



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Republic of Sudan

Ministry of Higher Education and Scientific Research

Shendi University

Faculty of graduate studies and scientific Research

**Nurses' Knowledge regarding Emergency Care of Asthmatic Patient in
Alshaab teaching hospital**

***A thesis submitted in fulfillment of requirement for the MSc degree in critical
care nursing***

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الاية

قَالَ تَعَالَى: ﴿وَيَشْفِ صُدُورَ قَوْمٍ مُّؤْمِنِينَ﴾ التوبة 14

Dedication

This work is dedicated to my mother and father.

The first and the greatest woman in my life, to my father, to my brother who i see them in eyes all human beings.

To my all family

Acknowledge

Thanks gods I was capable of achieving this task lot of thanks and appreciation to all those support me.

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List of abbreviation

BSC	Bachelor of science
ED	Emergency department
IGA	Immunoglobulin A
IGE	Immunoglobulin E
MSC	Master of science
SPSS	Statistic package for social

Abstract

Background: Asthma is a chronic inflammatory disorder of the airways.

The nurses had great role in emergency care of asthmatic patient is help treat and manage to prevent complication this could include more intensive therapies such as inhaled medication and breathing treatments the nurse provides direct care and coordinates provided by other healthcare professionals such as respiratory therapists.

Aims: To assess nurses knowledge regarding emergency care of asthmatic patient

Methods: Descriptive cross-sectional hospital base was conducted in Al Shaab Teaching Hospital, the data were collected using self questionnaire from all nurses working in emergency department Data analysis by Computerized statistical package for social science (spss) version (21) from october2017to may 2018 .

Results: the majority of nurses to know about the asthma75%, causes of asthmatic attack87% , classification of asthma81%, moderate knowledge about common side effect of salbutamol 54%.ckeck peak flowmeter66% poor knowledge about action of salbutamol 49%,

Conclusion: Based on the finding of the present study, it was concluded that more than half of nurses have a good knowledge about asthma (definition, causes, classification, signs of asthma attack, complication of asthma, management of exacerbation), and more than half of nurses have a good awareness regarding emergency care of asthmatic patient .

مستخلص الدراسة

المقدمة:

الربو هو التهاب مزمن في الشعب الهوائية، ويعلب ممارسو التمريض دورا مهما في الرعاية الاولية لمريض الربو، يساعدون في علاج ومنع المضاعفات الناتجة من المرض وهذا يتضمن رعاية اكثر من علاجات الربو وعلاج التنفس. ممارسو التمريض يقدمون رعاية مباشرة للمريض وينظمون الرعاية التي قدمت بواسطة اختصاصيو الرعاية الصحية الاخرين.

الهدف:

تقييم المعرفة والممارسة التمريضية لمريض الربو في وحدة الطواري

المنهجية:

دراسة وصفية اجريت في مستشفى الشعب التعليمي وتم جمع البيانات عن طريق تقديم استبيان للمرضين العاملين في وحدة الطواري و تم تحليل البيانات عن طريق برنامج بواسطة الكمبيوتر من اكتوبر 2017 الي مايو 2018.

النتيجة:

اغلب المرضين لديهم المعرفة عن الربو 75% والاسباب التي تؤدي الي الربو 87% واقسام الربو 81% والبعض لديهم معرفة محدوده عن الاثار الجانبية 54% والاجهزة المستخدمة في العلاج 66% وتضعف نسبة المعرفة لديهم في مفعول علاج الربو 49%

الخلاصة:

بناء على نتائج الدراسة الحالية ، استنتج أن أكثر من نصف ممارسو التمريض لديهم معرفة جيدة بالربو (التعريف ، الأسباب ، التصنيف ، علامات نوبة الربو ، مضاعفات الربو علاج الربو الحاد) ، وأكثر من نصف ممارسو التمريض لديهم وعي جيد فيما يتعلق بالرعاية الطارئة لمريض الربو

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Introduction

Asthma is a chronic inflammatory disorder of the airways this inflammation causes recurrent episodes of wheezing breathlessness chest tightness and coughing particularly at night or the early morning ⁽¹⁾

Asthma is a highly prevalent disease that presents commonly to the emergency department (ED) in acute exacerbation.

Patients of all ages present to the emergency department (ED) with respiratory distress and wheezing. Initial evaluation entails assessing the severity of the respiratory distress and determining if an acute exacerbation of Asthma is the cause. ⁽²⁾

Asthma is a common condition that accounts for approximately 2 million ED visits, 500,000 hospitalizations, and over 4,000 deaths each year in the United State ⁽³⁾

Because it involves both paroxysmal spasmodic narrowing of the bronchial airways and inflammation of the bronchi it is not surprising that patients experience sudden symptoms requiring prompt medical attention. Although improved medication regimens and step-up treatment plans have been successful in decreasing ED visits, in certain centers, acute asthma may still comprise 10% of all ED visits ⁽²⁾

Asthma may be diagnosed for the first time in a patient presenting to the ED, but in the majority of cases, the patient will be aware of the underlying diagnosis of asthma and will communicate it in the field or at triage. This history is often helpful in the initial categorization of the problem and treatment approach, allowing the emergency practitioner to focus on initiating therapy, assessing severity, and identifying a triggering cause and co-morbid conditions. Previous work has reported that as many as 30% of patients carrying a diagnosis of asthma

may not actually have asthma and requires the ED clinician to remain open to the possibility that the symptoms may be due to another disease entity mimicking an asthma exacerbation⁽⁴⁾

The full spectrum of acute exacerbations of asthma is addressed in the ED ranging from mild to life-threatening severity, straightforward to complicated presentations, and immediate to highly refractory responses to treatment. For all asthma cases, the goal is prevention of morbidity and mortality through rapid assessment and initiation of therapy, using the best available evidence to guide management. The provision of high quality care should be team based and focused on both medical interventions and patient education. Healthcare delivery should be coordinated between physicians, nurses, and respiratory therapists as well as social workers and case managers in the ED.

Effective communication must also occur between ED clinicians and both inpatient and outpatient providers to ensure continuity of care and the best possible outcomes for patients with this potentially treatable disease⁽²⁾

Early recognition and appropriate management of respiratory failure are required to mitigate the risk of complications including death. Disposition should be determined based on serial assessments of the response to therapy over the first 4 h in the ED. Rapid implementation of evidence-based, multi-disciplinary care is required to ensure the best possible outcomes for this potentially treatable disease.⁽²⁾

The nurses had great role in emergency care of asthmatic patient is help treat and manage to prevent complication this could include more intensive therapies such as inhaled medication and breathing treatments the nurse provides direct care and coordinates provided by other healthcare professionals such as respiratory therapists⁽⁵⁾.

Asthma complication can results in status asthma, persistent cough, trouble breathing that requires breathing assistance (ventilator), permanent changes of lungs ⁽⁶⁾.

Objectives:

General objectives:

Nurse's knowledge regarding emergency care of asthmatic patient.

Specific objectives:

1. To assess nurse Knowledge regarding various aspect of asthma.
2. To assess Knowledge of nurses regarding care of asthmatic patient.
3. To assess correlation between demographic data and knowledge.

Problem statement:

Emergency care of asthmatic patient it is very important care, complication of asthma can leading to death, assess the nurses to provide appropriate care of patient in emergency department.

Justification:

Asthma is a lethal disease and if not assessed, intervened or treated early can lead to Cardiac arrhythmias, Respiratory failure and death.

In Sudan asthma affect 12.2% of the people in Khartoum state moreover ,asthma ranks as the third cause of hospital admission following pneumonia and malaria , In the years between 1998 and 2004 witnessed a dramatic increase of patient visiting asthma emergency room (20000 patient compared to 80000) ,has addressed factors that contribute the poor control of asthma in Sudan , which include the absence of an asthma management plan due to of care asthma guidelines , under use of corticosteroid inhalers ,tendency of the care to de acute rather than a long term one and lack of organization and coordination within the structure ⁽⁷⁾.

The nurses had great role in emergency care of asthmatic patient is help treat and manage to prevent complication this could include more intensive therapies.

So I conducted this study to find the knowledge of nurses about emergency care of asthmatic patients

Literature Review

Each lung is divided into lobes: the right lung has three lobes. The lungs are housed in the chest cavity and covered by protective membrane called (pleura). The diaphragm muscle primary involved in the respiration separate the lung from the abdominal cavity⁽⁸⁾

Worldwide people are affected by asthma and approximately 250,000 people die per year from disease. Low and middle income countries have prevalence between 1-18%. It is more common in developed than developing countries⁽⁹⁾.

Asthma is chronic inflammatory disease of the airways(the mucosal lining of the bronchial tree and spasm of the bronchial smooth muscle (bronchospasm) that causes airway hyper responsiveness, mucosal edema and mucus production. this inflammation ultimately lead to recurrent episodes of asthma symptoms: cough, chest tightness, wheezing, and dyspnea⁽⁸⁾

Pathophysiology:

-Asthma is reversible diffuse airway inflammation that lead to airway narrowing exacerbated by a variety of change in the airway, includes bronchoconstriction, airway edema, airway hyper responsiveness and airway remodeling . the interaction of these factor determines the clinical manifestation and severity of asthma, when activated, mast cell, neutrophils, eosinophils and lymphocytes play akey role in the inflammation of asthma. When activated mast cell release several chemicals called mediators. Include histamine, bradykinin , prostaglandins, and leukotrienes, perpetuate the inflammatory response, causing increased blood flow, vasoconstriction, fluid leak from the vasculature, attraction of white blood cells to the area, mucus secretion and bronchoconstrictio.

-Acute exacerbations of asthma cause bronchoconstriction in response due to allergens.

-Immunoglobulin E(IgE)-dependent release of mediators(histamine, striptease, leukotrienes, and prostaglandins) from mast cell contract the airway. Recetors of the sympathetic nervous system, alpha-and beta2-adrenergic receptors, are controlled primarily by cyclic 3-,5 adenosine monophosohate (camp). The alpha - adrenergic receptors are stimulated causing bronchoconstriction. The beta₂- adrenergic receptors results in increased levels of camp, which inhibits the release of chemical mediators and causes bronchodilation.

-As asthma becomes more persistent, the inflammation progresses and other factors may be involved in airflow limitation. These include airway edema,

Mucus hyper secretion and the formation of mucous plugs. Also airway “remodeling “ may occur in response to chronic inflammation, causing further airway narrowing.

Etiology:

- A stimuli

Extrinsic-an antigen-antibody reaction, a positive reaction to certain allergens. Immunoglobulin E (IgE) or IgA antibodies are activated by allergens, resulting in bronchospasm, edema, and increased secretions of mucus (allergy to pollen, animal dander, feathers, foods, house dust, and mites).

2 .Intrinsic-symptoms caused by other non-allergic factors.:

- a- Infection-Para influenza a virus (types I and II), pneumonia.
- b- Physical factors-cold, humidity, sudden changes in temperature.
- c- Inheritable tendencies
- d- Irritants-chemicals, air pollutants (egg, carbon monoxide, particulate matter, smoke)
- e- Physical stress-fatigue, excessive exercise.

2-3. Risk Factor:

There are a number of factors thought to increase the risks of developing asthma. They include the following.

1-Family history:

- a. If one of your parents has asthma, then you have a greater risk of develop it.

2-Gender and age:

Asthma is more common in children than adults. Boys are more likely to develop asthma than girls. Risks are equal for men and women for adult- onset asthma.

3-Allergies:

Sensitivity to allergens is often an accurate predictor of your potential to develop asthma

These allergens often include:

- A. Dust pet dander
- B. Mold
- C. Toxic chemicals
- D. Allergens can trigger asthma attacks after you develop asthma.

4-smoking:

Cigarette smoke irritates the airways. Smoker have high risk of asthma those mother smoked during pregnancy or who were exposed to secondhand smoke are also more likely to have asthma.

5-Air Pollution:

This is the main component of smog, or ozone. Constant exposure to air pollution raises the risk for asthma. Those who grew up or live in urban areas have a higher risk for asthma

6-Obesity:

Children and adults who are overweight or obese are at a greater risk of asthma. Although the reasons are unclear, some experts point to low grade inflammation in the body that occurs with extra weight.

7-viral respiratory infections:

Respiratory problems during infancy and childhood can cause wheezing. Some children who experience viral respiratory infections go on to have chronic asthma. ⁽¹⁰⁾.

Classifications of asthma:

1. Mild, infrequent asthma – sporadic in nature, with varying intervals of freedom from difficulty breathing and with precipitating factors often readily defined.
2. Moderate, chronic asthma-no outward signs or symptom of asthma but some shortness of breathing on occasion, transitory wheezing on strenuous exercise , and wheezy crackles heard during deep inspiration.
3. Sever, chronic asthma –persistent wheezing requiring regular dialy medication to either control symptom or to infection.
4. Status asthmatics- sever attack in which the patient deteriorates despite adequate treatment with conventional methods.

Clinical manifestations:

- a. .most common of symptoms of asthma are cough (with or without mucus production) dyspnea and wheezing (the sound of airflow through narrowed airways) first on expiration and then possibly during inspiration as well.
- b. Asthma attack often occurs at night or early in morning.
- c. Asthma exacerbation frequently preceded by increasing symptoms over days but may begin abruptly.
- d. Chest tightness and dyspnea occur.
- e. Expiration requires effort and becomes prolonged.
- f. As the exacerbation progresses , diaphoresis ,tachycardia, and widened pulse pressure and central cyanosis secondary to sever hypoxia may occur.
- g. Symptoms of exercise induced asthma include maximal symptoms during exercise absence at night and sometimes elicit only adscription of a choking sensation during exercise.

Diagnostic evaluation:

- i. Family history environment and occupation related factor are essential.
- ii. Pulmonary function studies- diminished maximal breathing capacity, tidal volume and timed vital capacity.
- iii. Pulse oximetry- show decrease of oxygen saturation .
- iv. Eosinophilia in peripheral blood nasal and sputum.
- v. Complete blood count- leukocytosis during infections.
- vi. Arterial blood gases –respiratory acidosis and later metabolic acidosis.
- vii. Chest x-ray- hyperventilation during asthma attack, atelectasis.
- viii. Routine skin testing to help determine allergic causes.
- ix. Serum IgE- elevated if allergic disease.

Complications:

- Infections- pneumonia, bronchiolitis.
- Atelectasis, pneumothorax.
- Dehydration.
- Cardiac arrhythmias.
- Hypotension, hypertension.
- Emphysema, core pulmonale (ventricle of the heart enlarge(with or without right- side heart failure) as result of disease that affect the structure or function of the lung).
- Respiratory failure and death.

Medical management:

Immediate intervention is necessary because the continuing and progressive dyspnea lead to increase anxiety, aggravating the situation. Recommendation based on the concept of severity and control of asthma along with the domains of impairment and risk as key to improving care. Primary treatment of patients concerns are impairment of lung function and normal life and risk of exacerbation, decline in lung function, and adverse effect from medications.

Pharmacologic therapy:

There are two general classes of asthma medications: quick-relief medications for immediate treatment of asthma symptom and exacerbations and long-acting medications to achieve and maintain control of persistent asthma. Anti-inflammatory medications are regularly used to control persistent asthma and have systemic side effects when used over the long term. The route of choice for administration of these medications is a metered-dose inhaler (MDI) or other type of inhaler, because it allows for topical administration.

Quick-relief medication:

For relief acute symptom and prevention of exercise-induced asthma, *short acting* beta₂ adrenergic agonists (albuterol or salbutamol {proventil, ventolin}, levalbuterol {xopenex} and pirbuterol {maxair}) they are used to relax smooth muscle⁽¹⁾ side effect of salbutamol including: dizziness, tachycardia, nausea, vomiting, heartburn, sweating, headache, coughing, pulmonary edema, tremor, anxiety⁽¹⁰⁾ sign and symptoms of over dose can be: tachycardia, restlessness, chest pain, sleep disturbances, tremor, nausea, increase systolic blood pressure and decrease diastolic blood pressure, palpitation⁽¹¹⁾

Patient who does not tolerate short acting beta₂ adrenergic agonists may use anticholinergic (e.g.: ipratropium bromide [atrovent]) inhibits muscarinic cholinergic receptor and reduces intrinsic vagal tone of the airway.

Long-acting control medication:

Currently, corticosteroids are the most potent anti-inflammatory medication

Effective alleviating symptoms, improving airway function and decrease peak flow variability. Initially an inhaled form is used spacer.

Patients should rinse the mouth after administration to prevent thrush. Systemic preparation may be used to gain rapid control of the disease; to manage severe persistent asthma; to moderate to severe, exacerbations; to accelerate recovery; and to prevent recurrence. Commonly sodium cromoglycate (cromolyn, nasal crom) and nedocromil (Alocril, Tilade) are mild to moderate anti-inflammatory agents and are considered alternative medications for treatment stabilize mast cell. These medications prevent exercise induced asthma and can be used in unavoidable exposure to known trigger on prophylactic basis; however they are contraindicated in acute asthma exacerbations.

Emergency management:

When asthma is unresponsive to usual medications, other options are available for both emergency management and prevention of flare-ups. For emergency management other options include:

- a. Oxygen to alleviate hypoxia if saturation falls below 92%.
- b. Corticosteroids by mouth are recommended with five days of prednisone being the same 2 days of dexamethasone.
- c. Magnesium sulfate intravenous increases bronchodilation when used in addition to other treatment in moderate severe acute asthma attacks.
- d. Intravenous salbutamol is not supported by available evidence and is thus used only in extreme cases.
- e. Methylxanthines(such as theophylline) were once widely used but do not add significantly to the effect of inhaled beta- agonists⁽⁶⁾

Management of exacerbations:

The patient with moderate or severe persistent asthma with history of severe exacerbation education and early treatment with beta2 adrenergic agonist medications for prompt relief of airflow obstruction.

Systemic corticosteroids may be necessary to decrease airway inflammation in patients who fail to respond to inhaled beta2 adrenergic medications.

Oxygen supplementation may be required to relieve hypoxemia associated with moderate to severe exacerbations and treatment response monitored by serial measurement of lung function.

Antibiotics may be appropriate in the treatment of acute asthma exacerbation in patient with comorbid condition (e.g., fever and purulent sputum, evidence of pneumonia, suspected bacterial sinusitis).

Written asthma action plan based on either symptoms or peak flow measurement help to educate patients about self management. The asthma action plan focuses on daily management as well as the recognition and handling of worsening symptoms. Patient self management and early recognition of problems lead to more efficient communication with health care providers about asthma exacerbations.

Peak flow monitoring:

Peak flow meter measure the highest airflow during a forced expiration. Daily peak flow monitoring is considered an adjunct to asthma management for patients with moderate or severe persistent asthma. The patient is instructed in the proper technique particularly about using maximal peak flows are monitored for 2 to 3 weeks after receipt of optimal asthma therapy. Then the patients personal best value is measured by zones (green: 80% to 100% of personal best) yellow (60% to 80 %), and red (less than 60%) with specific action enabling the patient to monitor

and manipulate his or her own therapy after careful instruction. Peak flow monitoring plans may enhance communication between the patient and health care providers and may increase the patient awareness of disease status and control⁽⁸⁾

Supportive treatment:

- 1) Adequate hydration
- 2) Adequate oxygenation
- 3) Appropriate treatment of any existing infection
- 4) Correction of acid base imbalance
- 5) Relief of fatigue

Nursing management:

The immediate nursing care of patients with depends on the severity of symptoms.

A clam approach is an important aspect of care for successfully treatment both as an outpatient for mild a symptoms and as a hospital patient for acute and severe symptoms.

The nursing generally performs the following:

- Assess the patient's respiratory status by monitoring of symptoms breath sound, peak flow, pulse oximetry, and vital signs.
- Obtains a history of allergic reaction to medications before administering medication.
- Identifies medication the patient is currently taking.
- Administers medication as prescribed and monitoring.
- The patient's responses to those medications include antibiotic if the patient has an underlying respiratory infection.
- Administer fluids if the patient is dehydrated.

- If patient requires intubation because of acute respiratory failure, the nurse assists with the intubation procedure, continues close monitoring of patient, and keeps the patient and family informed about procedures.

Nursing assessment:

- 1- Make baseline physical assessment of the patient's condition to determine the severity of the attack and the degree of respiratory distress.
 - a. Observe breathing pattern for prolonged expiratory phase of respiration, inspiratory and expiratory wheezing use of accessory muscle for breathing and nasal flaring.
 - b. Auscultator the chest to identify crackles and wheezing and area of decrease aeration.
 - c. Assess level of anxiety and apprehension.
 - d. Observe color of mucous membranes.
 - e. Determine the heart and respiratory rate.
 - f. Obtain nursing history to determine medication regimen at home and compliance, history of asthma exacerbation and hospitalization and other medical conditions.

Nursing intervention:

A. Promoting effective breathing pattern

1. Position the patient in high fowler's position to allow maximum lung expansion.
 - a. Elevate the head of the bed 90 degree.
2. Administer oxygen as directed.
 - a. Do not wait for the appearance of cyanosis before administering oxygen. Give oxygen for oxygen saturation less than 94%.
- b. Institute pulse oximetry to monitor response to therapy.

3. Institute cardiac/respiratory monitoring, and assess vital signs frequently.
4. Obtain arterial blood gases sample frequently in the child with status asthmatics.

B. Facilitate effective airway clearance

1. Use humidity with or without oxygen to help thin secretions and reduce mucosal inflammation and edema
2. Use aerosolized bronchodilators or inhaler with spacer device with bronchodilators.
3. Notify health care provider if initial therapy is not effective so that further treatment can be added.

C. Reduce anxiety

1. Provide a quiet room where the patient can be closely observed.
2. Explain the purpose of the oxygen equipment before oxygen is administered, and allow the patient to feel and touch the equipment.
3. Provide the patient with maximum reassurance.
4. Organize care to avoid disturbing the patient any more than necessary.

D. Promoting adequate hydration

1. Observe sign of dehydration
 - a) Lack of skin turgor.
 - b) Lack of tears.
 - c) Dry, parched lips and mucous membranes.
 - d) Decrease urinary output, high specific gravity, and concentrated. Appearance of urine.
2. Administer IV fluids as ordered.
3. Encourage moderate oral fluid intake
 - a) Determine the patient's fluid performances.
 - b) Offer small sips of patient frequently when respiratory effort improves.
 - c) Avoid iced fluids, which may provoke bronchospasm.

4. Encourage a regular diet as soon as possible, and decrease IV fluids as oral intake increases.

5. Observe for signs of over hydration and pulmonary edema.

Research methodology

Study design

Descriptive cross sectional hospital based study design

Study setting

Alshaab Teaching Hospital established Date November 17, 1959 .

located in the center of the Sudanese capital (Khartoum city) which is bounded on the east side EL Mak Nimer Street and Teaching Hospital teeth and West Side Hospital Khartoum Teaching and the north side of Higher College of Nursing of the University of Khartoum, either in the south side, we find the Bridge Almuslimh.

Al Shaab Teaching Hospital is specialize hospital for cardiac, respiratory, CNS diseases. is large center department and contains special care of asthma, is one of the biggest public hospitals in Sudan and it receives most referral case from different states, and consider a central source for ER, the medical department contains about 300 bed and 18 bed in ER and nurse in hospital abut 300 ,Nurse care patient in ER by 1 to 7 and work morning shift 8 hours this group came 5 day in the week and afternoon night shift 16 hours this take two days off between their shift.

Study period:

The duration of study was from December 2017 to may 2018

Study population:

All nurses who work in Al Shaab teaching hospital in emergency department with different levels of education.

Inclusion criteria:

All nurses in emergency department who work in study area directly with patient during period of study.

Exclusion criteria:

Nurses in vacation

Not willing to participate

Sample size and sampling technique**- sampling technique**

All nurses in emergency department

Sample size: all nurses in emergency department (94)

Independent variables:

-Age

- Gender

- Level of education

- Years of experience

Dependent variables:

Knowledge regarding asthma:-

○ Nature of asthma disease

○ Classification

○ Signs and symptoms

○ Causes

Knowledge regarding emergency care of asthma:-

○ Medical management of asthma

○ Emergency treatment of acute asthma

○ Patient position during attack of asthma

○ Teaching

Data collection Tools:

- Self administrated structure Questionnaire with close ended questions was prepared to assess the knowledge of nurses', composed of (17) questions and two parts, part one demographic data (4) questions, part two nurses knowledge about emergency care of asthmatic patient .

Rational scaling (good, fair, or poor knowledge) ⁽¹²⁾

Good knowledge for more or equal 75 percent

Fair knowledge for more or equal 50 percent

Poor knowledge for less than 50 percent

The data analysis:

the data was collected, it coded and transferred into a specially designed formats so as to be suitable for computer feeding by using the soft ware Statistical Package for Social Science (SPSS) version 21, following data entry, checking and verification process will carried out to avoid any errors during data entry.

Frequency analysis and manual revision were all used to detect any errors. Descriptive statistics, frequency and, percentage, figure, chi square was use.

Ethical considerations

- Ethical approval from ethical committee of faculty of nursing Shendi University.
- Approval from Sudan Ministry of Health ethics of research office.
- Approval from administrative authorities of hospital.
- Verbal consents from all participants after explanation well given to the nurses about this study

- The privacy and dignity of both nurse and patient will protect.
- The study was explained to the participants in clean simple words.
- The participants were notified by the aims, methods, expected outcome, benefits and result of the study.
- The participants in this study was assure confidentiality through identification coding and reports of data.
- Participants were Participate voluntary and voluntary verbal consent was taken.
- Any participants have a right to ask, to discontinue, and to refuse to answer any question of the study.
- Questionnaire was filled in rest time of nurses.
- the participants have a right to benefit from knowledge and practice.

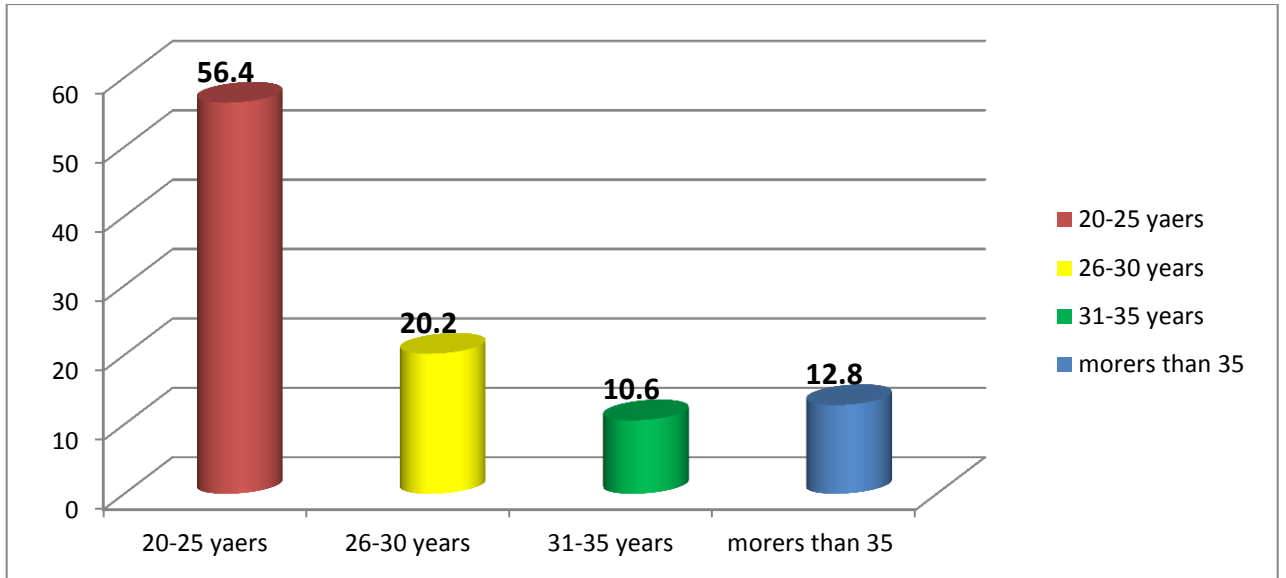


Figure 1: distribution of study group according to their age 20-25 years (56.4%) 26-30 years (20,2%) 31-35 years(10.6%) more than 36 (12.7%)

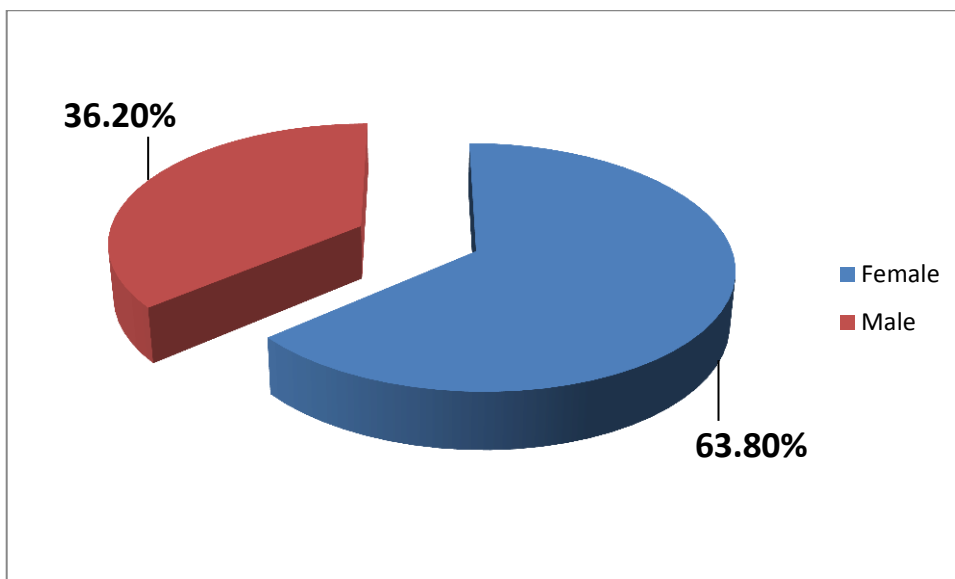


Figure2: distribution of study group according to their gender male (36.17%) female (63.83%)

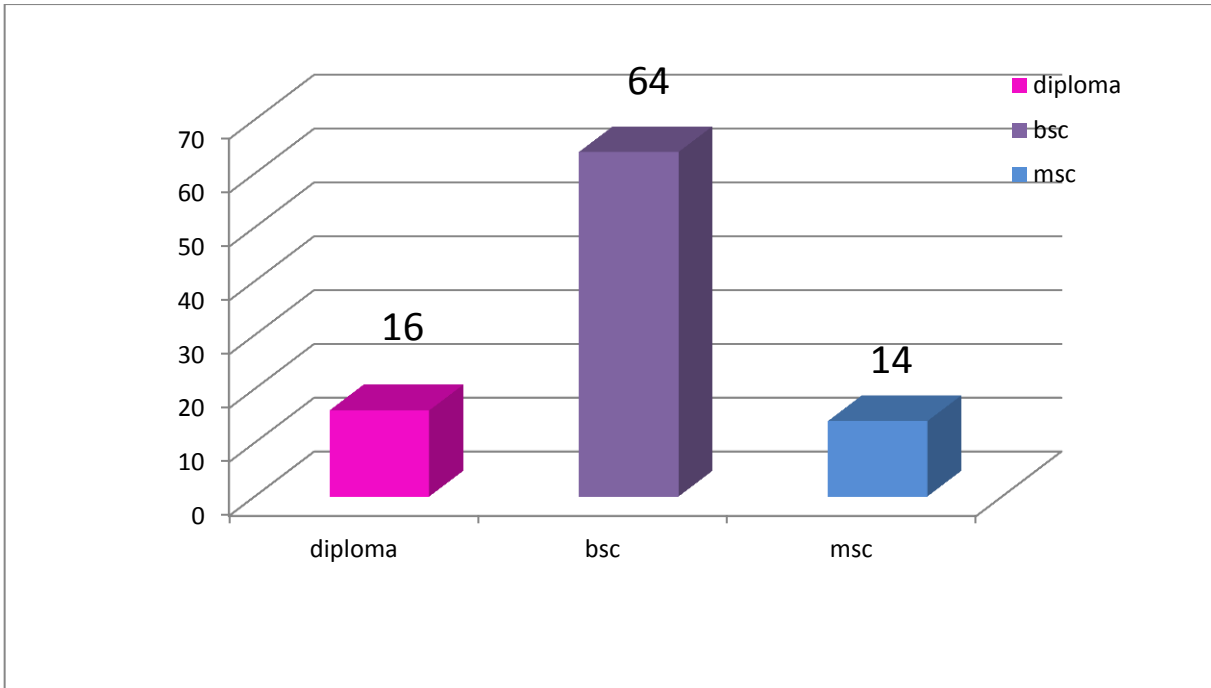


Figure3: distribution of study group according to their level of education
diploma (16%) bsc(64%) msc(14%)

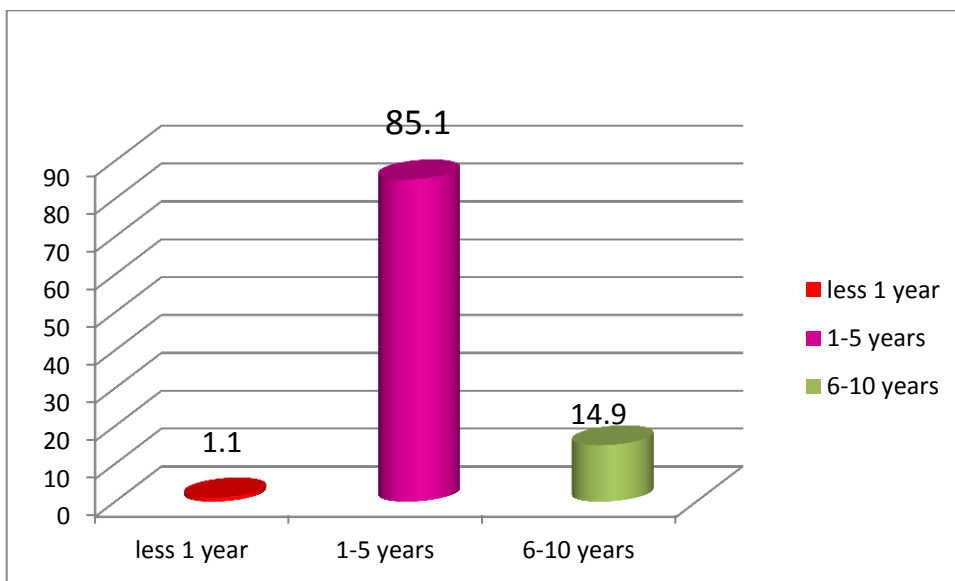


Figure4: distribution of study group according to their experience by year's
less1 year (1.1%) 1-5 years (85.1%) 6-10 years (14.9%)

Table1: Distribution of study group according to their knowledge about definition of asthma (N=94)

Level of knowledge	Frequent	Percentage %
Good	71	0.75
Faire	17	0.18
Poor	6	0.07
Total	94	100

Table 2: Distribution of study group according to their knowledge about causes of asthmatic attack (N=94)

Level of knowledge	Frequent	Percentage %
Good	82	0.87
Faire	9	0.10
Poor	3	0.03
Total	94	100

Table 3: Distribution of study group according to their knowledge about classification of asthma (N=94)

Level of knowledge	Frequent	Percentage %
Good	77	0.81
Faire	8	0.09
Poor	9	0.10
Total	94	100

Table 4: Distribution of study group according to their knowledge about signs of asthma attack (N=94)

Level of knowledge	Frequent	Percentage %
Good	73	0.77
Faire	15	0.16
Poor	6	0.07
Total	94	100

Table 5: Distribution of study group according to their knowledge about diagnostic evaluation of asthma (N=94)

Level of knowledge	Frequent	Percentage %
Good	68	0.72
Faire	17	0.18
Poor	9	0.10
Total	94	100

Table 6: Distribution of study group according to their knowledge about complication of asthma (N=94)

Level of knowledge	Frequent	Percentage %
Good	76	0.80
Faire	12	0.13
Poor	6	0.07
Total	94	100

Table 7: Distribution of study group according to their knowledge about emergency treatment of acute asthma (N=94)

Level of knowledge	Frequent	Percentage %
Good	66	0.70
Faire	17	0.18
Poor	11	0.12
Total	94	100

Table8: Distribution of study group according to their knowledge about action of salbutamol (N=94)

Level of knowledge	Frequent	Percentage %
Good	46	0.49
Faire	25	0.27
Poor	23	0.24
Total	94	100

Table9: Distribution of study group according to their knowledge about common side effect of salbutamol (N=94)

Level of knowledge	Frequent	Percentage %
Good	51	0.54
Faire	18	0.19
Poor	25	0.27
Total	94	100

Table10: Distribution of study group according to their knowledge about signs of over dose in salbutamol (N=94)

Level of knowledge	Frequent	Percentage %
Good	66	0.70
Faire	23	0.24
Poor	5	0.06
Total	94	100

Table 11: Distribution of study group according to their knowledge about management of exacerbation (N=94)

Level of knowledge	Frequent	Percentage %
Good	72	0.76
Faire	17	0.18
Poor	5	0.06
Total	94	100

Table 12: Distribution of study group according to their knowledge about peak flowmeter (N=94)

Level of knowledge	Frequent	Percentage %
Good	62	0.66
Faire	10	0.11
Poor	22	0.23
Total	94	100

Table13: Distribution of study group according to their knowledge about supportive treatment (N=94)

Level of knowledge	Frequent	Percentage %
Good	72	0.76
Faire	18	0.19
Poor	4	0.05
Total	94	100

Table 14: Show correlation between level of education and supportive treatment

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.292 ^a	2	.071
Likelihood Ratio	5.690	2	.058
Linear-by-Linear Association	5.234	1	.022
N of Valid Cases	94		

P value < 0.05 significant.

P value > 0.05 not significant.

P value=0.00 high significant

Table 15: Show correlation between gender and common side effect of salbutamol

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.373 ^a	1	.007		
Continuity Correction ^b	4.768	1	.029		
Likelihood Ratio	8.453	1	.004		
Fisher's Exact Test				.015	.015
Linear-by-Linear Association	7.294	1	.007		
N of Valid Cases	94				

P value < 0.05 significant.

P value > 0.05 not significant.

P value = 0.00 high significant

Table 16: Show correlation between experience by year and sign of asthma attack

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.266 ^a	1	.606		
Continuity Correction ^b	.038	1	.845		
Likelihood Ratio	.260	1	.610		
Fisher's Exact Test				.750	.412
Linear-by-Linear Association	.263	1	.608		
N of Valid Cases	93				

P value < 0.05 significant.

P value > 0.05 not significant.

P value=0.00 high significant

Table 17: Show correlation between experience by year and diagnostic evaluation

Chi-Square Tests

	Value	df	Asymp. Sig. (2- sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.632 ^a	1	.057		
Continuity Correction ^b	2.339	1	.126		
Likelihood Ratio	6.104	1	.013		
Fisher's Exact Test				.066	.048
Linear-by-Linear Association	3.593	1	.058		
N of Valid Cases	94				

P value < 0.05 significant.

P value > 0.05 not significant.

P value = 0.00 high significant

Table 18: Show correlation between experience by year complication of asthma

Chi-Square Tests

	Value	df	Asymp. Sig. (2- sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.879 ^a	1	.090		
Continuity Correction ^b	1.664	1	.197		
Likelihood Ratio Fisher's Exact Test	4.925	1	.026	.119	.087
Linear-by-Linear Association	2.848	1	.091		
N of Valid Cases	94				

P value < 0.05 significant.

P value > 0.05 not significant.

P value = 0.00 high significant

Table 19: Show correlation between experiences by year and emergency treatment of acute asthma

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.002 ^a	1	.963		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.002	1	.962		
Fisher's Exact Test				1.000	.721
Linear-by-Linear Association	.002	1	.963		
N of Valid Cases	94				

P value < 0.05 significant.

P value > 0.05 not significant.

P value = 0.00 high significant

Table 20: Show correlation between age and sings of over dose in salbutamol

Chi-Square Tests

	Value	df	Asymp. Sig. (2- sided)
Pearson Chi-Square	12.641 ^a	3	.005
Likelihood Ratio	11.116	3	.011
Linear-by-Linear Association	1.562	1	.211
N of Valid Cases	94		

P value < 0.05 significant.

P value > 0.05 not significant.

P value = 0.00 high significant

Table 21: Show correlation between gender and supportive treatment

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.670 ^a	1	.102		
Continuity Correction ^b	1.926	1	.165		
Likelihood Ratio	2.606	1	.106		
Fisher's Exact Test				.140	.084
Linear-by-Linear Association	2.642	1	.104		
N of Valid Cases	94				

P value < 0.05 significant

P value > 0.05 not significant.

P value = 0.00 high significant

Result:

Figure 1:

Distribution of study group according to their age 20-25 years (56.4%) 26-30 years (20.2%) 31-35 years(10.6%) more than 36 (12.7%)

Figure 2:

Gender in emergency department in Alsaab teaching hospital female (63.8%) greater than male (36.1%)

Figure 3:

Show level of education diploma (16%) bsc(64%) msc(14%)

Figure4:

Show experience by year 1-5 years (85.1%) 6-10 years (14.8%)

Table1:

Show the knowledge about asthma percentage of good75% faire 18% poor .07%.

Table 2:

Show the knowledge about causes of asthmatic attack percentage of good 87% faire10% poor .03%

Table 3:

Show the knowledge about classification of asthma percentage of good 81% faire .09% poor10%

Table 4:

Show the knowledge about signs of asthma attack percentage of good 77% faier16% poor. 07%

Table 5:

Show knowledge about diagnostic evaluation of asthma percentage of good 72%
faire 18% poor10%

Table 6:

Show knowledge about complication of asthma percentage of good 80%
faire13% poor.07%

Table 7:

Show knowledge about emergency treatment of acute asthma percentage of good
70% faire 18% poor12%

Table 8:

Show knowledge about action of salbutamol percentage of good 49% faire 27%
poor24%

Table 9:

Show knowledge about common side effect of salbutamol percentage of good
54% faire 19% poor 27%

Table10:

Show knowledge about signs of over dose in salbutamol percentage of good 70%
faire 24% poor .06%

Table 11:

Show knowledge about management of exacerbation percentage of good 76%
faire 18% poor .06%

Table 12:

Show knowledge about peak flow meter percentage of good 66% faire 11%
poor 23%

Table 13:

Show knowledge about supportive treatment percentage of good 76% faire 19%
poor .05

Table 14:

Show correlation between level of education and supportive treatment (p value
.07 > .05 not significant)

Table 15:

Show correlation between gender and common side effect of salbutamol (p value
.007 < .05 high significant)

Table 16:

Show correlation between experience by year and sign of asthma attack (p
value .606 > .05 not significant)

Table 17:

Show correlation between experience by year and diagnostic evaluation (p
value .05 = .05 significant)

Table 18:

Show correlation between experiences by year complication of asthma (p
value .09 > .05 not significant)

Table 19:

Show correlation between experiences by year and emergency treatment of acute asthma (p value $.9 > .05$ not significant)

Table 20:

Show correlation between age and sings of over dose in salbutamol (p value $.005 < .05$ high significant)

Table 21:

Show correlation between gender and supportive treatment(p value $.1 > .05$ not significant)

DISCUSSION

-The present study reveals that, majority of nurses' female(63.8%) age range between 20-25 years (56.4%) and the education level was BSC (64%) that agree Ahmed et. al., Vol.4 (Iss.2):February,2016 and the experience rang between 1-5 years (85.1%) that agree Ahmed et. al., Vol.4 (Iss.2):February,2016 , the following result justify that nurses have high level of knowledge based on the experience and these have to be reflect on the patient care.

-In addition to that, the study group have good knowledge in know about asthma (75%) that agrees with Praveen Kumar in year 1999 ,causes of asthma(87%) that evidence by Jenkins c, lostelloj &Hodge in year (2004),classification of asthma(81%) sings of asthma attack(77%) that agrees with Praveen Kumar in year 1999 ,complication of asthma(80%), management of exacerbation (76%) , supportive treatment(76%) these finally indicated that nurses' were have based of knowledge which allow to give the required care need.

-More one nurses showed fair level of knowledge regarding diagnostic evaluation (72%) ,emergency treatment of acute asthma(70%) ,common side effect of salbutamol (54%) ,sings of over dose in salbutamol (70%) and peak flow meter (66%).

- In spite of all the good, fair level knowledge but they were have poor knowledge in action of salbutamol(49%).

-Furthermore these were significant relation between experience by years and diagnostic evaluation of asthma (p value .05=.05).

There was no significant relation between level of education and supportive treatment (p value .07>.05), relation between experience by year and sign of asthma attack (p value.606>.05), relation between experiences by year

complication of asthma (p value .09 > .05), relation age and sings of over dose in salbutamol (p value .005 < .05), relation between gender and supportive treatment(p value .1 > .05) and highly significant relation correlation between gender and common side effect of salbutamol(p value .007 < .05) ,relation between age and sings of over dose in salbutamol (p value .005 < .05)

Conclusion

Based on the finding of the present study, it was concluded that more than half of nurses have a good knowledge about asthma (definition, causes, classification, signs of asthma attack, complication of asthma, management of exacerbation), and more than half of nurses have a good awareness regarding emergency care of asthmatic patient .

Recommendation

Based on the study finding and conclusion, the following recommendations are:

- Required to be implemented by the administration of the Alshaab teaching Hospital -Continues education programs for nurses should be established to increase knowledge of the nurses to be skillful.
- additionally frequent workshops about asthma disease should be developed by professional nurses to improve nurse's quality in emergency department By the head nurses of the emergency department.
- An application of educational posters in nurse's office consists of signs and symptoms, intervention and management of asthma to increase knowledge of the nurses.

References

- 1- AL awed Aziza, Khalid A, KHH, Tarring H Meghan. Prevalence of Asthma among University Student and workers in Khartoum State Sudan. Definition of Asthma , Available at: <http://www.siusd.com/publication/33> Accessed at 2\12\2017 3pm
- 2- Krishnan JA, Davis SQ, Naureckas ET, Gibson P, Rowe BH(2009) An umbrella review: corticosteroid therapy for adults with acute asthma. Am J Med 122(11):977–991
- 3- Moorman JE, Rudd RA, Johnson CA, King M, Minor P, Bailey Cat al (2007) National surveillance for asthma—United States,1980–2004. MMWR Surreal Sum 56(8):1–54 accessed at 8/12/2017 at 8pm
- 4- Aaron SD, Vandemheen KL, Boulez LP, McIvor RA, Fitzgerald JM, Hernandez P et al (2008) Over diagnosis of asthma in obese and no obese adults. CMAJ 179(11):1121–1131 accessed at 2/12/2017 at 10 am
- 5- BETH.GREENWOOD. Nurses role for patient with asthma .nurses role in Care and treatment of asthma. Available at: http://Woman.theneat.com/nurses-role-care-treatment-asthma_18556.html Accessed 30/12/2017 at 10 am
- 6- Mayo. Clinic Staff. Asthma complications-diseases and conditions mayo clinic complications. <http://www.Mayoclinic.Coma/health/asthma/Ds>. Accessed at 2/12/2017 at 2pm

7-Man G. Annual Report. Asthma in Sudan. Available:

<http://www.epilog-as.org/section-asthma.html> Accessed 2/12/2017 at 4pm

8- Suzanne C. smettzer Brenda G Bara –Medical surgical Nursing : 9Thedition ,
lihigpress , inc . U k, (2000), pages (460 -469)

9- Ibrahim –management

of childhood asthma in the tropics: Sudan, medical journal pages(28)(1990)

10-Basher teal-childhood asthma in Gadara, international journal of tuberculosis
and lung disease page (7-11) (2003)

11-Dr. Suleman Elkamil Ahmed, Nashwa Fath Elrhaman Ahmed And Dr. Dawria
Adam,“ASSESSMENT OF NURSES KNOWLEDGE AND PRACTICE
REGARDING

CARE OF ASTHMATIC CHILD IN ELMAK NIMER HOSPITAL”
International Journal Of

Research Granthaalayah, Vol. 4, No. 2(2016): 39-45

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12-T, Menzies, application of abduction: knowledge –level modeling,
November(1996)

Part 1: Demographic data:

Age:

20-25

26-30

31-30

More than 31

Gender:

1- Male

2- Female

level of education

1. Diploma

2. Bsc

3. Msc

Experience by years?

1. <1 year

2. 1_5 years

3. 6-10 years

Part2 : knowledge regarding emergency care of asthma

Asthma is:

- A. Is a chronic inflammatory disorder of the airways
- B. Is a highly prevalent disease that presents commonly to the emergency department
- C. Most common chronic disease of childhood
- D. Is difficult for air to exhaled

Cause of asthmatic attack:

- A. Stimuli
- B. Allergies
- C. Smoking
- D. Air pollution

Classification of asthma:

- A. Mild
- B. Moderate
- C. Sever- chronic
- D. Status asthmatic

Signs of asthma attack:

- Blue lips
- Pale, sweaty face
- Sever wheezing when breathing both in and out
- Feeling of anxiety or panic

Diagnostics evaluation:

- A. Pulmonary function studies
- B. Pulse oximetry
- C. Arterial blood gases
- D. Chest x.ray

Complications of asthma:

- A. Death
- B. Persistent cough
- C. Status asthma
- D. Trouble breathing what requires breathing assistance (ventilator)

Emergency treatment of acute asthma:

- A. Urgent oxygen supplementation
- B. Magnesium sulfate
- C. Steroid inhaler
- D. Intravenous salbutamol

Action of salbutamol:

- A. Bronchodilator
- B. Vasodilator
- C. Reduce pain
- D. Tachycardia

Common side effect of salbutamol:

- 3- tachycardia
- 4- nausea
- 5- dizziness
- 6- vomiting

Signs of over dose in salbutamol :

- tachycardia
- restlessness
- chest pain
- tremor

Management of exacerbation:

- A. Corticosteroid
- B. Oxygen supplementation
- C. Antibiotic
- D. Inhaled beta adrenergic medication

Peak flow meter is:

- A. Highest air flow during a forced expiration
- B. Monitoring is consider an adjunct to asthma management
- C. Enhance communication between patient and health care provider
- D. Increase the patient awareness of disease status and control

Supportive treatment is:

- A. Adequate hydration
- B. Adequate oxygenation
- C. Correction of acid base imbalance
- D. Relief of fatigue
