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Republic of Sudan

Ministry of High Education & Scientific

Shendi University

Collage of graduate studies

Assessment of Knowledge and Practice of nurses regarding oxygen therapy in critical care units in Ahmed Gasim hospital

A thesis Partial dissertation submitted for fulfillment of Master degree in of nursing Sciences

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2017

الاية

بسم الله الرحمن الرحيم

قال تعالي:

((وَلَسَوْفَ يُعْطِيكَ رَبُّكَ فَتَرْضَى ۝ أَلَمْ يَجِدْكَ يَتِيمًا فَآوَى ۝ وَوَجَدَكَ ضَالًّا فَهَدَى۝))

صدق الله العظيم
(سوره الضحى الآية 5-7)

I

Dedication

I dedicate this work to my family

To my brothers, who made my life shining

To my love mother

To my father

To my sister who have never left my side and are very

special

To my family

ACKNOWLEDGMENT

Abstract

*O*xygen therapy is medical treatment used for tissue hypoxia .it is prescribed to improve oxygen supply and reduce the work of breathing .

A descriptive study was done to assess knowledge and practice of nursing regarding oxygen therapy to identify knowledge about oxygen therapy, to identify nurses knowledge about indication of oxygen therapy and therapy devise selection and to assesses nurses performance on oxygen administration during the period from March to august 2017, among 70 nurses.

This study done in Ahmed gasim cardiac and renal hospital on critical units. A multi -stage sampling technique was used .Data was collecting using questionnaire with close ended questions; which divided into two part; first part personal data , and other part content questions to assess knowledge of nurse and check list to evaluate practice of nurses. Data was analyzed by computer using the statistical package of social science [SPSS] version [22] and data was presented in form of table and figure.

Finding revealed that level of education of nurses (24.3%), (68.6%),

(7.1 %) has diploma, bachelor and master degree respectively .While (57.1%) fair knowledge about definition of oxygen therapy.

Current study fine knowledge of nurse about indications of oxygen therapy is (7.1%) had good knowledge, (8.6%) had fair and (84.3%) had poor knowledge. Otherwise the study fined high significant between level of education and definition of oxygen and indication of oxygen therapy and selection of appropriate oxygen delivery device that all p. value is .000.

On other hand study fined poor knowledge about indication of oxygen, contraindication, that is (84.3%),(47.1%),respectively.

The present study recommended that ministry of health and the hospital to develop training programs to nurses on critical units and sure important of that to prevent complication of increase and decrease of oxygen dose and availability of devices.

المستخلص :

الاكسجين هو علاج طبي يستخدم لمعالجة نقص الاكسجين في الانسجة ويساعد في تحسين الحوجة للأكسجين

أجريت هذه الدراسة لتقييم معرفة وممارسة الممرضين والممرضات بالنسبة للعلاج بالاكسجين ومعرفتهم التامة عن دواعيه وتقييم اداء الممرض أو الممرضة عند بداية العلاج بالاكسجين في الفترة من شهر مارس الى شهر أغطسس 2017 في سبعين ممرض وممرضة.

أجريت هذه الدراسة في مستشفى أحمد قاسم في أقسام الحالات الحرجة

أختيرت عينة الدراسة في مستشفى أحمد قاسم بأستخدام تقنية المراحل المتعددة تم جمع البيانات بأستخدام أستبيان ذو أسئلة مغلة حيثق ينقسم الى قسمين   القسم الاول ويحتوى على البيانات الاولية للمرضة والممرضة ، والقسم عبارة عن أسئلة لتقيصيم معرفة الممرض او الممرضة عن الاكسجين ودواعي أستخدامه ،   تم تحليل البيانات بالكمبيوتر عن طريق أستخدام الحزمة الاحصائية للعلوم الاجتماعية إصدار 22 .

حيث وجدت الدراسة أن المستوى التعليمي للممرضين 24.3%   و68.6 و 7.1 % من الدبلوم والبكالريوس والماجستير على التوالي ووجدت أن 57.1%   لهم معرفة متوسطة لتعريف الأكسجين و 7.1% لهم معرفة جيدة عن دواعيه و 8.6% له8م معرفة متوسطة و 84.3% لهم معرفة ضعيفة عن دواعي الاكسجين .

ووجدت قوة أرتباط قوية بين المستوى التعليمي بين الممرضين أو المرضات ومعرفتهم عن دواعي أستخدام الاكسجين

وإختيار الاداءة المناسبة من أدوات الاكسجين   .

وأوصت الدراسة بعمل تدريب للممرضين والممرضات بالمستشفى بالتعاون مع وزارة الصحة .

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1.1 Introduction:-

Oxygen is required for aerobic cellular metabolic and ultimately for human survival, with some cell, such as those in the brain, being more sensitive to hypoxia than other. Oxygen therapy should be considered for patients with a significant reduction in aerial oxygen levels, irrespective of diagnosis and especially if patient is drowsy or unconscious.

The goal of oxygen therapy to relive hypoxemia ,decrease work of breathing and to reduce myocardial stress ,oxygen is considered as medication and is therefore administration in lowest possible concentration to produce the most acceptable oxygenation wit out causing toxicity ,when delivering oxygen the caregiver must ensure that is properly humidified to prevent drying and irritation of respiratory tract and facilitate secretion removal .indication of oxygen therapy in respiratory disease such as infection ,chronic condition such as chronic obstructive airway disease ,carcinoma ,pulmonary infraction ,asthma[1]

The role of nurse in oxygen therapy includes monitoring the flow rate ,ensuring that the cannula and tubing or other device remain properly placed ,and monitoring the patient response to treatment ,if patient become shortness of breathing while on oxygen therapy ,the physician should be notified .instruct the patient to avoid smoking ,using electrical equipment and performing other activity that can causing fire in the presence of oxygen .if patient suddenly become confused check oxygen delivery system .the patient may have taken cannula off or the tubing may be kinked or disconnected, resulting in hypoxia and confusion [2].

Oxygen therapy is ordered by the physician when the patient is unable to maintain oxygenation. Many patients are placed on supplemental oxygen when their oxygen saturation is less than 90 percent on oxygen room air. The physician's order includes the method of administration and flow rate.[3]

Oxygen therapy administration, like the administration of any drug ,is not without hazards. Client who have chronic pulmonary disease associated with carbon dioxide retention [hypercabnia] may become insensitive to carbon dioxide to drive their respiratory rate .instead, this clients depend up on a chronic low oxygen level in the blood [hypoxia] to stimulate their respiratory drive .While low –flow oxygen may be beneficial to this clients, excessive oxygen administration may obliterate that hypoxic drive ,resulting in apnea.[4]

1.2. Problem Statement:

Oxygen is therapeutic agent 76 years ago , much has been learned regarding determine effect of hypoxia and beneficial impact of oxygen therapy. It is projected that there are close to 800,000 patient received long term oxygen therapy in the united states , at cost of 1.8 $ million annually.(5)
In 2008 , 18% of hospitalized patient in great Britain recived oxygen in daily basis(.6)

1.3. Objective:

General objective:

To assess knowledge and practice of nurse regarding oxygen therapy.

1.4.2. Specific objectives:

-To identify knowledge about oxygen therapy.

-To identify nurses knowledge about indication of oxygen therapy.

-To identify nurses knowledge about oxygen therapy devises selection.

-To assess nurses performance on oxygen administration.

1.4. Justification:

The study was done to identify the depth of knowledge and practice gap among nurses on oxygen therapy at critical units on Ahmed Gasim cardiac and renal transplant hospital.

Why the nurses have knowledge and practice gaps on oxygen is discussed and possible solutions were also be stated. The major are of failure to have best practice of oxygen inconsistent use of globally accepted oxygen therapy guidelines was associated with lack of sustainable training oxygen administration.

CHAPTER TWO

Literature Review

2. Literature review

2.1. Scientific back ground:

Oxygen therapy

Oxygen is administered as a corrective treatment for conditions resulting in hypoxia [low level of oxygen in the blood] Oxygen is classed as medication and must be prescribed by a doctor and a administered correctly to prevent over or under –oxygenation, oxygen is not flammable but it does aid combustion .Patient and visitors should therefore be educated about increased risk of fire and precautions necessary to reduce this risk when supplementary oxygen in use .Oxygen must be administered at the rate and percentage prescribed ,as over oxygenation can be dangerous for some individuals , particularly those with chronic lung disease who can retaining carbon dioxide ,and infant where is also risk of retinopathy .[3]

Oxygen therapy should be regarded as drug .it prescribed to increase alveolar oxygen tension and so prevent \treat hypoxemia .the condition of oxygen prescribed depend on the condition being treated.

In emergency situation eg; cardiac or respiratory arrest, oxygen should commenced before prescription has been made .any acutely hypoxic patient should have emergency oxygen administered whilst awaiting arrive of doctor .[4]

The goal of supplemental oxygen therapy is to increase the baseline resting partial arterial of oxygen [pa O2] to at least 60 mm Hg at sea level and arterial oxygen saturation [sa o2] at least 90 percent .

The main objective in treating patients with hypoxemia and hypercapnia is to give sufficient oxygen to improve oxygenation .patients with COPD and chronic hypercapnia [elevated partial pressure of arterial carbon dioxide levels] may be more oxygen sensitive ,their respiratory failure is

caused more by alveolar hypoventilation to adjust for this increase load , and increase hypercapnia occur [8]

2.2. Indication of oxygen therapy:

A change in the respiratory rate or pattern may be one on the earliest indicator of the need for oxygen therapy .the change in respiratory rate or pattern may result from hypoxia or hypoxemia .hypoxemia is decrease in the arterial oxygen in the blood is manifestated by change in mental gressing   through   impaired   judgment ,agitation, confusion, disorientation, lethargy , coma, .dyspnea ,increase in blood pressure ,change in heart rate , dysrythmias ,central cyanosis[late sing] and cool extremities' ,hypoxia if sever enough is life treating failure.[9]

2.3. Cardiac and respiratory arrest
Type 1and 2 respiratory

Chest pain 'cardiac failure' myocardial infarction carbon monoxide poisoning [10]

Contraindication of oxygen therapy;

There is no absolute contraindication of oxygen therapy, but should be administered by caution in patient with acid inhalation or previous bleomycin lung injury.

2.4. Methods of oxygen administration

Oxygen is dispensed from a cylinder or a piped-in system. A reduction gauge is necessary to reduce the pressure to a working level, and flow meter regulates the flow of oxygen in litter per minute.

When oxygen is use at high flow rates, it should be moistened by passing it through humidification system to prevent it from drying the mucous membranes of the respiratory tract, the use of oxygen concentrator is another means of providing varying amounts of oxygen, especially in home setting. These devices are relatively portable, easy to operate, and

cost –effective, however they require more maintenance than tank or liquid systems and properly can in not deliver oxygen flow in excess of 4 litter, which provide an FIO2 of about 36.[7]

2.5. Oxygen delivery systems are classified as;

1\low flow delivery system

  Contribute partially to inspired gas the patient breathes. this mean the patient breathes some room air along with the oxygen .this systems does not provide a constant or known concentration .the amount of inspired oxygen change as patient   breathing change, Example of low –flow systems include nasal cannula oropharyngeal catheter ,simple mask and partial re breather and non re breather mask.

2\high flow systems

   Provide the total amount of inspired air .specific percentage of oxygen is delivered independent of the patient breathing.

High flow systems are indicated for patient who required a constant and precise amount of oxygen .example of such systems include transtracheal catheter ,venturti mask ,aerosol masks ,tracheostomy collar ,t-piece, and face tents [7].

2.6. Oxygen Delivery System:

1\Nasal Cannula

IS used when the patient required a low to medium concentration of oxygen for which precise   accuracy is not essential .this method is relatively simple and low the patient to a move about in bed ,talk ,cough , and eat without interrupting oxygen flow .flow rate in excess of 6to 8 l\m may lead to swallowing of air ,this may cause irritation and drying of the nasal and pharyngeal mucosa

Advantage:

Light weight, comfortable, inexpensive, continuous use with meals and activity.

2\oropharngeal catheter

Is rarely used but may be prescribed for short term therapy to administer low to moderate concentration of oxygen .the catheter should change every 8 hours ,altering nostril to prevent infection and nasal irritation.

3\oxygen mask

Come in several forms each is used for different purpose .simple mask are used for low to moderate concentrations of oxygen .the body of the mask itself gather and store o2 between breaths .the patient exhales directly through openings or ports in the body of the mask .if the oxygen flow ceases, the patient can draw air through these openings around the mask edges[11].

Advantage:

Simple to use, inexpensive

Disadvantage

Poor fitting, variable fio2 must remove to eat

4\ partial re breathing masks

Have a reservoir bag that must remain inflated during both inspiration and expiration .the nurse should adjust liter flow to ensure that the bag does not collapse during inhalation .a higher concentration of oxygen can be deliver because both the bag and mask serve as reservoirs for oxygen, oxygen enters the mask through small bore tubing that connects at the junction of mask and bag .it has high oxygen concentration.

5\non-re breathing mask:

Are similar in design to partial –re breathing masks except that they have two valves .valve located between the reservoir bag and the base of the mask. The valve allows gas from the reservoir bag to inter the mask on the inhalation and prevents gas of the mask from flowing bag into the reservoir bag during exhalation .the second valve is a set of valves located at the exhalation .port; these one –way valve prevent room air from entering the mask during inhalation .this allow the patient exhaled gases to exit the mask on exhalation.

it is possible for patient to receive 100\ oxygen, making the non re breathing mask a high flow system.

6\ venturi mask

Is the most reliable and accurate method for delivery precise concentration of oxygen through non invasive means .it is use in patient with chronic obstructive pulmonary disease because it can provide low level of supplemental oxygen ,thus avoiding the risk of suppressing the hypoxic drive .the mask should fit snugly enough to prevent oxygen from flowing into the patient eye .the nurse should check the patient skin for irritation. it is necessary to remove the mask so the patient can eat ,drink, take medication .

Advantage

Provide low level supplemental oxygen precise fio2, additional humidity available.

Disadvantage

Remove to eat

5\the transtrtracheal oxygen catheter

Is inserted directly into the trachea and indicate for patient with chronic oxygen therapy needs.

Advantage Requires frequent and regular cleaning, required surgical intervention.

More comfortable, less dependent on breathing patterns and less oblivious than other oxygen delivery methods. Because no oxygen loss surrounding environment, the patient a chives adequate oxygenation at lower rate, make this method less expensive and more efficient.

Disadvantage

6\t. piece

Connects to endotracheal tube and is useful in weaning patient from mechanical ventilation [9].

2.7. Complication of oxygen therapy

Oxygen is thought to effect lung tissue .it is generally accepted that administration of oxygen at concentration greater than 60 for longer than 24 hours can result in decreased lung compliance .High concentration of oxygen can reduce the production of surfactant t, resulting in atelectasis –the collapse of alveoli leading to reduction in gas exchange.

The nurse should monitor oxygen therapy and reduce oxygen supplementary as soon as possible to reduce the risk of this occurring.

Oxygen can easily dehydrate exposed membranes in the upper respiratory tract .oral fluids will rehydrate the mucosa, if not mouth care is essential.[10]

2.8. Cautionon oxygen therapy:

As with other medications, the nurse a administer oxygen with caution and carefully assesses its effects in each patient .Oxygen is medication and expect in emergency situation is administered only when prescribed by a physician. In general , patients with respiratory conditions are given oxygen only to raise arterial oxygen pressure back to patient's baseline ,which may vary from 60 to 95 mm Hg .in terms of ox hemoglobin dissociation curve the blood at this levels is 80 to 95 percent saturated

with oxygen, higher inspired oxygen flow values add no further significant amount of oxygen to the red blood cell or plasma.

Instead of helping, increased amount of oxygen may produce toxic effect on the lungs and central nervous system or may depress ventilation it is important to observe for subtle indicators of inadequate oxygenation when oxygen is administer by any method . Therefore, the nurse assess the patient frequently for confusion, restlessness progressing to lethargy, diaphoresis, pallor, tachycardia, tachypnea, and hypertension. Intermittent or continuous pulse oximetry is used to monitor oxygen levels.[11]

2.9. Oxygen toxicity therapy:

Oxygen toxicity occurs when too high a concentration of oxygen greater than 50 is administered for an extended period longer than 48 hours. Is caused by overproduction of oxygen free radicals, which are by products of cell metabolism. IF oxygen toxicity is untreated these, radical rely damage or kill cells.can s seve Anti oxidants such as vitamin E ,vitamin C and beta –carotene may help defend against oxygen free radicals [,12]

The dietitian can adjust patient's diet so that it is rich in antioxidants; supplements are also available for patients who have a decrease appetite or who are un able to eat

2.10. Sings and symptom of oxygen toxicity:

Include substernal   discomfort, prathesias, dyspnea, restlessness, fatigue, malaise, progressive respiratory difficulty, and alveolar infiltrates evident on chest x-ray.[13]

 Nursing assessment and intervention

Assess need for oxygen by observing for symptom of hypoxia; tachycypnea .Sao2 less than 88 percent, tachycardia or dysrythmias [premature ventricular contraction], change in unlevel of consciousness

[symptom of decreased cerebral oxygenation are irritability, confusion, lethargy, and coma if untreated] .[14]

Cyanosis occur as a late sing [Pao245 mmHg],Labored respirations indicate severe respiratory distress. Myocardial stress increase   in heart rate and stroke volume [cardiac output] is the primary mechanism for compensation for hypoxemia or hypoxia ,pupils dilate with hypoxia .

Obtain ABG values and assess the patient's current oxygenation, ventilation, and acid base status .Administer oxygen in the appropriate concentration. Low concentration [24 TO28] may be appropriate for patients prone to retain CO_2,who are dependent on hyoxemia [hypoxic drive] to maintain respiration .if hypoxia is suddenly reversed ,hypoxic drive may be lost and respiratory depression and possibly respiratory arrest may occur .Monitor Paco2 level high concentration[30] if hypoxia is suddenly reversed ,hypoxia drive may be inhabited and respiratory depression and possibly respiratory arrest may occur .High concentration are appropriate in patients not predisposed to Co2 retention .Monitor response by oximetry or ABG sampling .Increase or decrease the inspired oxygen concentration [Fio2] ,as appropriate, [14].

Procedure

1-wash hands, and organizes equipment. To decrease microorganism transfer and promotes efficiency

2-explain equipment and procedure to client.

3-insert flow meter into outlet on wall, or place oxygen cylinder near client.

4-prepare humidifier; add distilled water, if need, or remove prefilled bottle from package and screw enclosed spiked cap to bottle .to delivers moistened oxygen to mucous membranes of airway.

5-connect humidifier to flow meter .to controls flow of oxygen.

6-connect humidifier to tubing attached to cannula or mask to connect humidification to delivery mechanism.

7-turn on oxygen flow meter until bubbling is noted in humidifier .if not bubbling is noted   check that the flow meter is securely inserted, ports of humidifier are patent, and connections are intact.

8-regulate flow meter as order [with venture masks, attach oxygen percentage regulator to oxygen mask].regulate flow as indicate. TO regulates oxygen delivery.

9-check oxygen flow rate and doctor's orders every 8 hours. To ensures correct level of oxygen administration.

10-done gloves .to avoid contact with secretions.

11-place oxygen cannula or mask on client.

Cannula;

-clear nares of secretions with moist cotton balls to remove secretion.

-place cannula prongs in to client's nares.

-slip attached tubing around client's ears and under chin .cotton between tubing and ear may add comfortable. To hold tubing in place.

Tighten tubing to secure cannula but make sure client is comfortable.

Mask;

-place mask over nose, mouth, chin. To place mask correctly.

-Adjust metal strip at Nose Bridge of mask to fit securely bridge of client's nose.

To individualize fit.

-pull elastic bland at sides of mask to tighten. Cotton under bridge of face mask may decease pressure on nose .to ensure fit.

12-Remove cannula each shift or every 4 hr to assess skin, apply petroleum jelly to nares, and clean a way accumulated secretions.

Remove mask every 2 to 4 4hr, wipe away accumulated mist, and assess underlying skin. To assess skin condition, promotes comfort and prevents infection.

13 –position client for comfort with head of bed elevated to facilitates lung expansion for gas exchange.

14-Dispose of or store equipment appropriately .To decrease spread of microorganism s.

15-Place [NO SMOKING] sings on door and over bed .To prevents contact of fire with combustible oxygen.

16-Evaluate respiration of client. [Lippincot edition tow]

Post procedure

Patient;

-observe the patient's colure\perfusion and respiratory pattern.

-offer drink or mouth care.

Equipment\Environment

-tubing and masks may be reused several times for the same patient and should be disposed of in the clinical waste when no longer required.

\if using an oxygen cylinder ensures that a replacement cylinder is a available when the volume indicator gauge shows a quarter full.

Nurse;

Monitor respiratory rate and pattern.

Document oxygen therapy :

Documentation;

The flowing should be noted on the patient's chart;

-Time of initiation of oxygen therapy.

-Amount of oxygen and delivery method.

-Respiratory status before and after initiation.

-color of skin and mucous membranes .

-Client teaching performed regarding therapy and client

-Blood gas results. [15]

CHAPTER THREE

Methodology

3. Methodology

3.1. Study design:

This study was descriptive, cross- sectional hospital- based study, which designed to assess knowledge and practice of nurses regarding oxygen therapy   in Ahmed gasim hospital in critical units in period from March to august.

3.2.Study area:

Ahmed Gasim hospital in Bahri city Khartoum state Sudan

The study was conducted during the period from (march to august) 2017 Bahri city is largest city i n the republic of Sudan it is located on the north bank of the blue Nile and east bank of the River Nile near it confluence with white and bridges connected it with Khartoum south and Omdurman to west it is thought to have population over million.

3.3. Study setting:

Ahmed Gasim cardiac center was established since 1997,

The hospital provides renal and cardiac service, renal word, cardiac word cardiac surgery, renal intensive care unit (ICU), HDU, recovery unit, cardiac catheterization lab, theater, dialysis department

There were two outpatient clinics, and private words.

The hospital system for work for nursing staff morning shift and after noon evening shift for 16 hours and it is distribution according to hospital department.

3.4. Study population:-

The study population consists of nurses' work in critical units in Ahmed Gasim hospital

3.4.1. Inclusion criteria:

Nurses in critical care units.

3.5. Sample size and technique:

The sample was obtained (70) nurse who work in critical units all of theim.

3.6. Data collection tool:

Data was collected by using questionnaire developed by researcher Questionnaire compose of (26) closed ended questions

The data was collected by daily during three weeks and three shift the nurses were allowed to fill the Questioner there selves it look about(5-8)minutes .the questionnaire divided into two parts:

- Part one Contain questions about demographic data (level of education experience year's area of work training courses

- Part tow Questions about nurses knowledge about indication contra indication definition etc

Observational check list have been modified by researcher rated by:

Proper for standard nursing practice and

Improper for non standard nursing practice

Not done score by zero

3.6. 1.Data collection technique:

The data was collected by direct interview between researcher and nurses within three weeks. Every questionnaire takes from 10-15 minutes.

3.7. Data analysis:

Data was analysis entered in to computer using the statistical package of social scientific (SPSS) version 22 and presented in forms of tables and figures.

3.8. Ethical consideration:

The proposal was approved by the scientific committee board and then permission was taken from general hospital manger and the head nursing department the purpose of study was explained verbally clearly to participate before giving questionnaire and they all agree to participate.

CHAPTER FOUR

RESULT

4. Results

Questionnaire about

Table 1: personal data

Sex	Frequency	Percent
Male	15	21.4%
Female	55	78.6%
Total	70	100%
level of education	Frequency	Percent
Diploma	17	24.3%
Bachelor	48	68.6%
Master	5	7.1%
Total	70	100%
Experience year's	Frequency	Percent
less than one year	0	0.0
1-2 years	34	48.6%
3-5 years	18	25.7%
more than 5 years	18	25.7%
Total	70	100%

Table above showed that most of study group (78.6%) was females, (21.4%) was males, their education level (68.6%) had bachelor degree,(7.1%) had master degree and (48.6%) had 1-2 years of experience , (25.7%) had 3-5 years and more than 5 years as the same .
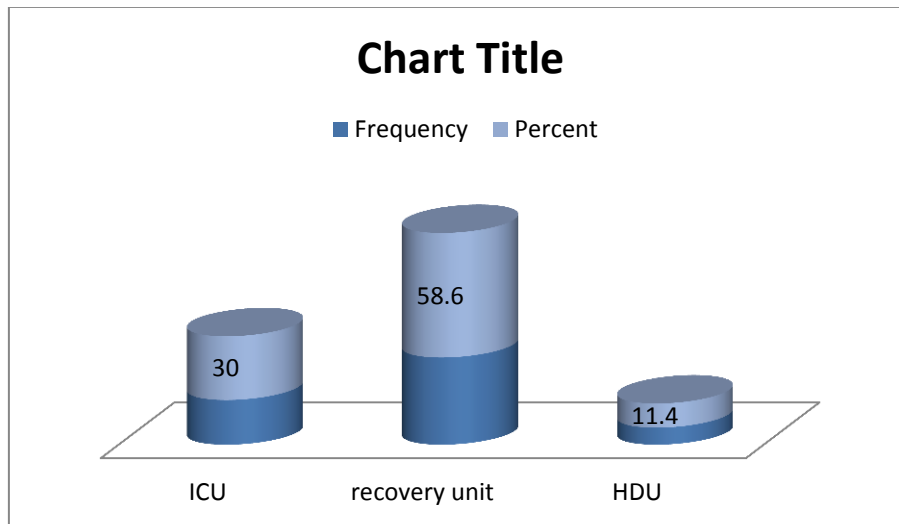
Figure1: Area of work unit

Figure above revealed that more than half (58.6%) worked in recovery unit and (11.4%) worked in HDU.

Table 2: Previous training course on oxygen therapy

Knowledge	Frequency	Percent
One	25	35.7%
two or more	20	28.6%
never	25	35.7%
Total	70	100%

 Table above showed that nearly half (35.7%) not had training course in oxygen therapy and the same percent not had.

Table 3: Oxygen definition

knowledge	Frequency	Percent
Good	10	14.3%
Fair	40	57.1%
poor	20	28.6%
Total	70	100%

Table above showed that more than half (57.1%) of nurses fair knowledge about definition of oxygen therapy and (14.3%) had good knowledge.

Table 4: indication of oxygen therapy

	Frequency	Percent
Good	5	7.1%
Fair	6	8.6%
Poor	59	84.3%
Total	70	100%

Table above tow third of nurses (84.3%) had poor knowledge about indication of oxygen therapy and (7.1%) had good knowledge about that.

Table 5: Contraindication of oxygen therapy

	Frequency	Percent
Good	12	17.1%
Fair	25	35.7%
poor	33	47.1%
Total	70	100%

Table above illustrated that less than half (47.1%) had poor knowledge about contraindication of oxygen therapy and (17.1%) had good knowledge about that.
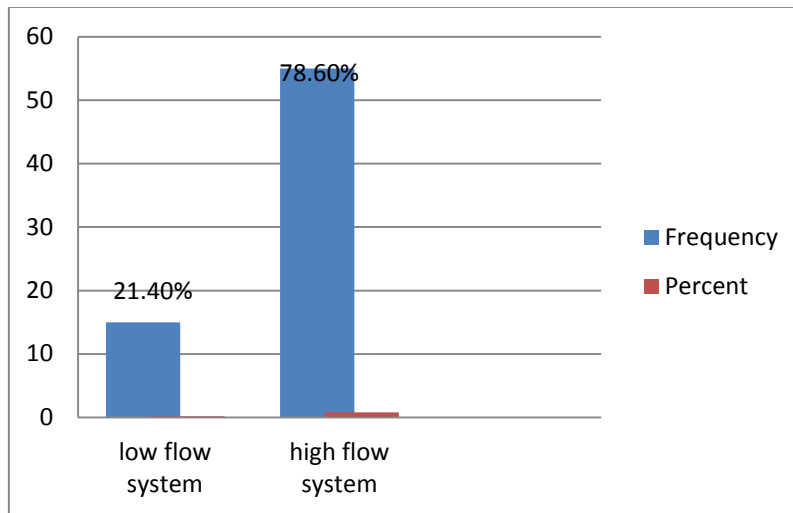
Figure2: Classification of Oxygen delivery systems:

Figure above showed that mostly of nurses (78.6%) had choice high flow system about classification of delivery system and (21.4%) had choice low flow system.

Table 6: Low flow device

Knowledge	Percent
nasal cannula	21.4%
simple face mask	78.6%
More than one answer are give	100%

Table 7: High flow devices

Knowledge	Frequency	Percent
venture mask	51	72.9%
transtracheal catheter	19	27.1%
Total	70	100%

Table above revealed that most of nurses (78.6%) their knowledge about low flow device choice simple mask and (21.4%) choice nasal cannula ,on other hand mostly of nurses (72.9%) their knowledge about high flow choice venture mask .

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Table 8: Selection of oxygen delivery device :

Knowledge	Frequency	Percent
Good	12	17.1%
Fair	19	27.1%
Poor	39	55.7%
Total	70	100%

Table above determine that more than half of nurses had poor knowledge about selection of oxygen delivery device and (17.1%) had good knowledge about that .

Table 9: Oxygen evaluation administration:

Knowledge	Frequency	Percent
Rate	58	82.9%
Percentage	8	11.4%
Rate and percentage prescribed	4	5.7%
Total	70	100%

Table above showed that most of nurses (82.9%) their knowledge regarding evaluation of oxygen administration by rate and (5.7%) evaluated by rate and percentage prescribed.
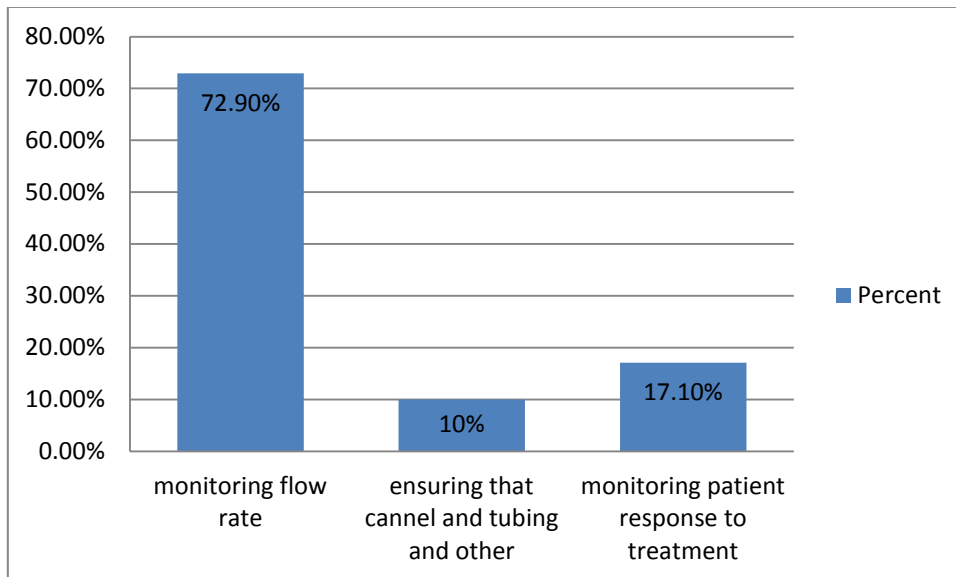
Figure 3: The role of the nurse on oxygen therapy

Figure above revealed that more than tow third of nurses (72.9%) their knowledge about the role of nurse in oxygen therapy monitoring flow rate and (10%) ensuring that cannula and tubing and other in place.

Table 10: Assessment of patient pri oxygen therapy

Assessment of patient pre oxygen therapy		
knowledge	**Frequency**	**Percent**
Good	15	21.4%
fair	21	30.0%
poor	34	48.6%
Total	70	100%
Assessment of patent post oxygen therapy		
Good	10	14.3
fair	18	25.7
poor	42	60.0
Total	70	100%

Table above showed that less than half (48.6%) had poor knowledge about assessment of patient pre oxygen therapy and (21.4%) had good knowledge about that ,regarding assessment of patient post oxygen therapy more than half(60%) had poor knowledge (14.3%) had good knowledge about that .

Table 11: Instruction to patient on oxygen therapy

Knowledge	**Frequency**	**Percent**
fair	52	74.3%
poor	18	25.7%
Total	70	100%

Table above showed that mostly of nurses (74.3%) had fair knowledge about instruction to patient on oxygen therapy and (25.7%) had poor knowledge about that.

Table 12: Caution on oxygen therapy

knowledge	Frequency	Percent
Good	11	15.7%
fair	17	24.3%
poor	42	60.0%
Total	70	100%

Table above revealed that more than half of nurses (60%)had poor knowledge about caution on oxygen therapy and (15.7%) had good knowledge about that.
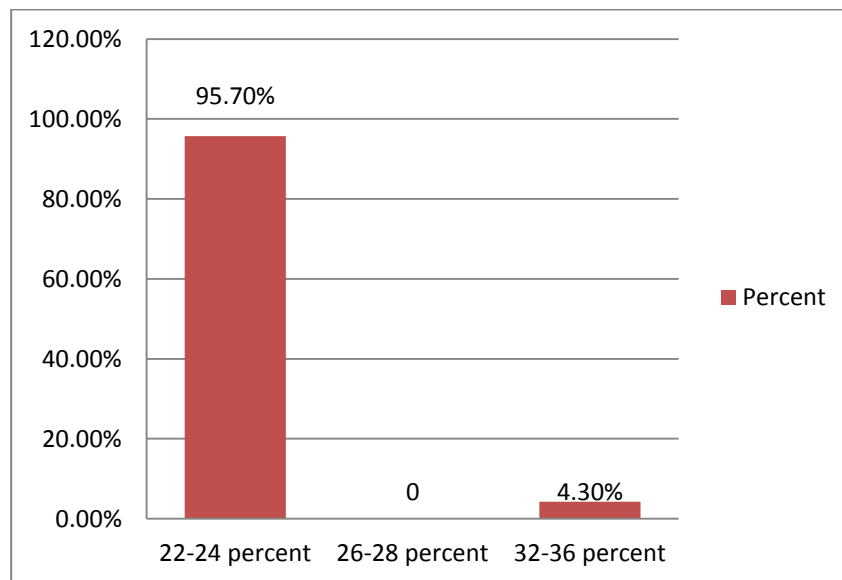
Figure 4: Oxygen concentration delivered by nasal cannula

Figure above showed most of nurses (95.7%) choice 22-24% of oxygen concentration delivered by nasal cannula and (4.3%)had choice 32-36%.

Table 13: Nursing care for patient receiving oxygen by nasal cannula :

	Frequency	Percent
Good	0	0.0
fair	50	71.4%
poor	20	28.6%
Total	70	100%

Table above revealed that most of nurses (71.4%) had fair knowledge about nursing care of patient receiving oxygen by nasal cannula and (28.6%) had poor knowledge about that.

Table 14: Problem associated with face mask :

	Frequency	Percent
Good	10	14.3%
fair	12	17.1%
poor	48	68.6%
Total	70	100%

Table above showed that more than half (68.6%) had poor knowledge about problem associated with face mask and (14.3%)had poor knowledge about that.

Table 15: Complication of oxygen therapy

	Frequency	Percent
Good	15	21.4%
fair	20	28.6%
poor	35	50.0%
Total	70	100%

Table above revealed that half of nurses (50%) had poor knowledge about complication of oxygen therapy and (21.4%) had good knowledge.

Table 16: Oxygen toxicity:

	Frequency	Percent
Good	7	10.0%
fair	15	21.4%
poor	48	68.6%
Total	70	100%

Table above showed more than half of nurses (68.6%) had poor knowledge about oxygen toxicity and (10%) had good knowledge.

Table 17: Assessment of effective oxygen therapy does :

	Frequency	Percent
Good	6	8.6%
fair	10	14.3%
poor	54	77.1%
Total	70	100%

Table above most of nurses (77.1%) had poor knowledge about assessment of effective oxygen therapy doses and (8.6%) had good knowledge about that.

Table 19: Evaluation of nurses practice:

	Done	Number	Percent	Mean
Observational Check List: Oxygen therapy through face mask				
Good	Proper	45	64.3%	32.14
Fair	Improper	25	35.7%	17.85
Observational Check List: Oxygen therapy through nasal cannel				
Good	Proper	39	55.7%	27.85
Fair	Improper	31	44.3%	22.14
Total		70	100%	

Table above showed that nursing practice more than half (64.3%) was good and proper in practice in oxygen therapy through face mask and (53.7%) had improper and fair in practice in oxygen through face mask ,and more than half (55.7%) had good and proper practice through nasal cannula and less than half(44.3%)had poor and improper.

1. NURSES Experience * Oxygen Definition

Experience years	Oxygen is			Total	p. value
	knowledgeable	Satisfying	poor knowledge		
1-2 years	10	24	0	34	.000
	14.3%	34.3%	0.0%	48.6%	
3-5 years	0	16	2	18	
	0.0%	22.9%	2.9%	25.7%	
more than 5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
Total	10	40	20	70	
	14.3%	57.1%	28.6%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

Table above revealed that there was high significant relationship (p =, 000) between nurse experience and oxygen definition.

2. Nurses Experience * indication of oxygen therapy

Experience years	indication of oxygen therapy			Total	p.value
	knowledgeable	Satisfying	poor knowledge		
1-2 years	5	6	23	34	.008
	7.1%	8.6%	32.9%	48.6%	
3-5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
more than 5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
Total	5	6	59	70	
	7.1%	8.6%	84.3%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

Table above showed that there was high significant relationship (=, 008) between nurse experience and indication of oxygen.

3. Nurse Experience * Selection of an appropriate oxygen delivery device

Experience years	Selection of an appropriate oxygen delivery device must be				p.value
	knowledgeable	Satisfying	poor knowledge	Total	
1-2 years	12	19	3	34	.000
	17.1%	27.1%	4.3%	48.6%	
3-5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
more than 5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
Total	12	19	39	70	
	17.1%	27.1%	55.7%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

Table above showed high significant relationship (= ,000) between nurse experience and selection of an appropriate device.

4. Nurses Experience * Assessment of patent post oxygen therapy

Experience years	Assessment of patent post oxygen therapy			Total	p.value
	Knowledgeable	Satisfying	poor knowledge		
1-2 years	10	18	6	34	.000
	14.3%	25.7%	8.6%	48.6%	
3-5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
more than 5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
Total	10	18	42	70	
	14.3%	25.7%	60.0%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

Table above showed high significant relationship (= ,000) between nurse experience and assessment of patient post oxygen therapy.

5. Nurses Experience * oxygen concentration delivered by nasal cannula

Experience years	Approximated oxygen concentration delivered by nasal cannula is			p. value
	22-24 percent	32-36 percent	Total	
1-2 years	34 48.6%	0 0.0%	34 48.6%	.011
3-5 years	18 25.7%	0 0.0%	18 25.7%	
more than 5 years	15 21.4%	3 4.3%	18 25.7%	]
Total	67 95.7%	3 4.3%	70 100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

 Table above showed high significant relationship (= ,011) between nurse experience
and knowledge of oxygen concentration delivered by nasal cannula.

6. Nurses Experience years * Assessment of effective oxygen therapy does

Experience years	Assessment of effective oxygen therapy does by			Total	p. value
	knowledgeable	Satisfying	poor knowledge		
1-2 years	6	10	18	34	.000
	8.6%	14.3%	25.7%	48.6%	
3-5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
more than 5 years	0	0	18	18	
	0.0%	0.0%	25.7%	25.7%	
Total	6	10	54	70	
	8.6%	14.3%	77.1%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

 Table above showed high significant relationship (= ,000) between nurse experience and assessment of effective oxygen therapy does.

7. level of education * indication of oxygen therapy

level of education	indication of oxygen therapy			Total	p.value
	knowledgeable	Satisfying	poor knowledge		
Diploma	5	6	6	17	.000
	7.1%	8.6%	8.6%	24.3%	
Bachelor	0	0	48	48	
	0.0%	0.0%	68.6%	68.6%	
Master	0	0	5	5	
	0.0%	0.0%	7.1%	7.1%	
Total	5	6	59	70	
	7.1%	8.6%	84.3%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

 Table above showed high significant relationship (= ,000) between nurse level edducation and indication of oxygen therapy.

8. Level of education * Selection of oxygen delivery device :

level of education	Selection of an appropriate oxygen delivery device must be			Total	p. value
	knowledgeable	Satisfying	poor knowledge		
diploma	12	5	0	17	.000
	17.1%	7.1%	0.0%	24.3%	
bachelor	0	14	34	48	
	0.0%	20.0%	48.6%	68.6%	
master	0	0	5	5	
	0.0%	0.0%	7.1%	7.1%	
Total	12	19	39	70	
	17.1%	27.1%	55.7%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

Table above showed high significant relationship (= ,000) between nurse level edducation and selection of oxygen delivery device.

9. Level of education * Assessment of patent post oxygen therapy

level of education	Assessment of patent post oxygen therapy			Total	p.value
	knowledgeable	Satisfying	poor knowledge		
Diploma	10	7	0	17	.000
	14.3%	10.0%	0.0%	24.3%	
Bachelor	0	11	37	48	
	0.0%	15.7%	52.9%	68.6%	
Master	0	0	5	5	
	0.0%	0.0%	7.1%	7.1%	
Total	10	18	42	70	
	14.3%	25.7%	60.0%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

 Table above showed high significant relationship (= ,000) between nurse level

education and assessment of patient post oxygen therapy.

10. Level of education * Oxygen concentration delivered by nasal cannula

level of education	Approximated oxygen concentration delivered by nasal cannula			p. value
	22-24 percent	32-36 percent	Total	
Diploma	17	0	17	.000
	24.3%	0.0%	24.3%	
Bachelor	48	0	48	
	68.6%	0.0%	68.6%	
Master	2	3	5	
	2.9%	4.3%	7.1%	
Total	67	3	70	
	95.7%	4.3%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

Table above showed high significant relationship (= ,000) between nurse level education and knowledgment of nurse in oxygen concentration delivered by nasal cannula.

11.Level of education * Assessment of effective oxygen therapy does

level of education	Assessment of effective oxygen therapy does by			Total	p. value
	knowledgeable	Satisfying	poor knowledge		
Diploma	6	10	1	17	.000
	8.6%	14.3%	1.4%	24.3%	
bachelor	0	0	48	48	
	0.0%	0.0%	68.6%	68.6%	
Master	0	0	5	5	
	0.0%	0.0%	7.1%	7.1%	
Total	6	10	54	70	
	8.6%	14.3%	77.1%	100.0%	

*Significant at P.value ≤ 0, 05

**High significant at p.value ≤ 0, 01

 Table above showed high significant relationship (= ,000) between nurse level
education and assessment of effective oxygen therapy does.

CHAPTER FIVE

DISCUSSION

Conclusion

Recommendation

5.1 Discussion

Oxygen therapy is medical treatment used for tissue hypoxia. It is prescribed to improve oxygen supply and reduce the work breathing .it has potential and to improve medical outcomes and save live when used inappropriately.

No patient should be delivered oxygen therapy in emergency situations .Patient in cardiac \or respiratory arrest should be managed according to guidelines for basic and advanced life support. For any patient with

Suspected tissue hypoxia, oxygen should be initiated without delay by the attending health care professional. (16)

A descriptive study attempt to assess nursing knowledge and practice about oxygen therapy in critical care units in Ahmed Gasim hospital, in period extend from July to august 2017.

This present study revealed that most of the nurses where varied in their educational level(7%) have master degree, and more than half(69%) have bachelor degree, and (24%)have diploma degree, This indicated low level of post graduate in nurses, that the study fined high significant between level of education and oxygen definition ,indication and contraindication.

The results showed the nurse knowledge in definition about oxygen of nurse more than half (61%) of nurses reported that oxygen therapy has steps unique, that means nurse was good knowledge about that., this might due to poor knowledge about other indication of oxygen therapy.

Additional to that present study showed the nurse know hypoxia is indication of oxygen therapy [92.9%] that mean poor knowledge about other indication of oxygen therapy, this similar to study was done in A

Almak Nimir hospital 2016 by Hamed Alzain in Shendi University that said half of nurses (50%)   knows hypoxemia is indication of oxygen therapy and poor knowledge about other indication..

In additional to that the study showed that (37, 5%) have training course in oxygen therapy this can result to lack of knowledge and practice.

The result showed about contraindication of oxygen therapy   nearly half of nurses (47%) poor knowledge about contraindication of oxygen therapy, that means gap of knowledge about that.

 This Present study also mentioned that knowledge of nurse about oxygen delivery system is two third of nurses (78, 6%) had poor knowledge about low flow device, this means shortage of oxygen supply and delivery device this similar to study done in ADISS ABABA University by Girma Lemma in june, 2015 that showed (52%)of nurses said adequate oxygen supply and delivery system and (57.5%) said not adequate and (10.5%)did not know where supply is adequate or not .

The present study revealed that (55,7%) of nurses have poor knowledge about selection of appropriate oxygen devices ,that means the gaps of training course on oxygen therapy .

As will as the current study finding that mostly of nurses (82.9%) administer oxygen by rate. While the study showed more than half (68.6%) have poor knowledge about the role of nurse on oxygen therapy, this means poor nurses practice in oxygen therapy.

The study revealed the nurse nearly half has poor knowledge about assessment of patient pre oxygen therapy on other hand more than half

(60%) had poor knowledge about assessment of patient post oxygen therapy; this indicated nurses had poor practice and need to training programs.

Regarding present study revealed that nearly tow third (74,3%) of nurses had fair knowledge about instruct the patient in oxygen therapy that mean the nurses not aware about hazard of that.

The revealed study fine that there is high significant between the nurse experience and selection of appropriate oxygen delivery device that P-value is .000 and high significant between nurse experience and assessment of patient pre and post oxygen therapy, Also fine high significant between level of education and definition of oxygen and their indication, contraindication knowledge that all had p-value .000.

On other hand about assessment of nurse practice done check list that fine (64%) is good and proper in oxygen by face mask and so (55.7%) had good and proper on oxygen to nasal cannula that related to availability of face mask and more use than nasal cannula in hospital .

5.2 Conclusion

The study showed their clear knowledge and practice gap among nurses who were working in critical units. The possible associated factors were also identified that lack of oxygen therapy training and guideline contributed much to challenges on oxygen therapy.

5.3. Recommendation:

1\ critical units nurses should be given training on oxygen therapy and

Update by training nurses in hospital

2\ National oxygen therapy guideline must be developed by ministry of health and continuous educational programs are important to ensure standard quality of nurses.

Annexes

References

Questionnaire

Check List

References:

1. Doug-ELLlioT-ACCN'S-critical-care –nursing ELseveir –health – since-APAC-Mosby –Australia,2nd edition 2011

2-. Linda's Williams,papulad Hopper ,[2007] medical –surgical nursing 10 Edition .

3.penolpope Ann Hilton,[2004], Fundamental nursing skills the edition.

4. Suzzane ,smelitzer C o,'connell;Bare,Brendera G,2010.

5.victor Kiml,Joshuna O.Benditt2,Robert A,and Amir sharf Kaneh4,oxygen therapy in chronic obstructive pulmonary disease PROC Am soc vol s . pp 513-518,2008 .

6.MC Golins , administration of oxygen therapy ,Nursing standard 2008.

7.Brunner and Siddhartha,s Text book of medical –surgical nursing 10 Edition .

8 .Smeltzer,suzzane CO'Connel ;Bare,Brender G[2003].

9. Suzzane,Text book of medical surgical nursing ,2013

10. Scanlan ,wilkims and stolen , medical surgical nursing1999

11. Smeltzer, suzzane CO'Connel ;Bare,Brender G[2003].

12. Official newspaper of royal college of nursing January 2008] page 2

13. Woodroo 2005

15. ELizabeth M.Jamieson Janicer .MC Call clinical nursing practices Fourth Edition. .

16.Nettin ,Sandra millis ,ELzabeth Jacque line[2006]Lippincot of nursing practice 8 th Edition

17.Nettin, Sandra mills,ELzabeth Jacque of nursing practice Edition two.

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Questioner about assessment of KAP nurses regarding oxygen therapy in Ahmed Gasim hospital

1. Sex   ;

a. male   (   )   b. female (   )

   2-level of education;

a. diploma   (   )   b. bachelor (   )   c. master   (   )

   3- Experience years;

A. less than one year (   ) b.1-2 years   c.3-5 years (   )   d. more than 5 years   (   )

4- Area of work unit

a.ICU (   )   b.HDU (   )   e .recovery unit

5- Previous training course on oxygen therapy;

a. One   (   )   b. two or more (   )   c. never (   )

6. Oxygen is;

a. drug and so medication administration criteria is flowed (   )

b. have steps unique to oxygen therapy

C. administrated must be ordered by the physician or qualified practitioner (   )

7-indication of oxygen therapy

A. to prevent hypoxia (   )   b. change in patient respiratory rate or pattern (   )

C. increase myocardial work (   )   d. pulmonary hypertension (   )

8- Contraindication of oxygen therapy

A. when patient received chemotherapeutic drug (   )

  b.   Patient with low ejection fraction of 35 or less (   )

C. emphysema; decrease surface area in lung include damage to the alveoli (   )

D. untreated pneumothorax (collapse lung)   (   )

9. Oxygen delivery systems are classified as;

A. low flow system (   )   b. high flow system (   )

10. Low flow device is;

a. nasal cannula (   )   b. simple face mask (   )

c. partial re breather mask (   )   d. non re breather mask (   )

11. High flow devices are

a. venturi mask (   )   b. transtracheal catheter (   )

12- Selection of an appropriate oxygen delivery device must be;.

 a. based on Pao2 (   )   b. consider patient age   (   )

 c. the degree of hypoxia (   )   d. patient condition (   )

 8- Oxygen must be only administered at;

a. rate (   )   b. percentage (   )   c. Rate and percentage prescribed (   )

13. The role of the nurse on oxygen therapy is ;

a. monitoring flow rate (   )

b. ensuring that cannula and tubing and other devices remain properly place (   )

c. monitoring patient response to treatment. (   )

 14. Assessment of patient pre oxygen therapy;

a. Determine client history and acute and chronic health problem (   )

b. assess the client's respiratory sings, including airway ,respiratory rate and pattern , depth . (   )

. check the extremities and mucosa membrane closely for color (   )

d. review the arterial blood gases and plus oximietry result (   )

e. note lung sounds for crackles (   )

 15. Assessment of patent post oxygen therapy;

a. oxygen level returned to normal in blood ,and use of evidence O2 saturation equal or more than 95 percent (   )

b. respiratory rate , depth ,pattern in normal range (   )

c. breathing efficiency and activity increase (   )

d. write documentation [O2 rate ,method of oxygen delivery , assessment parameters and response to treatment (   )

16. Instruction to patient on oxygen therapy;

a. avoid smoking (   )

b. not using electrical equipment (   )

c. not use flammable products such as aerosol spray   .

d. keep oxygen equipment from radiators, heat ducts   (   )

17- Caution on oxygen therapy;

a. administer as with other medication   (   )

b. the nurse administer oxygen with caution and carefully assess it is effect in each patient. (   )

c. patient with respiratory condition given oxygen therapy to raise the arterial oxygen pressure Pao2 back to the patient's normal base line (   )

18 .Approximated oxygen concentration delivered by nasal cannula is;

    A.22-24 percent (   )   b.26-28 percent (   )   c.32-36 percent

19. Nursing care for patient receiving oxygen by nasal cannula is;

  a. Keep nosepieces clean (   )

  b. evaluate for presser sore over ears ,checks, and nose(   )

  c. lubricant nasal prongs (   )

20. Problem associated with face mask is ;

   a. Mask need to be move for eating and drinking (   )

   b .tight seal can cause facial irritation (   )   c. can feel hot(   )

    d. cause anxiety in some people [child(   )

 21. Complication of oxygen therapy;

    a. decrease lung compliance if administered more than 60 percent for longer than 24 hours (   )

    b. high concentration of oxygen reduce the production of surfactant resulting in ataelactasis. (   )

   c. dehydrate exposed membrane in upper respiratory tract (   )

22. Oxygen toxicity is;

   a. sings and symptom ; substernal discomfort, paresthesias, fatigue, progressive respiratory

 Difficulty (   )

  b. may occur when too high a concentration of oxygen is administer (   )

   c. caused by over production of oxygen free radicals. (   )

  d. prevention by using O2 as prescribed(   )

23. Assessment of effective oxygen therapy does by;

1. Patient stability   (   )   2. Measure oxygen saturation by pulse oximiter(   )

3. Taken arterial blood gas analysis   (   )   4. Check the patent vital signs (   )

بسم الله الرحمن الرحيم

Faculty graduate studies and scientific research

Assessment KAP of nurses regarding O2 therapy in

Ahmed Qasim Hospital 2017

Observational Check List: Oxygen therapy through face mask

STEPS	Done		Not done
	Proper	**Improper**	
1. Check physician orders for mode of oxygen delivery and prescribed oxygen liter flow.			
2. Explain procedure to the patient.			
3. Hand washing.			
4. Apply employed safety precautions for oxygen administration.			
5. Check the size of face mask to make sure it fit client.			
6. Turned to oxygen flow to litter prescribe .if reservoir bag was attached, partially inflated it with oxygen.			
7. Placed patient in high or semi flower's position.			
8. Fit mask to patient's face from nose downward during expiration .if reservoir bag attach , -- oxygen flowed at a level to prevent bag from collapsing.			
9. Placed elastic band around patient head.			
10. Stay with client until patient felt comfortable with mask.			
11. Assessed patient's condition by checking vital signs and oxygen saturation.			
12.Changed mask and tubing according to agency policy and provided skin care to the face .			
13. Checked equipments frequently. If humidifier attached, check water level disposed.			
14. documentation			