,78(52.7%) were males and giving a male to female ratio of 1.11 to 1. of which 2(1.4%) were between the age of 13 and 18 years,118(79.7%) were between the age of 19 and 64 years,28(18.9%) were above 64 years. With the mean age of 47.12 ,median of 45.50,mode of 40,standard deviation,16.777.with regard to ethnicity, 128(86.5%) were unknown, 7(4.7%) amharas,6(4.1%) oromos,1(0.7%) tigray,6(4.1%) SNNPR, all 148 patients studied were unknown of their religion, marital status and occupation, 122(82.4%) were unknown of their residency, 25(16.9%) urban, 1(0.7%) rural.

Table 5.1.Socio-demographic Characteristics of patients coming with bronchial asthma, in Tikur Anbessa specialized hospital adult emergency, from November 1- 2012 to November 1- 2014

Characteristics		Number	Percentage (%)
Age	13-18	2	1.4
	19-64	118	79.7
	>64	28	18.9
Sex	Male	78	52.7
	Female	70	47.3
Ethnicity	Oromo	6	4.1
	SNNP	6	4.1
	Amhara	7	4.7
	Tigre	1	0.7
	Unknown	128	86.5
Residence	Urban	25	16.9
	Rural	1	0.7
	Unknown	122	82.7
Total		1,036	700.7

Prevalence of bronchial asthma

The total patients who visited adult emergency department of tikur anbessa from Nov- 1 - 2012 to nov-1-2014 were 14232; from this 148(1.04%) patients were diagnosed with bronchial asthma.

Sign and symptom:

From 148 patients included in the study, 136(91.9%) had wheezing, 131(88.5%) dyspnea, 125(84.5%) cough, 17 (11.5%) rhinitis, 12(8.1%) sinusitis, 13(8.8%) atopic dermatitis and 3(2%) cyanosis.

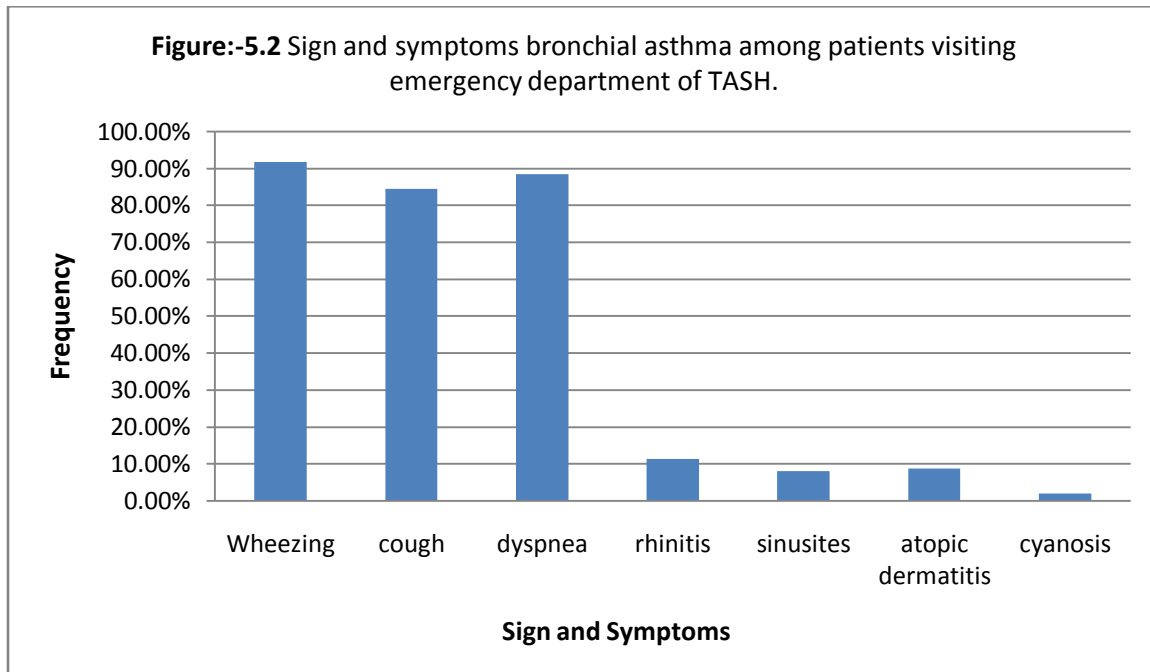
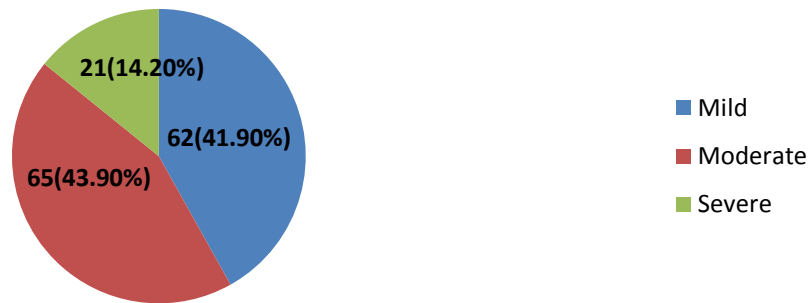


FIGURE 5.2: symptoms and signs seen in patients who come from Nov- 1- 2012 to Nov-1- 2014

Severity of bronchial asthma: from patients included in the study, 65(43.9%) moderate, 62(41.9%) were mild, and 21(14.2%) severe. (Figure 3)

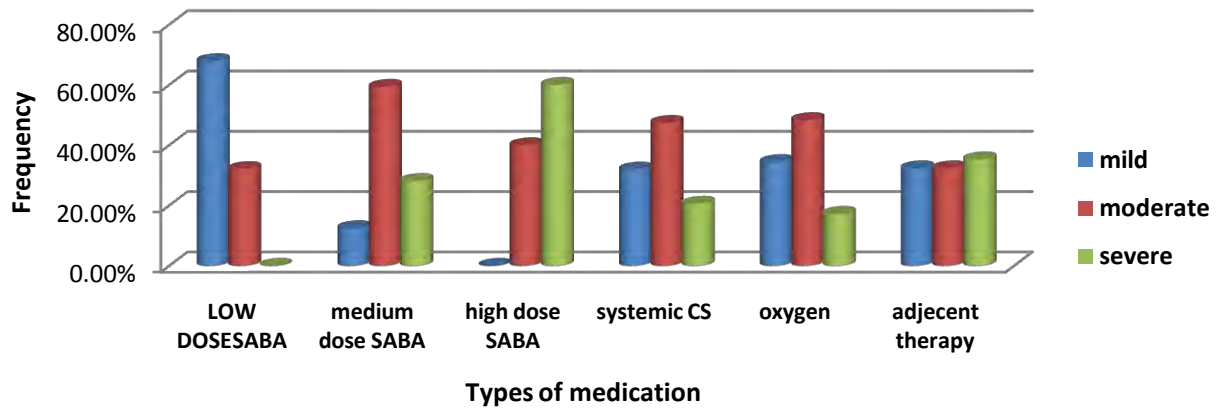
Figure 5.3- Severity of bronchial ashma



Pattern of Medication prescriptions:

From 148 patients, who took low dose short acting beta agonist(SABA) were 78(52.7%), medium dose 64(43.2%), high dose 5(3.4%), systemic CS 97(65.5%), oxygen 122 (84.4%), adjunctive therapy 34(23.0%). patients with mild asthma got low dose SABA were 53(85.4%) and oxygen 42(67.7%), adjunctive therapy 11(7.74%). those with moderate asthma exacerbation , medium dose of SABA were 38(58.46%), systemic CS 46(70.76%), oxygen 59(90.76%), adjunctive therapy were 11(16.9%). patients with severe exacerbation of asthma who took high dose of SABA were 3(14.28%),oxygen 21(100%),systemic CS 20(95.23%), adjunctive therapy 12(57.14%)

Figure 5.4 :-Patterns of medication prescription



CHAPTER SIX

DISCUSSION

Sociodemography

From 148 patients, 78(52.7%) were males and 70(47.3%) were females giving a male to female ratio of 1.11 to 1. which shows the prevalence with regard to sex is almost the same. There is a research done in Portugal which supports this finding where females(57.3%), males(42.7%) (11). There was also a study from 2007-2009 in Malaysia showed which shows it was slightly higher in females(13). 118(79.7%) were between the age of 19 and 64 years, 2(1.4%) in the age of 13 and 18 years. which shows low prevalence in the early young teenagers and high in the age interval 19 to 64, When my study is comparable to the study conducted in Portugal, 62.2% between 19 and 64 years old, 36.1% between the ages 13-18, (11) in which, the prevalence in the age group 19-64 is high. Since this age group is actively participating in different tasks and highly exposed for different allergens, this result is expected.

Prevalence of bronchial asthma

The World Health Organization (WHO) estimates that there are 300 million people world-wide suffering from asthma with approximately 250,000 asthma-related annual deaths. The Global Initiative for Asthma (GINA) estimates that the global prevalence of asthma ranges from 1 to 18% of the total population of different countries. Studies indicate that asthma is not just a public health problem for high-income countries but is increasingly becoming widespread in the developing world with most asthma-related deaths occurring in low and lower-middle income countries including Sub-Saharan Africa.(6) In my study: prevalence was 1.04%. There was a cross-sectional study from 2007-2009 in Malaysia in orangasli area which can be agreed with this study showed that 1.2 % of prevalence in adults (13) .The WHO estimates the prevalence as 1.5 % for Ghana compared to 0.3% for Greece and 2.8% for Wales and New Zealand. (6) This number is low when compared with a study done in Uganda which shows 2.5% were diagnosed with asthma. A lower number of prevalence in our study may be due to incompleteness of patient's chart that were excluded in our study, Tikur Anbessa is a tertiary hospital and a number of patients might be treated and managed in the nearby health institution.

Symptoms seen

From 148 patients included in the study, 136(91.9%) have wheezing, 131(88.5%) dyspnea 125(84.5%) have cough, and the least 3(2%) have cyanosis. The major symptoms and signs seen were wheezing, dyspnea (trouble of wheezing) and cough. Wheezing takes the leading while dyspnea and sign of allergy (rhinitis's, sinusitis) follow. This study finding is relatively comparable with the study conducted in Denmark, the major symptom and sign seen among those diagnosed with asthma was cough (58%), wheezing (35%) or breathing trouble (50%) (19). But in contrast to my study, here, cough takes the leading. Since our diagnosis for asthma is more of clinical, knowing that wheezing, trouble of breathing and cough are important findings.

Severity

From patients included in the study, 65(43.9%) were moderate, 62(41.9%) were mild, 21(14.2%) were severe. in contrast to this study, the second Malaysian health and morbidity (MHM SUR II) conducted in 1996, had revealed that 9.9% and 2.7% of asthma cases were moderate and severe forms, that required hospitalization, respectively(13). I used the clinical methods as GINA recommends (heart rate, respiratory rate, oxygen saturation and mental status, speech,) to assess severity, Therefore, when patients are properly assessed, majority have mild exacerbation of asthma. Only 14.2% of patients who are severe exacerbation need emergency treatment and action. But in my study what I observe is, no proper classification of the severity according to global initiative for asthma (GINA). The majority of patients were diagnosed only as acute exacerbation of asthma. The reason behind would be a small number of physicians who are proportional to patients, not getting enough training on how to assess the severity and management according to the severity.

Patterns of medication

From 148 patients who took low dose inhaled SABA were 78(52.7%), medium dose inhaled SABA, 64(43.2%), high dose inhaled SABA, 5(3.4%), systemic CS, (65.5%), oxygen 122(84.4%), adjective therapy 34(23.0%).

From this study finding, those who were diagnosed with mild asthma, who got small dose of short acting beta agonist were 53(85.4%), oxygen 42(67.7%) and 31.95% got systemic CS. National asthma education and prevention expert channel and global initiative for asthma management and prevention (GINA) guide line suggests that patients with mild asthma should receive a small dose of inhaled short acting beta agonist. (16, 17) Therefore the guidelines were properly applied for mild asthma management.

GINA recommends if there is no change and change to moderate exacerbation, they should have to be treated with medium dose of inhaled short acting beta agonist, inhaled corticoids and oxygen. if it is severe exacerbation, patients should be treated with high dose of inhaled beta agonist, high dose of steroids and oxygen.(16,17) therefore with regard to this, patients with moderate asthma exacerbation who got medium dose of inhaled SABA(4 to 8 puffs) were 38(58.46%), systemic CS 46(70.76%),oxygen 59(90.76%), adjunctive therapy 11(16.9%). from this results 41.56% did not get medium dose of inhaled beta agonist. which doesn't agreed with international and GINA guide line. This limitation may be because of no having adequate training on how to assess and manage patients according to the guideline, low proportion of physicians to patients.

patients with severe exacerbation of asthma who took high dose of SABA were 3(14.28%), oxygen were 21(100%), systemic CS were 20(95.23%), adjunctive therapy 12(57.14%).GINA recommends for severe exacerbation of asthma, patients should get high dose of inhaled SABA(above 8 puff),high dose of inhaled corticosteroid, oxygen and other adjunctive therapies like anti cholinergic drugs.eg, ipratropium(16,17).therefore based on the above results, 85.72% are not getting high dose of inhaled beta agonist. it is a high number and a huge gap in treating patients with severe exacerbation. this is against the guide line. but there is a good work in giving steroids which is 95.23% even though they are not in inhaled form, which is better than systemic CS in its adverse effect(**16,17,20**) and putting patients on oxygen 100%.i have seen patients treated with systemic beta agonist rather than giving inhaled beta agonist drugs when I was looking on charts. because systemic beta agonist drugs have much side effects than inhaled beta agonists. this might be due to unavailability of inhaled drugs.(**14**)there was a study done in Uganda in 2012 which supports my finding, At the accident and emergency(A&E) department, 97 (23.2%) were treated according to the GINA guidelines.(14) Studies done in some countries

in Africa have shown that prescribers do not follow asthma guidelines. On the other hand in developed countries use of asthma guidelines has improved. by 2006 inhaled steroids use was 89% as compared to 62% in 1995.(18) all the above finding tells us the importance of established guidelines for classifying the severity and appropriate treatment according to the severity. Asthma management guidelines play an important role in standardizing timely and correct assessment of asthma symptoms and severity, and effective case management, thus potentially lessening the burden of asthma. (18). The Global Asthma Report survey 2011; reported a survey of asthma guidelines use. Of 92 countries responding, 74 countries (80%) used asthma management guidelines. Of these 74 countries, 67 (73%) had their own national guidelines, 45 (49%) used guidelines developed without support from the pharmaceutical industry, and 31 (34%) had pharmaceutical industry support. (18) This tells us we should have to do a lot in formulating institutional and national guide line.

Conclusion

There was low prevalence of bronchial asthma in the emergency department with no difference in sex. The prevalence was high in adolescents (above 19 years old) and low in teenagers. Since patients in this age group are active in participating in different activities tasks, there is an impact on the economical development and other aspects of the country. Wheezing dyspnea (breathing trouble) and Cough were the predominant symptoms and signs seen. Treating and managing patients with accordance to GINA was low. Therefore there is much to be done in classifying and managing patients according to GINA guide line. No national guideline based on which appropriate and uniform classification and management is being done. Which results in ineffective treatment and management of bronchial asthma.

Recommendation

- Emergency department of TASH and Health authorities of the country should ensure the availability of nationally appropriate asthma management guidelines.
- Provide access for everyone to the quality-assured, affordable essential asthma medicines those guidelines recommend.
- Advanced medical tools for assessing severity like spirometer, ABG, should be available.

- Up-to-date training on assessing severity and management should be given for all health professionals who are at emergency department.

6.4 Limitation of the study

- The data of patients I found were not complete, therefore I got difficulty in finding symptoms and signs and the management given for patients
- I have tried thoroughly to access different literatures which can support my study, but I got limited literatures

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ANNEX

Check list

1. Socio demographic data

1. Patient card number

2. Age of a patient in years

3. Sex of a patient A. Male B. Female

4. Ethnicity A. Amhara B. Oromia C. Tigray D.SNNPR. E.Others

5. Religion A. Orthodox B .Islam C. Protestant D. Others

6. Marital status A. married B. not married

7. Occupation A. Farmer B. Trader C. Government employer D.
Others

8. Residence A. urban B. rural

2. Symptoms seen

9. Wheezing A.YES B.NO

10. COUGH A.YES B.NO

11. Dyspnea(shortness of breath) A.YES B.NO

12. Limits daily activity A.YES B.NO

13 .Rhinitis A.YES B.NO

14. Sinusitis A.YES B.NO

15. Atopic dermatitis A.YES B.NO

16. Altered mental status A. yes B. NO

17. Cyanosis A. yes B. NO

3. SEVERITY OF BRONCHIAL ASTHMA

18. Heart rate A. 80-100 B. 101-120 C. >120

18. Respiratory rate A.16-20 B.21-30 C.>30

19 .Oxygen saturation A.>95% B.90%-95% C. <90%

20 .Mental status A. Anxious B. Agitated C. Distressed

21. SEVERITY. A .mild B .moderate C. severe

4. Pattern of medication prescription.

22. The medication given A. low dose inhaled SABA B. medium dose inhaled SABA C. high dose inhaled SABA D. Systemic CS E.OXYGEN F. Adjunctive therapy