University of Shandi

Collage of scientific nursing

Batch1

EVALUATION OF NURESES KNOWLEDGE REGARDING STREPTOKINASE THERAPY IN AL-SHAAB HOSPITAL September 2017

By:

Samar Abdalbaset Mohammed.

A thesis submitted in partial full filament of the requirement for medical doctorate in

Master Degree in Nursing. Science.

Supervisor: Dr Mohammad JABR ALDAR.

الاية

قالى تعالى

(وقل ربي زدني علما)

صدق الله العظيم

Dedication

This project is dedicated to Allah for his faithfulness and mercy to me.

And also to my beloved parent and my family for their support and encouragement throughout my years of struggle.

Acknowledgement

- Alhamdulillah, my profound gratitude goes to Allah who has continued to overwhelm me with his favor, mercies and blessings without I wouldn't have been here today.
- I am really grateful to my beloved and wonderful parent my father ABD ELBASET by powerful, lovely and kindness words and my mother FATIMA for whose suffered to make me going on and happy, for their patience, and encouragement and being there for me to sharing my successes, giving me encouragement and support every step to my success also to my beloved brother and sister I say thank you for showing me true love.
- I sincerely appreciate effort made by my supervisors Dr Mohammad Jabraldar he is excellent academic leadership support and monitoring for directing guiding and administration of corrections to me in spite of her busy schedule.
- And other alshaab hospital staff of the department of nursing sciences in ICU,CCU.
- Great thanks to all my friend, who stay with me.

List of contents

List of Table

Abbreviations table:-

Abbreviations:	Item
SK	Streptokinase
FDP	Fibrin degradation product
AMI	Acute myocardial infraction
TPA	Tissue plasmin activator
AV	A trio ventricular
TT	Thrombin time
IM	Intramuscular
PTT	Partial thromboplastic time
PT	Prothrombin time
INR	International normalize ratio
HCT	Hematocrit
BP	Blood pressure
ECG	Electro cardio gram
VT	Ventricle tachycardia
DC	Discontinue

Abstract

Background: Streptokinase (SK) is an enzyme secreted by several species of streptococci that can bind and activate human plasminogen SK is used as an effective and inexpensive thrombolytic medication in some cases of myocardial infarction (heart attack) and pulmonary embolism deep venous thrombosis, arterial thrombosis, occluded access shunts. Thereby causing lysis of the blood clot. This study done to nurses to evaluate their knowledge regarding streptokinase therapy.

The aim: to evaluate nurse's knowledge regarding of streptokinase therapy.

Methods:- a descriptive cross- sectional hospital based study it was conducted at Alshaab Teaching Hospital during period extended from May to September 2017, sample size 50 nurse was included in this study chosen by total coverage. Data was collected by using questionnaire. Analyzed by using statistical package for social science (SPSS) program version 22.

Result:- the majority of study population has a good knowledge about definitions of streptokinase (90%) ,indications of streptokinase (96%),investigation done before start treatment (90%),clearance of SK by the liver(90%),complication of SK(98%) and finally contraindication of SK (90%). - The study reflects that the overall knowledge of nurses in AL-SHAAB teaching hospital have a good knowledge about streptokinase therapy.

Conclusion & recommendation:- Study came out with the fallowing found:-the majority of staffs had a good knowledge regarding definitions, indication, and contraindication of streptokinase .Two third of the nurses have a fair knowledge regarding the side effect of streptokinase. The study recommended that: work shop are necessary to improve the nurse's ability dealing with management with such therapy.

ملخص البحث

الخلفية :- الاستربتوكينز هو انزيم يفرز من عدة اجزاء من الاستربتوكينز الذي يرتبط و ينشط ك هيومن بلاسمنجين , الاستربتوكينز يستخدم كعقار فعال ورخيص نوعيا لمرضي الجلطة القلبية و الجلطات الرئوية وامراض الدوالي والجلطات الشريانية، العقار يسبب تحليل وتكسير للكتل الدموية. هذه الدراسة انجزت في الممرضين لمعرفة علمهم بكل ما يخص عقار الاستربتوكينز.

الهدف:- تهدف هذه الدراسة لمعرفة الممرضين عن عقار الاستربتوكينيز من ناحية اسبابه، طريقة استخدامه، المضاعفات، الاثار الجانبية، التحكم ومنع المضاعفات.

الطريقة:- قد تم جمع البيانات باستخدام الاستبيان يضم 50 ممرض ممرضة في العناية الوسيطة و وحدة العناية المشددة للقلب . حلل باستخدام الحزمة الإحصائية للعلوم الاجتماعية نسخة 22 (SPSS)،تم اختيار المشاركين عن طريق الاختيار العشوائي البسيط .

النتائج:- وجدت الدراسة ان 90% من المشاركين علي معرفة جيدة بتعريف عقار الأستربتوكاينيز, (96%) من المشاركين علي علم بمؤشرات عقار الأستربتوكاينيز،90% علي علم بالفحوصات التي تسبق العلاج، 90% علي علم بتخلص العقار من الجسم عن طريق الكبد، 98% علي علم بالمضاعفات للعقار، واخيرا 90% علي علم بموانع الاستعمال. نتيجة الدراسة تعكس ان المعرفة الشاملة للمرضات في مستشفى الشعب التعليمي حول عقار الأستربتوكاينيز كانت جيدة جدا .

الاستنتاجات والتوصيات:- وجدت الدراسة الاتي:

معظم المشاركين في البحث علي علم بتعريف ومؤشرات وموانع الاستعمال لعقار الاستربتوكينيز .ثلثي المشاركين لديهم معرفة ضئيلة للأثار الجانبية لعقار الاستربتوكينيز. هذه الدراسة توصي بعمل ورش تدريبية لتطوير الممرضين للتعامل مع هذه الاصناف من الادوية.

1.1 INTRODICTION:-

Streptokinase (SK): is oldest thrombolytic agent the one produced from beta-hemolytic streptococci. It binds with plasminogen and this sk- plasminogen complex then acts another plasminogen. (SK) is not clot specific because it made from anon human source it is antigenic and my provoke allergic reaction this happens because the body's immune system recognizes it as a foreign substance (an antigen) and launches an antibody against it, with an antigen- antibody reaction result. These antibodies develop approximately 5 days after SK therapy and a persist for 6months to 1 year afterwards. Hypotension secondary to vasodilatation occurs in approximately 10 to 15 of patient given SK [(1)].

Streptokinase (SK) is an enzyme secreted by several species of streptococci that can bind and activate human plasminogen SK is used as an effective and inexpensive thrombolytic medication in some cases of myocardial infarction (heart attack) and pulmonary embolism deep venous thrombosis, arterial thrombosis, occluded access shunts. Streptokinase is capable of activation plasminogen when injected SK combines with plasminogen, a circulating protein in the blood to from a complex that is then converted to plasmin. The Plasmin in turn functions as an enzyme that degrades fibrin threads (the mesh of the clot) as well as the fibrinogen, thereby causing lysis of the blood clot[(2)].

Absorption bloodstream distribution widely distributed onset of action immediate. The duration of action is short and the serum half-life is 20 min or less. However effects on coagulation may last as long as 12 h metabolism of SK in liver excretion of SK in urine, bile, Complication of SK like Hemorrhage at the injection site, ecchymosis. Gastrointestinal bleeding, genitourinary bleeding, epistaxis. Rash, flushing, itching, urticaria, angioneurotic edema, dyspnea, bronchospasm, hypotension. Dizziness, confusion, paralysis, hemiparesis, agitation, convulsion) in the context of cerebral hemorrhages or cardiovascular disorders with hypo perfusion of the brain recurrent ischemia, heart failure, reinfection, cardiogenic shock, pericarditis, pulmonary edema [(3)] .

1.2. Justification:

Streptokinase is the drug of choice use in cardiac patient thrombolytic the clot, the nurse should be fully aware about the care of patient uses streptokinase to avoid its complication like bleeding, hypotension, pulmonary edema, arrhythmia so the study was conducted to evaluate the level of knowledge of nurse regarding this issue**.**

1.3. Research objective:

1.3.1. General objective:

To evaluate nurses knowledge regarding of streptokinase therapy.

1.3.2. Specifics objective:

- To determine nurses knowledge regarding Indications of streptokinase.

-To assess nurses knowledge regarding contraindications of streptokinase.

- To identify nurses knowledge regarding ways of administration of streptokinase.

- To evaluate nurses knowledge regarding management of streptokinase complications.

2.1-Background:-

Streptokinase, acts with plasminogen to produce an "activator complex" that converts plasminogen to the proteolysis enzyme plasmin. The tissue plasmin activator of the activator complex is about 23 minutes; the complex is inactivated, in part, by ant streptococcal antibodies. The mechanism by which dissociated streptokinase is eliminated is clearance by sites in the liver; however, no metabolites of streptokinase have been identified. Plasmin degrades fibrin clots as well as fibrinogen and other plasma proteins. Plasmin is inactivated by circulating inhibitors, such as (alpha)-2-plasmin inhibitor or (alpha)-2-macroglobulin. These inhibitors are rapidly consumed at high doses of streptokinase. [4]

Intravenous infusion of Streptokinase is followed by increased fibrin lytic activity, which decreases plasma fibrinogen levels for 24 to 36 hours. The decrease in plasma fibrinogen is associated with decreases in plasma and blood viscosity and red blood cell aggregation. The hyperfibrinolytic effect disappears within a few hours after discontinuation, but a prolonged thrombin time may persist for up to 24 hours due to the decrease in plasma levels of fibrinogen and an increase in the amount of circulating fibrin (ogen) degradation products (FDP). Depending upon the dosage and duration of infusion of Streptokinase, the thrombin time will decrease to less than two times the normal control value within 4 hours, and return to normal by 24 hours. Intravenous administration has been shown to reduce blood pressure and total peripheral resistance with a corresponding reduction in cardiac afterload. These expected responses were not studied with the intracoronary administration of Streptase, Streptokinase. The quantitative benefit has not been evaluated. Variable amounts of circulating ant streptokinase antibody are present in individuals as a result of recent streptococcal infections. The recommended dosage schedule usually obviates the need for antibody titration complications of (SK) like hemorrhage at the injection site, ecchymosis. Gastrointestinal bleeding , genitourinary bleeding , epistaxis , Rash , flushing , itching , urticarial , angioneuroticoedema , dyspnea , bronchospasm , hypotension , dizziness , confusion , paralysis , hemiparesis , agitation , convulsion , in the context of cerebral hemorrhages or cardiovascular disorders with hypo perfusion of the brain recurrent ischemia , heart failure , reinfection , cardiogenic shock , pericarditis , pulmonary edema . [5]

2.2. Indication of streptokinase therapy:-

2.2.1.Acute Evolving Trans mural Myocardial Infarction: Streptokinase, is indicated for use in the management of acute myocardial infarction (AMI) in adults, for the lysis of intracoronary thrombi, the improvement of ventricular function, and the reduction of mortality associated with AMI, when administered by either the intravenous or the intracoronary route, as well as for the reduction of infarct size and congestive heart failure associated with AMI when administered by the intravenous route[(6)] .

2.2.2. Pulmonary Embolism: Streptokinase, is indicated for the lysis of objectively diagnosed (angiography or lung scan) pulmonary emboli, involving obstruction of blood flow to a lobe or multiple segments, with or without unstable hemodynamic [(7)].

2.2.3. Deep Vein Thrombosis: Streptokinase is indicated for the lysis of objectively diagnosed (preferably ascending venography), acute, extensive thrombi of the deep veins such as those involving the popliteal and more proximal vessels [(8)].

2.2.4. Arterial Thrombosis or Embolism: Streptokinase is indicated for the lysis of acute arterial thrombi and emboli. Streptokinase is not indicated for arterial emboli originating from the left side of the heart due to the risk of new embolic phenomena such as cerebral embolism [(9)].

2.2.5. Occlusion of Arteriovenous Cannula:

Streptokinase, is indicated as an alternative to surgical revision for clearing totally or partially occluded arteriovenous cannula when acceptable flow cannot be achieved [(10)].

2.3 - Administration of streptokinase therapy:-

- Streptokinase is given intravenously as soon as possible after the onset of a heart attack to dissolve clots in the arteries of the heart wall. As Streptokinase is a bacterial product, the body has the ability to build up immunity to it. Therefore, it is recommended that this medication should not be used again after four days from the first administration, as it may not be as effective and can also cause an allergic reaction. For this reason, it is usually given only for a person's first heart attack. Further thrombotic events could be treated with Tissue plasminogen activator (TPA) [(11)].

2.4-The way of administration according to the indication:-

2.4.1 Coronary artery thrombosis:

Initial 1500IU (10ml) given as bolus directly into the thrombosis coronary artery, followed by intracoronary infusion of 2000IU/min for 1 hour.

2.4.2 pulmonary embolism:

IV infusion initial 250,000IU given over a period of 30 mm followed by 100,000IUIhour, given by continuous infusion for 24 hours.

2.4.3 Deep vein thrombosis:

IV infusion initial 250,000IU given over a period of 30 mm followed by 100,000IU/hour, given by continuous infusion for 72 hour.

2.4.4 Arterial thrombosis

IV infusion initial 250,000IU given over a period of 30 mm followed by 100,000IU/hour, given By continuous infusion for 72 hour.

2.4.5 Precautions of (SK):

2.4.5.1-Anticoagulation and Antiplatelet after Treatment for Myocardial Infarction, pancreatitis

2.4.5.2.-Pregnancy:

Pregnancy Category C -- Animal reproduction studies have not been conducted with Striptease, streptokinase. It is also not known whether Streptokinase can cause fetal harm when ministered to a pregnant woman or can affect reproduction capacity. Streptokinase should be to a pregnant woman only if clearly needed.

2.4.5.3-pediatric:

Controlled clinical studies have not been conducted in children to determine safety and efficacy d pediatric population. The evidence of clinical benefits and risks is solely based on kal reports in patients ranging in age from <1 month to 16 years. The largest number of -lPr1 reports has pertained to the use of streptokinase in arterial occlusions. For arterial hisions the most frequently used loading dose was 1000 lU/kg; fewer numbers of patients eñe1 3000 lU/kg. Loading dose durations have typically ranged from 5 minutes to 30 minutes Continuous infusion doses were frequently 1000 IU/kg/hr.; fewer were at 1500 lU/kg/h

2.4.5.3.-elderly >70years

2.4.5.4- Active internal bleeding

2.4.5.5.- Cerebral neoplasm

2.4.5.6- increased risk of cerebral bleeding.[12]

2.5 Nursing considerations when administer (SK) :-

2.5.1.When the nurse is going to administer streptokinase lab tests (TT, a PTT, PT, TNR, Het, and platelet count prior to treatment) should be checked& controlled .Treatment is delayed until TT and a PH are less than 2 times .during treatment with (SK), TT is generally kept at about 2 times or more baseline value and checked q3—4h.

2.5.2.• Protect patient from invasive procedures: TM injections are contraindicated. Also prevent undue manipulation during thrombolytic therapy to prevent bruising. Spontaneous bleeding occurs about twice as often with (SK) as with heparin.

2.5.3• Monitor for excessive bleeding ql5min for the first hour of therapy, q3omin for second to eighth hour, then q8h.

2.5.4.• Be aware that patient is at risk for post thrombolytic bleeding for 24 H after intracoronary (SK) treatment. Continue monitoring vital signs until laboratory tests confirm anticoagulant control.

2.5.5.• Report signs of potential serious bleeding; gum bleeding, Epistaxis, hematoma, spontaneous ecchymosed, oozing at catheter site, increased pulse, pain from internal bleeding. SK infusion should be interrupted, and then resumed when bleeding stops.

2.5.6• Report promptly symptoms of a major allergic reaction; therapy will be discontinued and emergency treatment instituted. Minor symptoms (e.g., itching, nausea) respond to Concurrent antihistamine or corticosteroid treatment or both without interruption of SK administration.

2.5.7• Check cardiac monitor frequently. Be alert to changes in cardiac rhythm, especially during intracoronary instillation. Dysrhythmias signal need to stop therapy at once.

2.5.8.• Monitor BP. Mild changes can be expected, but report substantial changes (greater than ±25 mm Hg). Therapy may be discontinued.

2.5.9.• Check patient's temperature during treatment. A slight elevation, 0.8° C (1.50 F), perhaps with chills, occurs in about one third of the patients. Higher elevations may be treated with acetaminophen\.

2.5.10• Avoid giving aspirin because of its antiplatelet action if an analgesic-antipyretic is indicated.[13]

2.6 **Contraindication of Sk therapy:**

Streptokinase is contraindicated in the following conditions:

2.6.1• Severe hypertension recent stroke.

2.6.2.• Cerebral neoplasm.

2.6.3• Recent history of peptic ulcer disease.

2.6.4• Ulcerative colitis.

2.6.5• Pancreatitis.

2.6.6• Sub acute bacterial endocarditic.[14]

2.7. **Complications of SK therapy:-**

2.7.1- **Allergic anaphylactic reactions:**

• Symptoms as rash, flushing, itching, urticaria, angioneurotic edema, dyspnea, bronchospasm, and hypotension are more common.

• Delayed allergic reactions, e.g. serum sickness, arthritis, vasculitis, nephritis, neuroallergic symptoms (polyneuropathy, e.g. Gillian Barré syndrome), severe allergic reactions up to shock including respiratory arrest may occur also.

• Fever and shivering, occurring in 1-4% of patients, are the most commonly reported allergic reactions with intravenous use of Streptase, Streptokinase, in acute myocardial infarction. Anaphylactic and anaphylactic reactions ranging in severity from minor breathing difficulty to bronchospasm, periorbital swelling or angioneurotic edema have been observed rarely. Other milder allergic effects such as urticaria, itching, flushing, nausea, headache and musculoskeletal

pain have also been observed, as have delayed hypersensitivity reactions such as vasculitis and interstitial nephritis. Anaphylactic shock is very rare, having been reported in 0-0.1% of patients.[15]

2.7.2 - Bleeding:-

• More Common symptoms: Hemorrhage at the injection site, Ecchymosis. Gastrointestinal bleeding, genitourinary bleeding, & Epistaxis.
• But the Uncommon symptoms may occur: Cerebral hemorrhages with their complications and possible fatal outcome of (SK), Retinal hemorrhages, Severe hemorrhages (also with fatal outcome), Liver hemorrhages, Retroperitoneal bleeding, bleeding into joints, splenic rupture & Blood transfusions are rarely required.
• Very rare: Hemorrhage into the pericardium including myocardial rupture during thrombolytic treatment of acute myocardial infarction if administered >12 hours of infarction (M.I).
• In severe hemorrhagic complications, Streptase therapy should be discontinued and a proteins inhibitor, e.g. aprotinin, administered in the following dosage: Initially 500,000 KIU (Kallikrein In activator Unit), if necessary up to 1 million KIU, followed by 50,000 KIU per hour by intravenous drip until the bleeding stops. In addition, combination with synthetic antifibrinolytics is recommended. If necessary, coagulation factors should be administered. Additional administration of synthetic antifibrinolytics has been reported to be efficient in single cases of bleeding.[16]

2.7.3- Hypotension:-

Hypotension, sometimes severe, not secondary to bleeding or anaphylaxis has been observed during IV. Streptokinase infusion in 1 to 10% of patients. Patients should be monitored closely and should symptomatic or alarming hypotension occur, appropriate treatment should be administered. This treatment may include a decrease in the IV. Streptokinase infusion rate. Smaller hypotensive effects are common and have not required treatment.[17]

2. 8 - Prevention of complication:-

2.8.1 – Preventing Allergic anaphylactic reactions

• Mild or moderate allergic reactions may be managed with concomitant antihistamine and/or corticosteroid therapy. If a severe allergic/anaphylactic reaction occurs the administration of Striptease must be discontinued immediately and an appropriate treatment should be initiated. The current medical standards for shock treatment should be observed. Lysis therapy should be continued with homologous fibrin lytic, such as Urokinase or TPA.[18]

2.8.2- Preventing Bleeding

• Take vital signs every 15 minutes during infusion of thrombolytic agent and then hourly.

• Observe for hematomas or skin breakdown, especially in potential pressure areas such as the sacrum, back, elbows, and ankles.

• Be alert to verbal complaints of back pain indicative of possible retroperitoneal bleeding.

• Observe all puncture sites every 15 minutes during infusion of thrombolytic therapy and then hourly for bleeding.

• Apply manual pressure to venous or arterial sites if bleeding occurs. Use pressure dressings for coverage of all access sites.

• Observe for blood in stool, emesis, urine, and sputum.

• Minimize venipuncture and arterial punctures; use heparin lock for blood sampling and medication administration.

• Avoid I.M. injections.

• Caution patient about vigorous tooth brushing, hair combing, or shaving.

• Avoid trauma to patient by minimizing frequent handling of patient.

• Monitor laboratory values: PT, International Normalized Ratio, PTT, hematocrit (HCT), and hemoglobin.

• Check for current blood type and cross match.

• Administer antacids or histamine-2 blockers as directed to prevent stress ulcers.

• Implement emergency interventions as directed in the event of bleeding: fluid, volume expanders, blood products.

• Monitor for changes in mental status and headache.

• Avoid vigorous oral suctioning.

• Avoid use of automatic BP device above puncture sites or hematoma. Use care in taking BP; use arm not being used for thrombolytic therapy.[19]

2.8.3- Prevent of hypotension

• Monitor blood pressure.

• Give streptokinase infusion slowly to prevent hypotension. Initial intervention is to increase intravascular fluid volume by large daily salt intake, either added to food or as salt tab.

• Avoid triggers - e.g., high temperature environments.

• Review any medication being taken.

• Advise the elderly on standing slowly, dorsiflexion the feet first and even crossing the legs whilst upright.

• Raising the head of the bed, this helps prevent diuresis and supine hypertension caused by fluid shifts.

• Physical counter pressure with compression hosiery or whole-body inflatable suits may be required.

• A morning dose of caffeine as coffee or tablet form can be effective.[20]

Methodology:

Study design

Descriptive, cross-sectional health facility based study

Study Period

The study was conducted in the period extended from June 2017 to September 2017

Study Area

Location:- Its placed in cross road of 21october street and al-MAAK NEMER street

, in front of ALKHARTOUM hospital.

The hospital is now treating all of the following cases:-

1- Diagnosis and treatment of chest and heart, in both internal and surgical entities.

2- Coronary artery bypass graft (CABG).

3- Diagnosis and treatment of open-heart surgery and catheterization, Depressed Skull and treatment of Neurosurgery Cases (brain tumors, injury, disc prolapsed).

4- Diagnosis and fracture, obstructive hydrocephalus, spinal injury disease neurologist (treatment of nervous system).

Study population:

The study targeted all nurses working in ICU, CCU unit in al-shaab hospital during study period 2017.

Inclusion criteria:

The study included nurses, male and female with different age, working experience more than three months at the cardiac care units ;(ICU-CCU).

Exclusion criteria:

Other health worker and nurses in other department of medicine and surgery words and respiratory or emergency department.

Variables:

Variables under study:

- Age

- Gender

- Level of education

- Years of experience

Sample size and Sampling technique:-

Total coverage of nurses working in CCU, ICU unit in al-Shaab teaching hospital

Data collection tools:-

The tools from literature review were collected and then appropriate question were selected. Data was collected following questionnaire contain from closed ended question, first part from question(1-5) contain the variable basic information, question from (6-20) contain basic research topic.

Data collection technique

Data was collected following self-answer technique for all participants use standardized structured questionnaire.

Data analysis:-

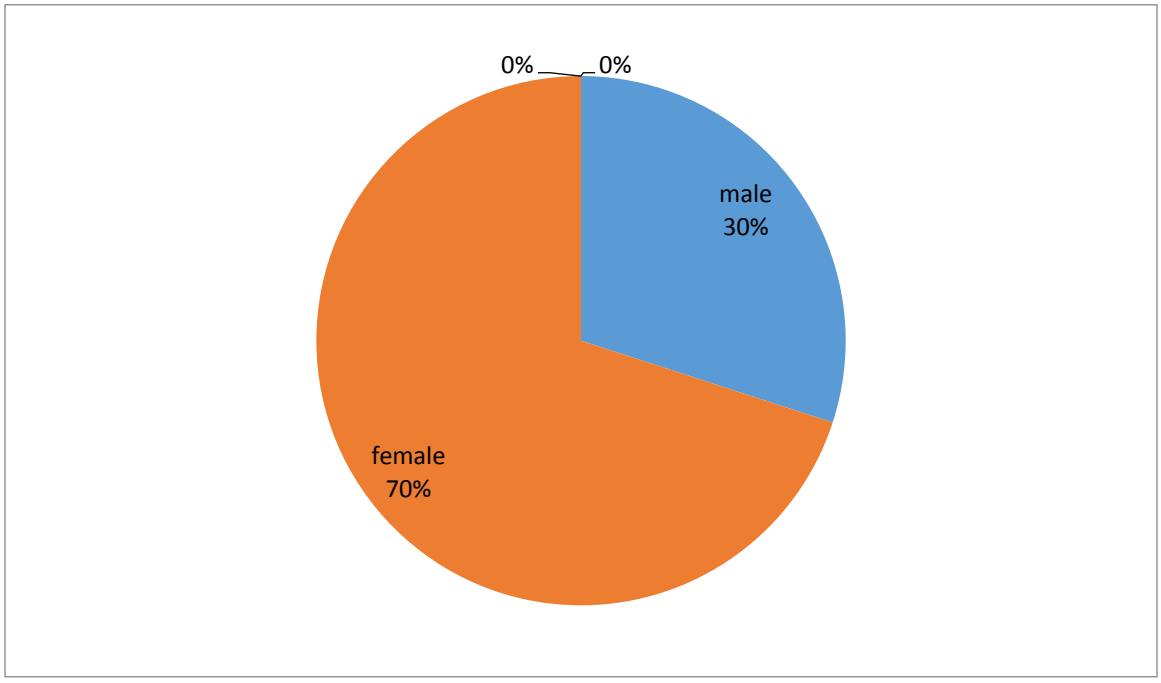
The data were analysis by using (SPSS) computer program, version20. The result was came in two ways figure and table.

Ethical considerations

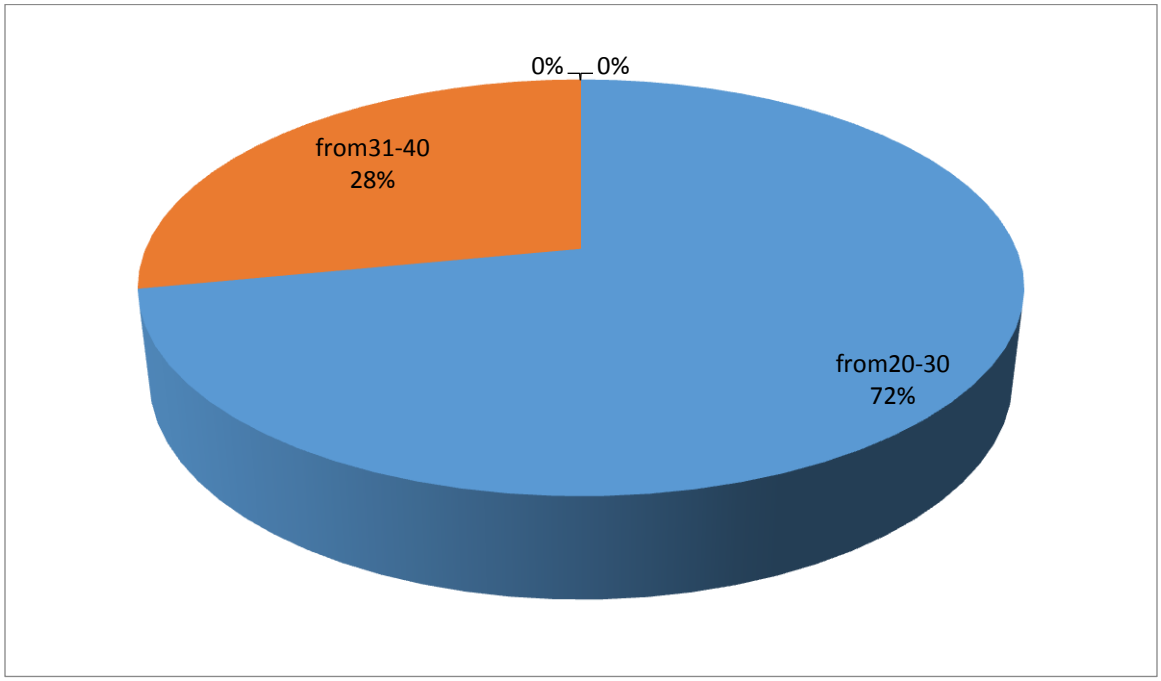
Permission to carry out this study was granted by the ethics and research committee of the college of nursing, Shandi University, CCU and ICU departments and verbal consent prior to interview obtained from participants.

Result

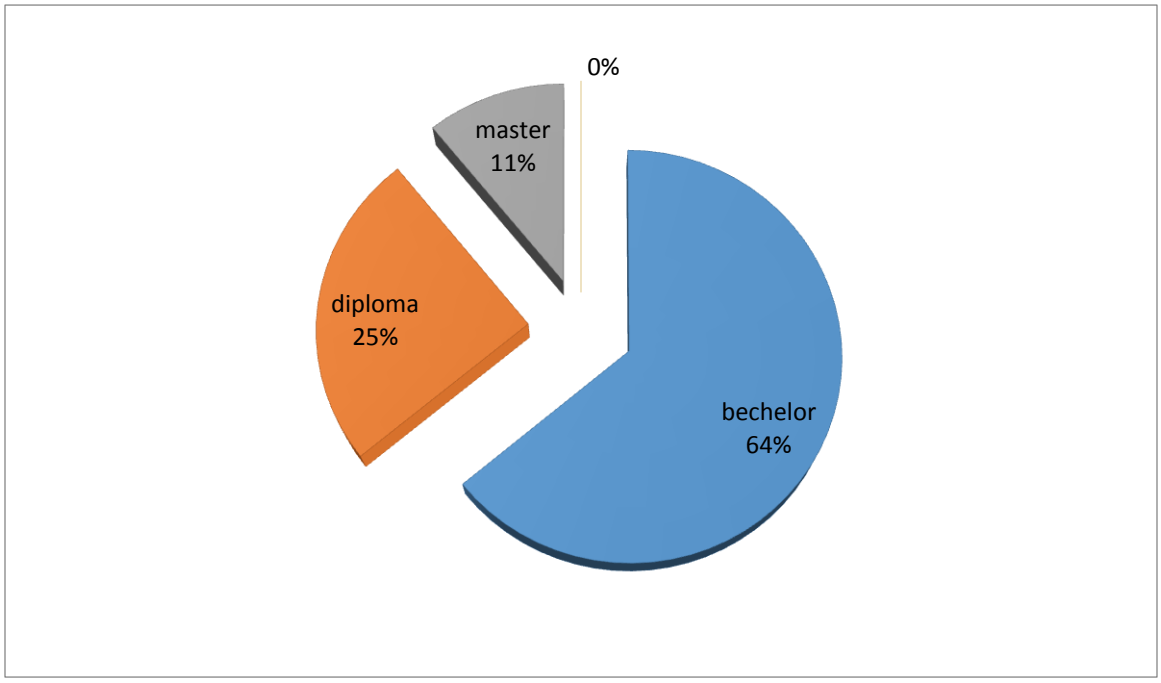
1- Fig1-Distribution of gender:-



2- Fig2-Distribution of age



3- Fig3- Distribution of level education:



4- Fig4- Experience

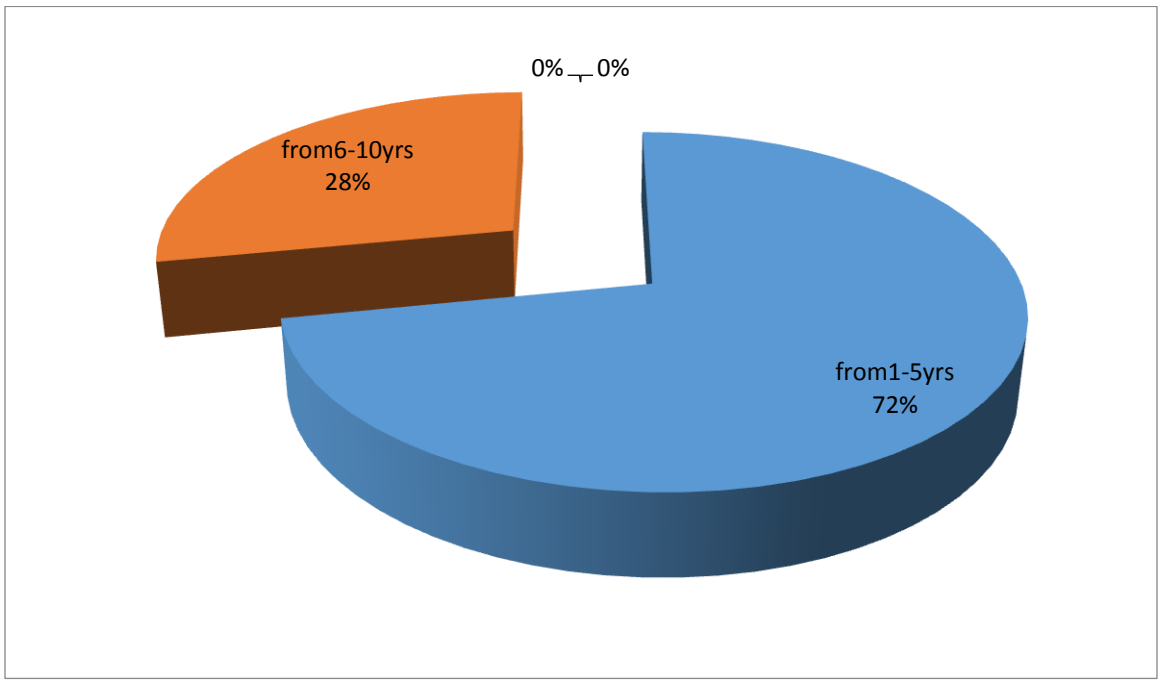


Table (1): Distribution of participants regarding knowledge about streptokinase:

	Frequency	**Percentage**
Yes	45	90%
No	5	10%
Total	**50**	**100%**

Table (2): Distribution of participants regarding knowledge about streptokinase indication:

	Frequency	Percentage
Myocardial information	48	96%
Pulmonary embolism	34	68%
Cardiac arrest	6	12%
Deep vein thrombosis	26	52%

Table (3): Distribution of participants regarding knowledge about the investigation before starting streptokinase:

	Frequency	Percentage
TT, a PTT, PT2- Het, and platelet	15	30%
Cardiac enzyme	43	86%
INR	45	90%
LFT	13	26%
ECG	6	12%

Table (4): Distribution of participants regarding knowledge of clearance of SK by the liver

	Frequency	Percentage
Yes	45	90%
No	5	10%
Total	**50**	**100%**

Table (5): Distribution of participants regarding knowledge about the Intravenous administration action:

	frequency	**Percentage**
To reduce blood pressure	26	52%
To reduce total peripheral resistance.	19	38%
Reduction in cardiac afterload	5	10%
total	**50**	**100%**

Table (6): Distribution of participants regarding knowledge about the side effect of streptokinase:

	frequency	**Percentage**
Hemorrhage at the injection site.	21	42%
Ecchymosis.	18	36%
Gastrointestinal bleeding.	9	18%
genitourinary bleeding	13	26%
Epistaxis.	10	20%

Table (7): Distribution of participants regarding knowledge about contraindication of streptokinase:

	Frequency	**Percentage**
Previous cerebrovascular	33	66%
Episodes	45	90%
Internal bleeding	44	88%
Pregnancy	27	54%

Anticoagulant therapy thyroid	25	50%

Table (8): Distribution of participant's knowledge about effect of streptokinase in pregnant women

valid	frequency	Percentage
Yes	11	22%
No	39	78%
Total	**50**	**100%**

Table (9): Distribution of participant's knowledge about the ways of administration of streptokinase:

Valid	frequency	Percentage
Intravenously	40	80%
Intra oseas	3	6%
Intracoronary	7	14%
Total	**50**	**100%**

Table (10): Distribution of participants knowledge about the precaution of streptokinase:

Valid	frequency	Percentage
Hyperglycemia & older >70 years	24	48%
Trauma & recent surgery	45	90%
Hypokalemia	28	56%
Cerebral neoplasm & nephritis	23	46%

Table (11): Distribution of participant's knowledge about streptokinase complications:

Valid	frequency	Percentage
Severe hypertension recent stroke	36	72%
Cerebral neoplasm.	49	98%
Recent history of peptic ulcer disease.	25	50%
Ulcerative colitis	13	26%
Pancreatitis.	20	40%
Sub-acute bacterial endocarditic.	13	26%

Table (12): Distribution of participant's knowledge about Precautions measures that should be taken by nurses to prevent streptokinase complications:

	frequency	Percentage
Take vital signs every 15 minutes	26	52%
giving aspirin	48	96%
Check cardiac monitor	40	80%

Table (13): Distribution of participants about knowledge of the priority of nursing action to prevent hemorrhage:

	Frequency	Percentage
Observe all puncture sites every 15 minutes	47	94%
Apply manual pressure to venous or arterial sites	33	66%
limit venipuncture and injections	29	58%
prevent IM Injection	14	28%

Table (14): Distribution of participant's knowledge about the priority nursing action to prevent hypotension:

	frequency	**Percentage**
monitor the client's blood pressure	48	96%
give streptokinase infusion slowly	44	88%
below the head of the bed	22	44%

Table (15): Distribution of participant's knowledge regarding the emergency interventions for arrhythmia:

	frequency	Percentage
Resume compression and ventilation	25	50%
Implemented emergency intravenous	36	72%
administer epinephrine	29	58%

Discussion:

This study is done to evaluate nurse's knowledge regarding of streptokinase therapy the in ICU; CCU the study is cross sectional done in Al- shaab teaching hospital the period between May 2017 to September 2017. These studies are to shed some light on the nurse's knowledge regarding streptokinase therapy.

-From information gathering, it's found that the majority of the staff was female (70%) which is expected because of increased female that interest in nursing college than male. the age of study population was between 20-30 years old, which means young & have fresh & updating information's .their experience was 1-5 yr. which is correlated to their age (just 14 nurses have 6-10 year experience) & their level of education was (25% diploma,61%BSc, 14% MSc).

Age distribution showed that, 39 (78%) of nurses participated in the study were in the age of 20-30 years, 11(22%) had age more than 30 years. Gender distribution showed that, 35(71%) were females and 15(29%)were males, In regard to experience, 36 (60.5%) had experience of 1-5 years, 14(33.5%) had experience of 6-10 years, Level of education showed that: 35(70%) have bachelor degree, 12(24%) have diploma degree, and just 3(6%) have master degree.

In regard to knowledge towards SK therapy showed that, 45(90%)of nurse identified the SK therapy, In Table (2) shows that most (96%) of participants indicated that they know myocardial information as streptokinase indication, since for (68%) of them is pulmonary embolism, Table (3) shows (86%) of them know about cardiac enzyme, for (90%) of them is INR and (26%) of them know about LFT, table (4) shows that the majority (90%) of participants know that streptokinase is eliminated clearance by sites in the liver,
Table (5) shows that most (52%) of participants indicated that the intravenous administration action they know is to reduce blood pressure, since for (38%) of them is to reduce total peripheral resistance, while only (10%) of them that is reduction in cardiac afterload, compare with study As posts such as 'acute chest pain nurse', 'thrombolysis nurse', 'nurse-initiated thrombolysis' or 'nurse-led thrombolysis' increase and National Health Service targets tighten, it is timely to critically review the educational preparation for these roles for evidence of coherence[(22)].

Table (6) shows that most (42%) of participants indicated hemorrhage at the injection is the site effect of streptokinase that they know, since for (38%) of them is Ecchymosis, Table (7) shows that most (66%) of participants indicated contraindication of streptokinase that they know is previous cerebrovascular, since for (90%) of them is episodes, for (88%) of them is internal bleeding, and for (54%) of them is pregnancy, while for (10%) of them is anticoagulant therapy thyroid.

Table (8) shows that pregnant isn't candidate for streptokinase therapy, while (78%) of them don't agree to not be candidate for streptokinase therapy. Table (9) shows that most (80%) of participants indicated the ways of administration of streptokinase they know is intravenously, compare with research maximum of participant 80% know the right way to administration SK, But in that research the writer found that it is stressed that there is a need for national consultation relating to guidelines, standards and accreditation of practice schemes in this area of patient care[23].

Table (10) shows that contraindication of SK (90%) of them is Trauma & recent surgery. Table (11) shows that most (72%) of participants indicated the streptokinase complications that they know is severe hypertension recent stroke, since for majority (98%) of them is cerebral neoplasm, Table (12) shows that (52%) of participants indicated the precautions measures that should be taken by nurses to prevent streptokinase complications is to take vital signs every 15 minutes, since for (96%) of them is giving aspirin, while for (80%) of them that is to check cardiac monitor.

Table (13) shows that the majority (94%) of participants indicated the priority of nursing action to prevent hemorrhage is to observe all puncture sites every 15 minutes, since for (66%) of them is to apply manual pressure to venous or arterial sites .Table (14) shoes that the majority (96%) of participants indicated the priority of nursing action to prevent hemorrhage is to monitor the client's blood pressure, since for (88%) of them is to give streptokinase infusion slowly, Table (15) shoes that the majority (96%) of participants indicated the emergency interventions for arrethymia is to resume compression and ventilation, since for (88%) of them is implemented emergency intravenous.

Conclusion:

Study came out with the fallowing found:

-the majority of staffs had a good knowledge regarding definitions of streptokinase, indication of streptokinase, and contraindication of streptokinase.

- Two third of the nurses have a fair knowledge regarding the side effect of streptokinase.

Recommendation

- work shop are necessary to improve the nurse's ability dealing with management with such therapy.
- continues training course for nursing about the contact with streptokinase therapy.

- Further studies are needed to elaborate the effects of different variables on the knowledge and practice of nursing.

Reference:

1-lilley aucker Albanese pharmacology and the nursing process Nancy coon, robin carter, united stat 1996 by vonhoff Mann press, peg375,376.

2- mosbysanne burgess hann pharmacology in nursing Thomas alisonmiller sixteen edition, united state 1982 by westline industrial drive peg 535.

3- . Drugs.com. Streptokinase Side Effects in Detail - Drugs.com [Internet]. 2014 [cited 31 December 2014]. Available from:http://www.drugs.comlsfxlstreptokinase-sideeffects .html#refs

4-.Hishamuddin HM e. Acute myocardial infarction survival rate and complications after s... - PubMed - NCBI [Internet]. Ncbi.nlm.nih.gov. 2015 [cited 1 January 2015]. Available from: http ://www.ncbi.nlm.nih.gov/pubmedJ82662O2

5- Abendschein D, Seacord LM, Nohara R, Sobel BE, Jaffe AS. Prompt detection of myocardial injury by assay of creatinekinase isoforms in initial plasma samples.Clin Cardiol 1988;11:6614.
6- -Adams PC, Fuster V, Badimon L, Badimon JJ, Chesebro JH. Platelet/vessel wall interactions, rheologic factors and thrombogenic substrate in acute coronary syndromes: preventive strategies. Am J Cardiol 1987;60:9G-16G.
7- Adams JE, Bodor GS, Dávila-Román VG, et al. Cardiac troponin I, a marker with high specificity for cardiac injury. Circulation 1993;88:101-6.
8- AIMS Trial Study Group. Effect of intravenous APSAC on mortality after acute myocardial infarction: preliminary report of a placebo controlled clinical trial. Lancet 1988;i:545-9.
9- -Alexopoulos D, Raine AE, Cobbe SM. Serum-sickness complicating intravenous.
streptokinase therapy in acute myocardial infarction. Eur Heart J 1984;5:1010-2

10- -Amery A, Maes H, Vermijlen J, Verstraete M. The streptokinase-reactivity test. Thromb Diath Haemorrh 1963;9:175-88.
11- Anderson JL, Karagounis LA, Becker BC, Sorensen SG, Menlove RL, for the TEAM-3 Investigators. TIMI perfusion grade 3 but not grade 2 results in improved outcome after

thrombolysis for myocardial infarction: Ventriculographic, enzymatic, and electrocardiographic evidence from the TEAM-3 study. Circulation 1993;87:1829-39.

12- Angleton P, Chandler WL, Schmer G. Diurnal variation of tissue-type plasminogen activator and its rapid inhibitor (PAI-1). Circulation 1989;79:101-6.

13- Anonymous editorial. Hirudins: return of the leech? Lancet 1992;340:579-80.

Ansell J, Tiarks C, Hirsh J, McGehee W, Adler D, Weibert R. Measurement of the activated partial thromboplastin time from a capillary (fingerstick) sample of whole blood. A new method for monitoring heparin therapy. Am J Clin Pathol 1991;95:222-7.

14- Arnout J, Simoons M, de Bono D, Rapold HJ, Collen D, Verstraete M. Correlation between level of heparinization and patency of the infarct-related coronary artery after treatment of acute myocardial infarction with alteplase (rt-PA). J Am Coll Cardiol 1992;20:513-9.

15- Astrup T, Permin PM. Fibrinolysis in animal organism. Nature 1947;159:681-2.

16- Aznar J, Delgado F, Estellés A. Streptokinase resistance test in patients with streptococcal infection and/or high antistreptolysin titers. Scand J Haematol 1976;16:141-143.

17- -Arnesen H, Rygh M, Ly B, Jakobsen E. Streptokinase resistance in medical patients in Oslo. Scand J Haematol 1977;18:348-52.

18- Badimon L, Lassila R, Badimon J, Vallabhajosula S, Chesebro JH, Fuster V. Residual thrombus is more thrombogenic than severely damaged vessel wall. Circulation 1988;78:II-119.

19- Badimon L, Badimon JJ, Lassila R, Heras M, Chesebro JH, Fuster V. Thrombin regulation of platelet interaction with damaged vessel wall and isolated collagen type I at arterial flow conditions in a porcine model: effects of hirudins, heparin, and calcium chelation. Blood 1991;78:423-34.

20- Hayman LL, et al. The role of nursing in promoting cardiovascular health Journal of the American College of Cardiology. 2015; 66(7): 864-866. Available from: http://content.onlinejacc.org/article.aspx?articleid=2423752

21- Arntz HR, et al. Contemporary Management of Acute St segment Myocardial infarction, Thrombolysis and PCI as major treatment options. 2009.

22- Abdelhameed AM, et al. Impact of a Designed Nursing Intervention protocol on Myocardial Infarction Patient's Outcome at a selected University Hospital in Egypt. Journal of Biology, Agriculture and Healthcare. 2013.

23- Hazinski MF, et al. International Consensus on CardiopulmonaryResuscitation and Emergency Cardiovascular Care Science With Treatment, Recommendations. Circulation. 2010; 122: S250-S27

BY THE NAME OF ALLA

University Of Shandi

Faculty of nursing science

Batch 1

Evaluation of nurses' knowledge regarding streptokinase in al-shaab hospital 2017

Questionnaire:-

Demographic data of participant:

1) Gender:

1-male 2- Female

2) Age: 1/ 20-24yrs 2 / 25-29yrs 3/above 30 yrs.

3) Level of education:

1-Bachelor 2-Master degree 3-PhD 4-diploma

4) Duration of experience:

1-(1-2) yrs. 2-(3-4) yrs. 3- 5yrs and above

Measure the level of nurses' level of knowledge regarding SK:

5) Streptokinase is produced from beta-hemolytic streptococci. :

1- Yes 2-No

7) streptokinase is eliminated is clearance by sites in the liver:-

1- Yes 2-No

8). Intravenous administration act to:-

1- To reduce blood pressure. 2-To reduce total peripheral resistance.

3- Reduction in cardiac afterload.

9)The side effect of streptokinase:-

1- Hemorrhage at the injection site.

2- Ecchymosis. 3-Gastrointestinal bleeding.

4-genitourinary bleeding.

5- Epistaxis.

10) **The indications of Streptokinase**

1-Myocardial infarction 2- Pulmonary embolism

3- Arterial Thrombosis or Embolism

4- Occlusion of Arteriovenous Cannula

5-Deep vein thrombosis.

11)**The investigation before administration of streptokinase which investigation you should expect to do as base line?**

1 -TT, a PTT, PT. Het, and platelet count prior.

2-Cardiac Enzymes

3-INR

4- LFT 5- ECG

12) The contraindications of streptokinase are:

1-previous cerebrovascular episodes

2-Internal bleeding 3-Pregnancy

4-Anticoagulant therapy 5-Thyroid

13) When taken history from a lady with acute myocardial infarction you found she is pregnant is she candidate for streptokinase therapy?

1-Yes 2- No

14) The ways of administration of streptokinase are:

1-intravenously 2- Intramuscular

3-Intracoronary 4-intraoseas

15) The precaution of streptokinase are?

1- Hyperglycemia& older >70 years

2- Trauma & recent surgery

3- Hypokalemia & pregnancy

4- Cerebral neoplasm & nephritis

16) The streptokinase complications are

1- Severe hypertension recent stroke
2- Cerebral neoplasm.
3- Recent history of peptic ulcer disease.
4- Ulcerative colitis.
5- Pancreatitis.
6- Sub acute bacterial endocarditic.

17) Precautions measures that should be taken by nurses to prevent streptokinase complications are:

1-Take vital signs every 15 minutes

2-giving aspirin 3-Check cardiac monitor

18) The priority of nursing action to prevent hemorrhage are:

1-Observe all puncture sites every 15 minutes

2-Apply manual pressure to venous or arterial sites

3-limit venipuncture and injections

4-prevent IM Injection

19) The priority nursing action to prevent hypotension's are:

1-monitor the client's blood pressure

2-give streptokinase infusion slowly

3- below the head of the bed

20) The emergency interventions for arrthymia are?

1- Resume compression and ventilation

2- Implemented emergency intravenous

3-adminster epinephrine