



بسم الله الرحمن الرحيم

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**Patient awareness regarding un control Diabetes
Mellitus in Dongola Diabetes center - 2017**

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الآية

قال الله تعالى :

﴿ وَنُنزِّلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاءٌ وَمَرْحَمَةٌ لِلْمُؤْمِنِينَ وَلَا يَرْبُدُ الظَّالِمِينَ إِلَّا خَسَارًا ﴾

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Dedication

For every one who light the other mind by his knowledge or gave ideal instruction I am dedicated this research for my mother who are .not scant for us by anything at anytime.

For my Prather's and sisters who are gave us love and kindness. For my Husband and my offspring and to the spirit of mi father who is still alive with in us forever

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I as well as thanks to all of Sandi university and the higher education Branch of Khartoum .And thanks to my Husband who support me and my Prather's and sisters and my colleagues .Special thanks to my beloved mother Zeinab Abdul Ra man

And I would like the thanks to the relocation of the Diabetic center Donola

I thank my sons Ammar, Amer and my daughter Ragad

الملخص:

مرض السكري هو احد أكثر الأمراض انتشارا في العالم و يعاني منه ما يقارب الثلاثمائة و خمسون مليون مريض في العالم ، و يتزايد عددهم كل عام بنسبة كبيرة و ينتشر مرض السكري في السودان من القدم و بصورة اكبر في الولاية الشمالية، مرض السكري هو متلازمة مرضية تشمل علي اضطراب و ارتفاع شاذ في مستوى السكر في الدم بسبب نقص هرمون الانسولين .

تهدف هذه الدراسة إلي تقييم مدي معرفة مرضي الداء السكري عن كيفية التحكم بالمرض

أجريت الدراسة في 147 عدد من المرضي المصابون بداء السكري بدراسة وصفية مقطعية في الولاية الشمالية في عام 2017 حيث تم جمع البيانات بواسطة استبيان مغلق الأسئلة و تم تحليلها يدويا بالطرق الإحصائية البسيطة و من ثم عرضت في أشكال و جداول .

و من أهم النتائج توصلت إليها الدراسة ، أن معظمهم (90-46%) أعمارهم ما بين (30-50 سنة) و ما يزيد من نصف عددهم إناث ، يعيشون في القرى و الأرياف و(84,4%) منهم مصابون بالنوع الثاني من داء السكري ، و ما يزيد عن ثلثهم لا يدركون عن أهمية ممارسة التمارين الرياضية . كما تشير هذه النتائج ان مجتمع الدراسة هؤلاء يدركون كيفية التحكم في داء السكري

توصلت الدراسة إلي عدة توصيات تتمثل في ضرورة توفير وسائل النقل مع مراعاة الحالة الاقتصادية للمرضي مع توفير العلاج و تقليل قيمة الفحوصات ، وإقامة ندوات تثقيفية و توعية لزيادة المعرفة للمرضي ، إضافة إلي ضرورة زيادة عدد مراكز المتابعة لتشمل القرى ذات الكثافة السكانية الاعلي

Abstract

Diabetes Mellitus is a group of metabolic disease characterized by increased level of glucose in the blood due to lack of insulin hormone ,and treated by diet (right nutrition) ,exercise ,follow up , medication and regular education , with different complications . It is one of the most common and prevalence disease in world. The major complication is hypoglycemia, hyperglycemia ,diabetic keto acidosis and diabetic septic food

This study aimed to assess the diabetic patient awareness regarding un control diabetes

Study design. was descriptive cross sectional study in Dongola Diabetic center North of Sudan from April to September 2017 .The study covered the stable and not refused to participate patients who came to the center (147) patients.Sampling and sample size technique was used , and the data was collected by questionnaire and analyzed manually by simple statistical technique and excel

Result reveal , most of them(90-46%) their age between (30-50) years , more than half were female ,living in rural area , and (84,4%)with type 2 diabetes . More than tow third of them were not aware about physical activity or resuming exercise .

The overall finding indicated that study group aware about the un control diabetes

Recommendation , appropriate education program should be planned and future research is needed to assess diabetic patient compliance regarding self care management , also the access of the patient to the center and a viability of treatment must be provided and facilitated by the officials , and teach the patients about lifestyle , diet, exercise and regular follow up

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Chapter one

Introduction :

Diabetes Mellitus is a group of by increase metabolic disease characterized level of the blood glucose in the blood (Hyperglycemia) resulting from defect insulin recreation ,insulin action or both(1) .first described cases are be lived to be of type1 diabetes Indian physicians around the same time in [400-500]Bc .The pathogenesis of diabetes has only been understood experimentally since about 1900(2)

Globally an estimated 422 million adult are living with diabetes mellitus according to the lasts 2016 data from the WORLD HEALTH ORGANIZTIO.Diabetes prevalence is increasing rapidly previous 2013 estimated from the international Diabetes Federation but the number at 381 million people having diabetes in the world ,but is more common type2in the more developed countries the greatest increase in prevalence is however occurring in low and middle income countries including In Asia and Africa where most patient will probably be found by 2023 the increase in incidence follows the trend of urbanization and lifestyle change including increasingly sedentary lifestyle ,less physically demanding work and global nutrition transition.Marked by increasing intake of food that are high energy dense but nutrition poor often high sugar and saturated fats(3)

Sudan has for along time suffered economic collapse drought and civil war .Diabetes is a currently emerging as an important health problem the acutely prevalence of diabetes is un known although one small study showed a prevalence of 3,4 diabetes is a common cause of hospital admission and morbidity due to a non communicable disease . the problem of diabetes care in Sudan include lake of efficient diabetes care center , lake of specially trained personnel ,the high cost of anti diabetes treatment ,poor compliance with therapy or diet ignorance and wrong belief food and dietary factor (4).The Northern state of Sudan documented the highest level of incidence diabetes in Sudan ,the cause this highest level is wrong or poor dietary program (5)

Objective:

General objective:

To Study patient Awareness regarding un control diabetes

Specific objective:

1. To identify level of patient awareness about the diabetes
2. To identify the factor and barriers that leading to not access the patients to the center
3. To identify measure used by patient to prevent un control

Rational:

Diabetes mellitus is third cause of death from disease primarily because of high rate of cardiovascular disease. It is serious condition, poor of control of which is a linked to long term complication and death. People with diabetic don't know the majority of un control complication. People with diabetic struggle to meet lifestyle target weight control exercise and diet control. Increasing patient number coupled with poor control of blood glucose sees the number of people with diabetes mellitus .

Chapter Two

Literature Review

Definition of Diabetes :

Diabetes mellitus : is a group of metabolism disease characterized by increased level of glucose in the blood resulting from defects in insulin secretion, insulin action or both (1)

Normally a certain amount of glucose circulates in the blood the major sources of this glucose are absorption of ingestion food in the gastrointestinal tract and formation of glucose by the liver food substance (2)

In individual with diabetes this is process in impaired diabetes developed when the pancreas fails to produces sufficient quantities of insulin type1 diabetes or insulin produced is defective and control move glucose into cell type2 diabetes either insulin or the insulin is not predicted in sufficient quantities produce is defective and can not move glucose in to the cell (2)

Patho physiology of Diabetes:

Diabetes occur when there is misbalance between the demand and production of the hormone insulin

Control o blood sugar. When food is taken it is broken in to smaller component , sugar and carbohydrates are thus broken down in to glucose for the body utilize them as an energy sources .the liver is also able to manufacture glucose

In normal person the hormone insulin which is made by the beta cells of the pancreas regulates how much glucose is in the blood .when then is excise of glucose in blood insulin stimulates cells to absorb enough glucose from the blood for the stimulate the liver to absorb and store any excise glucose that is in the blood insulin relies is triggered after the meal when there is rise in blood glucose .which blood glucose level fall during exercise for example insulin level fall too(6)

Patho physiology type1 diabetes.

In this condition the immune system attack and destroy the insulin producing beta cell of the pancreas ,there is beta cell deficiency leading to complete insulin deficiency ,thus is it termed an auto immune disease where there are anti insulin or anti islet cell anti bodies present in blood , these cause lymphocytic infiltration and destruction of the pancreas islets , the onset of disease is rapid and may occur over after days to week

There may be other autoimmune condition associated with type1 diabetes including vitiligo and hypothyroidism (6)

Path physiology of type2 diabetes :

This condition is caused by a relative deficiency of insulin and not an absolute deficiency .this a means that the body's is un able to produce a adequate insulin to meet the need .there is beta cell deficiency coupled with peripheral insulin resistance mean that although blood levels of insulin are high there is no hypoglycemia or low blood sugar ,this may be due to change in the insulin receptors that bring about the action of the insulin

Obesity is main cause resistance , in most cases over time the patient need to take insulin when oral drug fail to stimulate a adequate insulin release(6)

Path physiology of gestational diabetes :

Gestational diabetes is caused when there are excessive counter –insulin hormone of pregnancy ,this lead to state of insulin resistance and high blood sugar in the mother ,there may be defective insulin receptor (6)

Classification of Diabetes:

The major classification of diabetes mellitus are type1 diabetes , type2 diabetes , gestational diabetes , and diabetes mellitus associated with other condition or syndrome

The major classification of diabetes mellitus , current terminology ,old labels and major clinical characteristics .This classification system is dynamic in two way .the first research findings suggest many differences among individuals with in each category .Second, except for people with type1 diabetes patient mcaay move from one category to another(6)

Type1 Diabetes :

The insulin –producing in pancreas beta cell are destroyed by an autoimmune process ,as a result, patient produce little or no insulin and require insulin injection to control their blood glucose levels

Type1 diabetes affects approximately 5% to 10% of people with disease type1 diabetes is characterized by an acute onset ,usually before 30 years of age .Type1 diabetes is characterized by destruction of the pancreatic beta cells, combined genetic

,immunologic and possibly environmental (eg viral) factor are thought to contribute to beta cell destruction ,it is generally accepted that a genetic susceptibility is a common underlying factor in the development of type1 diabetes(6)

Type2 Diabetes :

In type2 diabetes. People have decreased sensitivity to insulin (called insulin resistance) and impaired beta cell functioning resulting in decreased insulin production . type2 diabetes affects approximately 90% to 95% of people with disease .It occurs more commonly among people who are older than 30 years of age and obese . although its incidence is rapidly increasing in younger people because of the growing epidemic of obesity in children adolescent and young adult . Initially , type2 diabetes is treated with diet and exercise , if elevated glucose level persist ,diet and exercise are supplemented with oral anti diabetes agent , in some people with type2 diabetes oral agent control hyperglycemia, and insulin injection are required in addition insulin injection may be necessary during periods of acute physiological stress

The two main problem related to insulin in type2 diabetes are insulin resistance and impaired insulin secretion . insulin resistance refer to decreased tissue sensitivity to insulin .

Normally insulin binds to special receptors on cell surface and initiates a series of reaction involve in glucose metabolism In type2 diabetes these intercellular reaction are diminished , making insulin less effective at stimulating glucose uptake by the tissue and at regulating glucose release by the liver Because type2 diabetes is associated with a slow progressive glucose intolerance , its onset may go undetected for many years .(6)

Diabetes mellitus associated with other condition or syndrome :

Accompanied by condition know or suspected to medication such cause the disease .pancreatic disease hormonal abnormalities as corticosteroid and estrogen containing preparation depending on the ability of the pancreas to produce insulin , the patient may require treatment with oral anti diabetic agent or insulin (6)

Gestational diabetes: Onset during pregnancy usually in second or third trimester due to hormone secreted by the pancreas , which inhibit the action of insulin . Treated with diet and if needed insulin to strictly maintain normal blood glucose level

Occur in about 2-5% of all pregnancies . Risk factors include obesity , age older than 30 years , family history of diabetes , previous large babies(6)

Impaired glucose tolerance :

Borderline diabetes .oral glucose tolerance test value between 140mg/dL (7,7 mmol/L)

Chemical diabetes .Impaired fasting glucose is defined as a fasting plasma glucose between 110mg/dL(6mmol/L) and 126mg/dL(7mmol/L)

Asymptomatic diabetes .29% eventually develop diabetes .Above normal susceptibility to atherosclerotic disease renal and retinal complication

Pre diabetes: Previous abnormality of glucose tolerance .current normal glucose metabolism , previous history of hyperglycemia (eg, during pregnancy or illness) periodic blood glucose screening after age 40 year (1)

Diabetes symptom :

Main symptom of diabetes .

There are three cardinal features of high blood sugar and diabetes these include:

Polydipsia .increased thirst

Polyphagia . increased hunger

Polyuria . increase frequency of urination particularly at night

Other symptom of diabetes .

In addition there is increased feeling of tiredness and fatigue in most type1 diabetes there may be unexplained weight loss of muscle bulk , this may not be common among type2 diabetes

Type1 diabetes usually develops rapidly over weeks or even days whereas type2 diabetes develops slowly over years .people with type1 diabetes may be very sick by the time they are diagnosed , they also develop dehydration ,ketonuria and breathlessness Because type2 develops slowly some people with high blood sugar have no symptoms

Long term features of diabetes :

Blurred vision or eye problems , light sensitivity , blindness may occur.

Pain and tingling due to nerve damage in fingers, nerve damage also lead to problem in digestion food and urinating (6)

Diabetes diagnoses and investigation:

Diabetes is diagnosed by performing a blood test , the test usually reveals high blood glucose , steps in diagnosis include :

If patient present with symptoms of diabetes a blood test for blood glucose is ordered .in most cases of type1 diabetes mellitus there may be little or no symptoms this mean high blood sugar may be detected on a routine blood test .

Diabetes is diagnosed on the basis of a single abnormal plasma glucose reading .When taken randomly at any time of the day the level are significant if they are above 11,1mmol /L and when taken after an overnight fast the number are significant if above 7mmol /L (126mg/dl) this is considered positive for diabetes when there is presence of diabetes symptom such as thirst increasing urination recurrent infection weight loss drowsiness (6)

If people have no symptom an abnormal random plasma glucose followed by two more abnormal fasting blood glucose reading over 7mmol/L is significant .Patient with fasting glucose level from 100 to 125 mg/dL (6,1 and 7,0mmol/L) are considered to have impaired fasting glucose .

Once an abnormal glucose is obtained , blood glucose is tested again two hours after a full meal ,this usually means after 75g anhydrous glucose when an oral glucose tolerance test (OGTT) is performed . Reading over 11,1 mol/l is significant for diabetes . patient with plasma glucose at or above 140mg/dl or 7,8 mmol/l , but not over 200, two hours after 75g oral glucose load are considered to have impaired glucose tolerance . this raises the risk for acquiring diabetes in near future if uncontrolled

Laboratory examination:

HgbA. Fasting lipid profile . Test for microalbuminuria . serum creatinine level . urinalysis . electrocardiogram (1)

The management of Diabetes :

The main goal of diabetes management is to normalized insulin activity and blood glucose level to reduce the development of vascular and neuropathic complication

Diabetes management has five components :

Nutritional therapy.

Exercise .

Monitoring.

Pharmacological therapy .

Education.

Treatment varies because of change in lifestyle and physical and emotional status as well as advance in treatment method . Therefore , diabetes management involve constant assessment and modification of the treatment plan by health professional and daily adjustment in therapy by the patient(1)

Nutrition therapy :

Nutrition , meal planning and weight control are the foundation of diabetes management to control of total caloric intake to attain or maintain a reasonable body weight ,control of blood glucose level and normalization of lipids and blood pressure to prevent heart disease (1)

Nutrition management of diabetes include the following goals :

Providing all the essential food constituents . Meeting energy needs . Achieving and maintaining a reasonable weight . Decreasing serum lipid level

To teach diet principles and to help patient in meal planning , several systems have been developed in which food are organized with common characteristics such as a number of calories composition of food (ie, amount of protein ,fat ,or carbohydrate in the food or effect on blood glucose level (1)

Exercise :

Benefits :Exercise is extremely important in diabetes management because of its effects on lowering blood glucose level and reducing cardiovascular risk factor . It also improves circulation and muscle tone resistance . Exercise also alters blood lipid concentration

Exercise precautions. Patient who have blood glucose level exceeding 250mg/dl (14mmol/l) and who have ketones in their urine should not begin exercising until the urine test results are negative for ketones and blood glucose level is closer to normal

General precaution for exercise in people with diabetes .

Use proper footwear and if appropriate other protective equipment .

Avoid exercise in extreme heat or cold.

Inspect feet daily after exercise .

Avoid exercise during periods of poor metabolic control (1)

Monitoring of glucose and ketone level :

Blood glucose monitoring is cornerstone of diabetes management and self monitoring of blood glucose (SMBG) level by patient has dramatically altered diabetes care .This allow for detection and prevention of hypoglycemia and hyperglycemia and plays a crucial role in normalizing blood glucose level which in turn may reduce the risk long term diabetes complication (1)

Pharmacological thereby :

As previously stated , insulin is secreted by the beta cells of the islets of LANGERHANS and works to lower the blood glucose level after meals by facilitating the uptake and utilization of glucose by muscle ,fat ,and liver cells . in the absence of adequate insulin pharmacological therapy is essential (1)

Insulin therapy and insulin preparation :

In type1 diabetes exogenous insulin must be administered for life because the body loses the ability to produce insulin may be necessary on a long term basis to control glucose level

In type2 diabetes is usually controlled by meal planning alone or by meal planning and oral anti diabetic agent may require insulin temporarily during illness, infection, pregnancy surgery or other stressful event (1)

Time course of action:

Insulin may be grouped in to several categories based on the onset, peak, and duration of action

Time course	Agent	Onset	Peak	Duration	Indication
Rapid action	Lispro(Humalog)- Apart (Novolog)	10-15 min -5- 15 min	1h-40- 50min	2-4h-2-4h	Used for rapid reduction of glucose level to treat postprandial hyperglycemia
Short action	Regular (Humalog R Novolin R ,iletinII regular)	1\2-1 h	2-3 h	4-6 h	Usually administrated 20-30min before meal
Inter mediate action	NPH (neutral protamine hagedom) (HumulinN. iletin II lent iletin II NPH Novolin L Novolin N	2-4h 3-4h	4-12h 4-12h	16-20h 16-20h	Usually taken before food
Long action	Uterlente (UL)	6-8h	12-16h	20-30 h	Used primarily to control fasting glucose level
Very long ad action	Glarine (Langtus)	1h	Continu ous no peak	24h	Used for basal dose

Oral anti Diabetes thereby :

Oral anti diabetic agent may be affected for patient who have type2 diabetes that can not be treated effectively with MNT and exercise alone .

Patient must understand that oral agent are prescribed as an addition to (not as a substitute for) other treatment modalities such as MNT and exercise (1) .

SAULFONYLUREAS.

The sulfonylurea exert their primary action by directly stimulating the pancreas to secrete insulin

REPAGLINIDE (prandin).

An oral glucose lowering agent of the class of oral agent called non-sulfonylurea insulin secreta-gogues , lower the blood glucose level by stimulating insulin release from the pancreatic beta cells

NIGLITINIIDE :(STRALEX)

. another secretagogue , is a derivative of phenalanine it has a very rapid onset and short duration it shuld be taken with meal .

BIGUANIDES .

It is another type of oral anti diabetic agent Metformin (Glucophage) the most commonly used biguanides produces its anti by facilitating the action of insulin on peripheral receptor site it have not affect on pancreatic beta cells it used with sulfonylurea many enhance the glucose (1) .

ALPHA-GLUCOOSIDASE INHIPITOR:

Acarbose (precise) and miglitol (glyset) are oral alpha glucosidase inhibitor used in type2 diabetes management they work by delaying the absorption of glucose in the intestinal system .

Thiazolidinediones :

Rosiglitazone (avandiA) and pioglitason (actos) are oral anti diabetic medication categorized as thiazolidinediones (TZDs) they are indicated for patient withtype2

diabetes who take insulin injection and whose blood glucose control. (1)

Patient education :

Diabetes mellitus is a chronic illness that requires lifetime of special self management behaviors . patient must learn to balance a multitude of factor ,they must learn daily self care patient must become knowledgeable about nutrition , medication effect, and side effects exercise, disease progression, prevention strategies, blood glucose monitoring techniques

One approach is to organize education using the seven tips for managing diabetes identified and developed :

1-Healthy eating 2- Being active 3-Monitoring 4- Taking medicines 5- problem solving 6-Reducing 7-healthy coping

Planning in depth and continuing education :by more detailed information related to survival skills complication and prevention measure include: Foot care – Eye care – General hygiene – Risk factor management (1)

Complication of diabetes mellitus :

acute complication. There major acute complication of diabetes related to short term imbalance In blood glucose level hypoglycemia , diabetic ketoacidosis , and hyperglycemia nonketotic syndrome(HHNC) which is called also hyperglycemic hyperosmolar syndrome (HHS)

Hypoglycemia (Insulin reaction).

Hyperglycemias (abnormally low blood glucose level occurring when blood glucose falls to less than 50 to 60mg /dl (2,7/3,3 mmol/l) It can be caused by too much insulin, oral hypoglycemic agent too ,little food or excessive physical activity it may occur at any time of the day or night , often occurs before meal .

Clinical manifestations: may be grouped in two categories . adrenergic symptom and central nervous system symptom . the nervous system symptom as sweating , tremor ,tachycardia ,palpitation ,nervousness and hunger this in mild hypoglycemia

In moderate hypoglycemia is in ability to concentration ,headache lightheadedness, confusion memory lapses , numbness of lips and tongue ,double vision and drowsiness

The management . Immediate treatment must be given for15g of fast acting concentrated source of carbohydrate orally such as three or four commercially prepared glucose tablets .4 to 6 oz of fruit juice or regular soda . 6 to 10 hard candies. 2 to 3 teaspoon of sugar or Honey

Diabetic ketoacidosis (dka)

DKA is caused by absence or markedly inadequate amount of insulin . The three main clinical feature of DKA are : hyperglycemia . Dehydration and electrolyte los . Acidosis

The clinical manifestation is : polyuria , polydipsia , blurred vision , weakness and headache doe to hyperglycemia , hypotension ,anorexia, nausea, vomiting , abdominal pain , kussmaul respiration , alter ,lethargy and comatose

Management:

Rehydration . the patient may need as much as 6 -10 IV fluid . Initially 0,9% normal saline at rapid rate . usually 0,5 to 2 L/h for 2 to 3 hours

Insulin administration , which enhances the movement of potassium from the extracellular in to the cells .

ECG monitoring. Frequent every 2 to 4 hours initially

Insulin must be infuse continuously until subcutaneous administration of insulin can be resumed .IV insulin may be continued for 12 to 24 hours until the serum bicarbonate level imoroved

Hyperglycemia hyper molar nonketotic syndrome (HHNS):

Is a serious condition , alteration of sensorium(sense of awareness) . the basic biochemical defect is lack of insulin . persistent hyperglycemia caused osmotic dieresis .

Clinical manifestations . The clinical picture o HHNS is one of hypotension , dehydration , tachycardia seizures ,hemi paresis

MANAGEMENT : Fluid replacement , correction of electrolyte imbalance and insulin administration. Rehydration is started with 0,9% or 0,45% normal saline . Potassium is added to IV fluid when urinary output is adequate and guide by continuous ECG monitoring (1)

Long term complication of diabetes :

Macro vascular complications.

Result from medium to large blood vessel walls thicken . Myocardial infarction is twice as common in men with diabetes and three times as common in women with diabetes compared to people without diabetes

. Atherosclerosis due to affected cerebral blood vessels that can lead to transient ischemic attacks and strokes .

Atherosclerotic changes in the lunge blood vessels of the lower extremities are responsible for the increased incidence of occlusive peripheral arterial disease that increase incidence of gangrene . Nephropathy and impaired in wound healing also play a role in diabetic foot disease

MANAGEMENT : The focus management is aggressive modification and reduction of risk factors. Exercise . Smoking cessation is essential and control of blood glucose level

Micro vascular complication :

Diabetic Retinopathy : is the leading cause of blindness among people between 20 and 74 years of age

MANAGEMENT. Control o hypertension . The first focus of management is on primary and secondary prevention .

Control of blood glucose . Cessation of smoking

Diabetic nephropathy : Patient withtype1 diabetes frequently show initial singe of renal disease after 10 to 15 years , whereas patient with type2 diabetes develop renal disease with in10 years after the diagnosis of diabetes

Management:

Achieving and maintaining near-normal blood glucose level . management for all patient with diabetes should include careful attention to the following :Control of hypertension . Prevention or vigorous treatment of urinary tract infection . Avoidance of nephrotoxic substances . Adjustment of medication as renal function changes . Low sodium and low protein diet

Diabetes neuropathies:

Peripheral neuropathy:

The pain management by analgesia (preferably non opioid) .Tricyclic anti seizure

Autonomic neuropathies .(1)

The prevention:

Type1 diabetes cannot be prevented . However the same healthy lifestyle choices that help treat pre diabetes , type2 and gestational diabetes can also prevent them :

1-Eat healthy foods . choose food lower in fat and calories and higher in fiber focus in fruits , vegetable

2-Get more physical activity . Aim for 30 minutes of a moderate physical activity a day . Take a brisk daily walk .

3-Lose excess pounds .if overweight losing even 7 percent of the body(7)

People at risk of type2 diabetes can delay and even prevent the condition by:
Monitoring healthy weight. Regular physical activity . Making healthy food choices .
Managing blood pressure . Managing cholesterol level . Not smoking (8)

Homecare of diabetes mellitus

At the completion of the home care instruction , the patient or caregiver will be able to :

State the importance of diabetes survival skills.

Explain underlining of pathology of diabetes .

State target range of blood glucose .

Identify factor that cause hyper-and hypoglycemia .

Describe the major used to control diabetes (meal ,planning , exercise , monitoring , medication and education)

Describe where to purchase and store insulin, syringes, and glucose monitoring supplies.

Identify classification of food groups .

State appropriate schedule for eating snacks and meals.

Identify singe& symptom of hypoglycemia and describe appropriate treatment of it .

Identify single symptom of hyperglycemia and describe the appropriate treatment of it.

Identify appropriate circumstance for contacting physician(1)

Chapter Three

Methodology.

1 – Study design :

This was descriptive cross sectional study done in Dongola Diabetic center to assess the awareness of diabetic patient regarding un control diabetic during the period from April to August

2– Study area:

DONGOLA : it formerly known AL-Urdu it has an area of 348,765km² and estimated population of 833,743 it is a capital of the state of Northern in Sudan at the western side of river. At a distance of 530km from Omdurman .The economic activities are agriculture and trade . it includes dongola specialist hospital, dongola military hospital , dongola police hospital and renal and diabetics centers . it has the university of dongola includes number of colleges .

3 – Setting :

Dongola Diabetic center located in the Dongola teaching hospital composed doctor room and nurses room and lab for investigation . patient came to the center on Monday and Wednesday from any week for follow up in range 50-70 patient with type1 and type2 diabetes

4 –Study population :

All the patient diagnosed diabetes come to the diabetic center for follow up or routine visit the physician should be included in this study

Exclusives population. Un stable patient and the patient who refused to participate in this study

5 – Sampling :

Sampling method .convinces sampling technique was used

Sample size . (147) was participated in this study

6– Data collection tools :

A-Questionnaire

The data was collected by questionnaire designed by researcher on reviewing of literature it composed from (10) question develop to assess the awareness of diabetic patient about un control diabetes .

Question (1) the personal data

Question(2-6) about medical , family ,socioeconomic and smoking history

Question(7-10) about disease of diabetes

B – Data collection technique .

Data collected within one week and interview questionnaire was filled by the researcher within 10-15 minute for every patient during morning shift

C – Scoring system :

Scoring system was established by researcher which the data was distributed for many categories to measure the level of patient awareness about un control diabetes

If the patient answer more than (75%) of the question is a good knowledge

If the patient answer from (74%-51%) of the question is a fair knowledge

If the patient answer 50% and less of the question is a poor knowledge

D– Data analysis or management:

The data was guided then analyzed manually by simple statistical technique then by computer soft ware program (SPSS) and excel

Different statistical measurer was used (Frequency – percentages – mean – stander diffusion – CHI test) . then presented in table and fingers

Value concenter significant 0,005

7– Ethical consideration

The proposal was approved by ethical scientific committee

The permission of study by explained every patient by simple Arabic language

Chapter Four

The result

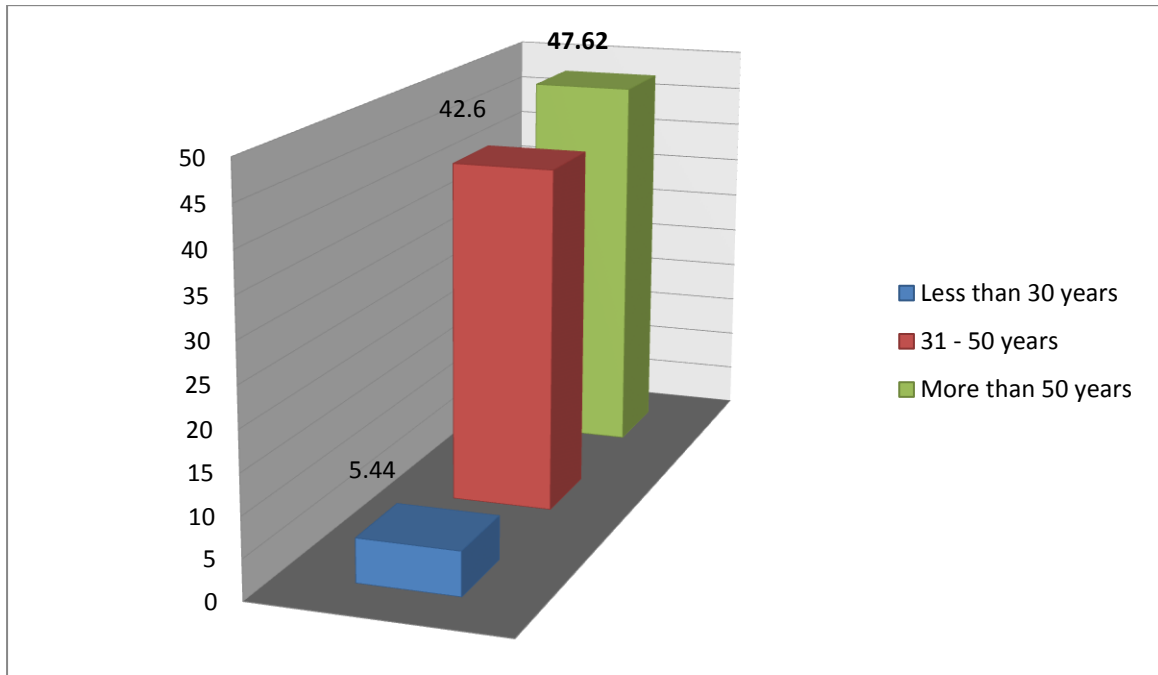


Figure (1) showed the age of the study group

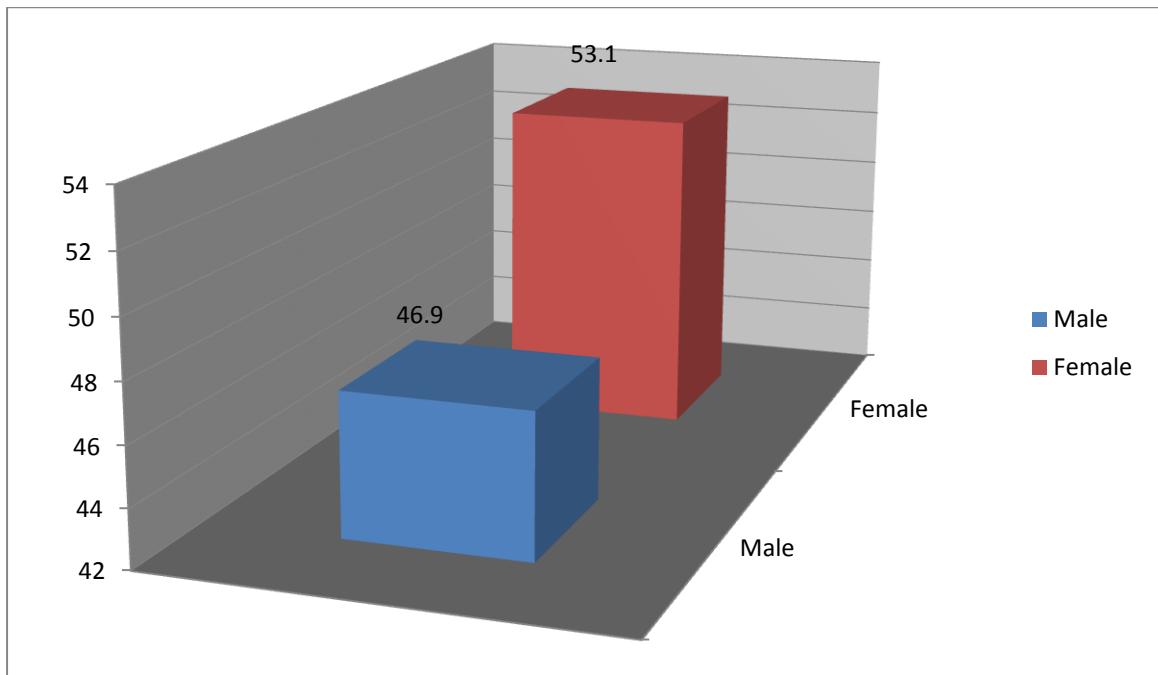


Figure (2) showed the gender of the study group

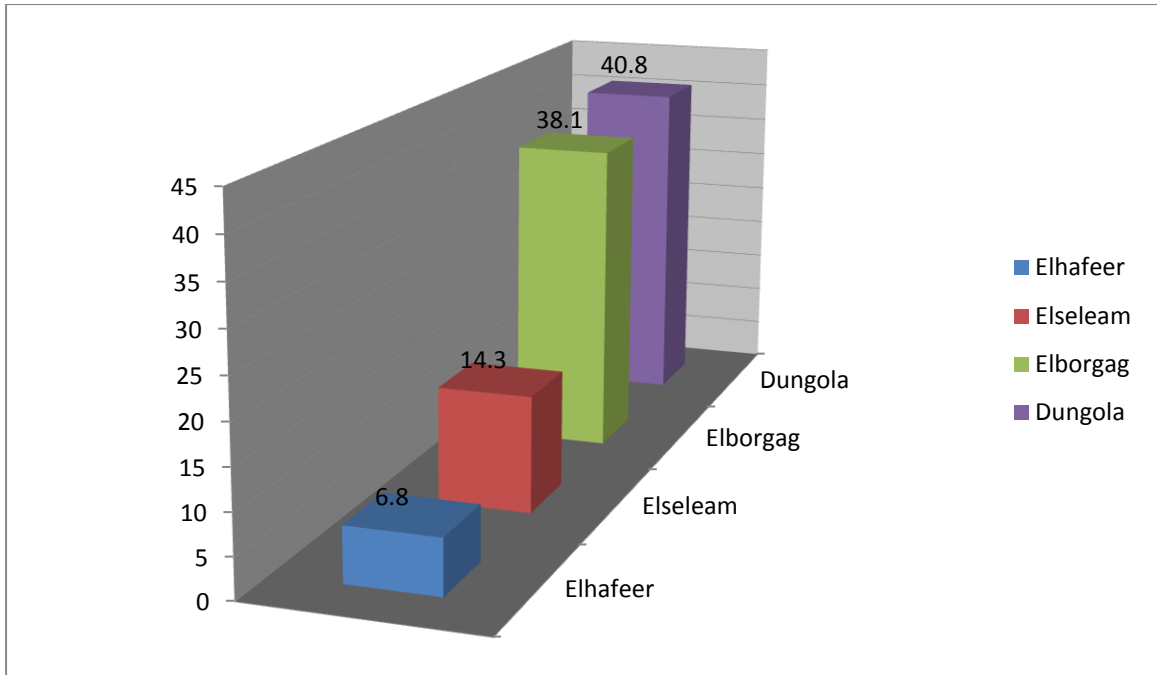


Figure (3) showed the distribution of the study group according to their residence

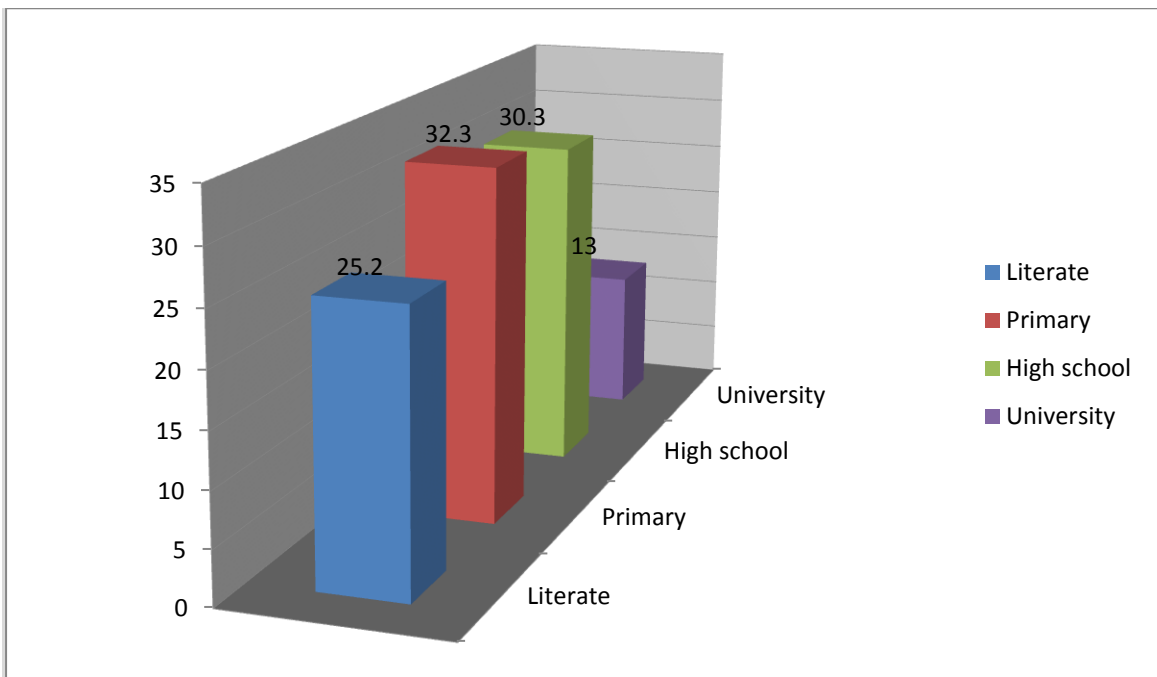


Figure (4) showed the distribution of the study group according to their Education level

Table (1) distribution of the study group according to type of diabetes

Item	Frequency	Percentage
Type 1	23	15.6%
Type 2	124	84.4%
Total	147	100%

The above table showed that ,23 of patient with 15,6 percent with type1 diabetes , and 124 of patient with 84,4 percent with type2 diabetes

Table (2) distribution of the study group according to duration of the disease

Item	Frequency	Percentage
Less than 10 years	102	69,4
11 – 20 years	33	22.5%
21-30 years	12	8,3%
Total	147	100%

The above table showed that , Patients with continued to have 20-30 years are 12 with 8,3 percent , and continued to have 11-20 years of diabetic are 33 with 22,5 percent , and continued to have of diabetes are 102 with 69,4 percent

Table (3) distribution of the study group according to type of medication

Item	Frequency	Percentage
Oral pill	115	78.2%
Insulin	32	21.8%
Total	147	100%

The above table showed that , 115 of patients with 78,2 percent use anti diabetic pills , and 32 of patient with 21,8 percent use insuli

Table (4) distribution of the study group according to type of chronic disease

Item	Frequency	Percentage
Hypertension	59	40.1%
Heart disease	6	4.1%
Lung disease	5	3.4%
Other	14	9.5%
Haven't chronic disease	99	67.3%

- Multi response was used by the study group

Table (5) distribution of the study group according to their family history with diabetes

Item	Frequency	Percentage
Father	26	17.6%
Mother	16	10.9%
brother& sister	45	30.6%
Parents	9	6.1%
Never	51	34.7%-
Total	147	100%

The above table showed that , 26 of patient with 17,6 percent their fathers have diabetic , and 16 of patients with 10,9 percent their mothers have diabetic , , and 45 of patient with 30,6 percent there Prather & sister have diabetic , and 9 of patient with 6,1 percent their parents have diabetic, and 51 of patient with 34,7 percent have not family history of diabetes

Table (6) distribution of the study group according to their occupation

Item	Frequency	Percentage
Farmer	30	20.4%
Trade	22	15%
Employer	42	28.6%
Pension	53	36%
Total	147	100%

The above table showed that , 30 of patients with 20,4 percent their profession is agriculture , and 22 of patients with 15 percent their profession is trade , and 42 of patients with 28,6 percent their profession is employee , and 53 of patient with 36 percent there have not occupation

Table (7) distribution of the study group according to their Income

Item	Frequency	Percentage
High	2	1.1%
Middle	11	7.5%
Low	134	91.1%
Total	147	100%

The above table showed that , 2 of patients with 1 percent with high annual income , and 11 of patients with 7,5 percent with average annual income , and 134 of patients with 91,1 percent with low income

Table (8) distribution of the study group according to their Smoking history

Item	Frequency	Percentage
Current smoker	11	7.5%
Past smoker	34	23.1%
Never	102	69.3%
Total	147	100%

The above table showed that , 11 of patients with 7,5 percent are currently smoker , and 34 of patients with 23,1 percent are previously smoker , and 102 of patients with 69,3 never smoker

Table (9) distribution of the study group according to their S visit the physician for follow up

Item	Frequency	Percentage
Weekly	3	2%
Monthly	65	44.2%
Every 3 month	79	53.3%
Total	147	100%

The above table showed that, 3 of patients with 2 percent visit the physician weekly , and 65 of patients with 44,2 percent visit the physician monthly , and 79 of patients with 53,3 percent visit the physician every three month

Table (10) distribution of the study group according to the reasons let them visit the center

Item	Percentage	Percentage
Treatment	81	55%
Routine flow up	66	45%
Total	147	100%

The above table showed that ,81 of patients with 55 percent go to the center because they ill , and 66 of patients with 45 percent go to the center for periodic follow-up

Table (11) distribution of the study group according to their Social statues

Item	Frequency	Percentage
single	18	12.2%
Married	104	70.7%
Divorced	3	2%
Widow	22	15%
Total	147	100%

The above table showed that , 18 of patients with 12,2 percent are single , and 104 of patients with 70,7 percent are married , and 3 of patients with 2 percent are divorced , and 22 of patients with 15 percent are widow

Table (12) distribution of the study group according to their Physical activity

Item	Frequency	Percentage
Once / week	3	2%
Twice / week	45	30.1%
Never	79	67.3%
Total	147	100%

The above table showed that , 3 of patients with 2 percent exercise once a week , and 45 of patients with 30,1 percent exercise twice a week , and 79 of patients with 67,3 percent never exercise

Table (13) distribution of the study group according to their duration of exercise / day

Item	Frequency	Percentage
30/ minutes	20	13.6
Less than 30minutes	8	5.4
More than 30minutes	33	22.4
Never	86	58.5
Total	147	100%

The above table showed that , 20 of patients with 13,6 percent perform exercise 30 minutes a day and 8 of patients with 5,4 percent perform less than 30 minutes a day , and 33 of patients with 22,4 percent perform exercise more than 30 minutes a day , and 86 of patients with 58,5 percent not perform exercise

Table (14) study group ability of patient to treat hypo or hyperglycemia

Item	Frequency	Percentage
Know	108	73.5%
Don't know	39	26.5%
Total	147	100%

The above table showed that ,108 of patients with 73,5 percent know how to treat hypo or hyperglycemia if present , and 39 of patients with 26,5 percent don't know treat hypo or hyperglycemia if present

Table (15) distribution of the study group according to the barrier prevent the study group to came to center

Item	Frequency	Percentage
Distance	48	32.7%
Low in come	31	21.1%
Distance & Low in come	68	46.3%
Total	147	100%

The above table showed that ,48 of patients with32,7 percent don't reach the center due to distance , and 31 of patients with 21,1 percent don't reach the center due to low income , and 68 of patients with46,3 percent don't reach the center due to distance and low income

Table (16) frequency of hyperglycemia attack among study group

Item	Frequency	Percentage
Some time	35	23.8%
Always	9	6.1%
Rare	96	65.3%
Never	7	40.8%
Total	147	100%

The above table showed that ,35 of patients with 23,8 percent who had attack of hyperglycemia is sometime , and 9 of patients with 6,1 percent who had attack of hyperglycemia is always , and 96 of patients with 65,3 percent who had attack of hyperglycemia is rare , and 7 of patients with40,8 percent who had attack of hyperglycemia is never

Table (17) frequency attack of hypoglycemia

Item	Frequency	Percentage
Some time	46	31.3%
Always	12	8.2%
Rare	79	53.7%
Never	10	6.8%
Total	147	100%

The number of patients who had attack of hypoglycemia sometime are 46 with 31,3 percent , and who had attack of hypoglycemia always are 12 with 8,2 percent , and who had attack of hypoglycemia are 79 with 53,7 percent , and who have not attack never are 10 with 6,8 percent

Table (18) study group level of awareness regarding risk factors and s&s of hypo/hyperglycemia

Item	Level of Awareness					
	Good		Satisfaction		Poor	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
risk factor	41	27.9%	26	17.7%	80	54.4%
S&S hyperglycemia	79	53.7%	51	34.7%	17	11.6%
S&S hypoglycemia	46	31.3%	41	27.9%	60	40.8%

The above table showed that ,41 of patients with 27,9 percent have good knowledge about the risk factor of diabetes , and 26 of patients with 17,7 percent satisfy knowledge about that risk factor , and 80 of patients with 54,4 percent poor knowledge about the risk factor .79 of patients with 53,7 percent have good knowledge about the single & symptom of hyperglycemia , and 51 of patients with 34,7 percent satisfy knowledge about single & symptom of hyperglycemia , and 80 of patients with 54,4 percent poor knowledge about single & symptom of hyperglycemia . and 46 of patients with 31,3 percent have good knowledge about single & symptom of hypoglycemia , and 41 of patients with 27,9 percent satisfy knowledge about single and symptom of hypoglycemia , and 60 of patients with 40,8 percent poor knowledge about single & symptom of hypoglycemia

DISCUSSION

Diabetes is a chronic disease with different level of complication that requires broad self care , knowledge and managements depending on socioeconomic condition , cultural beliefs and habits

The present study showed that ,most study group (90-46%) this range between (30-50) years and more than (53,1 %) wear female , also more than half of this were lived in rural and village while (40,8%) living in Dongola town .In addition to that the study reveal that (25,2%)were illiterate and one third(31,3%) were have primary school level of education .

The finding of the above result indicated that, those study group have low level of knowledge , elder and living in village while may affect their lifestyle adaptation and may not be a wear of this disease .

Farther more, the study showed that most (84,4%)of them were type2 diabetes with duration of less than 10 years (96,4%), and (78%) they used oral pill.

In addition to that , regarding the ability of the study group awareness to identify singe& symptom of hypoglycemia . The study justify that more than tow third (67,3%) have not chronic disease with their diabetes . Only hypertension is most one (40,1%) , while one third of them have no family history of diabetes , with low income (91,1%) .

Regarding the bad habits the study showed that more than tow third of the study group (69,3%) were never smoked and less than quarter of them (23%) were past smoker , while only (7,5%) were current smoker , also these finding indicated that study group were aware about the hazard of smoking .

More over the study showed that most of them were on regular follow up and they seek management if they were ill . While (67,3%) of them were never on physical activity and more than (53,5%) were not exercise . This finding indicated that those patients were not aware about the important and benefit of exercise

The study reveal that more than two third (73,5%) the know the singe and symptom of hypo/ hyperglycemia , so they will be able to treat it if occurred

There was many factors and barriers prevent the study group to came to the health care center , either for follow up or if they may ill as the distance and low income .

Which are the main factor lead to non compliance among the diabetic patients and may affect their follow up .

The study represent that diabetic patients on the study more than tow third (65,3%) of them have hyperglycemia attack and (40%) were never presented to hyperglycemia attack . These finding indicated that study group were aware about the causes and risk factor of hyperglycemia

Conclusion:

Most of them (90-46%) their age between (30-50) years , more than half were female , lived in rural and village , and (84-47%)with type 2 diabetes .

More than tow third of them were not aware about physical activities or resuming exercise .

The over all finding indicated that study group aware about the un control diabetes .

Chapter Five

Recommendation

- Because the Diabetes mellitus is a chronic disease the recommendation should be considered :
- Appropriate patient education program should be planned and future research is needed to assess diabetic patient compliance regarding self care management
- The study recommended that the health care givers have to include teaching the patient in their plan of care, poster, hand book should be available for patient and his family .
- The study recommended that the access of the patients to the center and availability of treatment must be provided and facilitated by the officials
- The study recommended the health care givers to establish educational sessions for patients on how to control diabetes and protect them from complication
- Teach the patients about lifestyle ,diet ,exercise and regular follow up

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Appendices

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Shundi university

Faculty of Nursing science

**Questionnaire about Assess awareness of about un
control Diabetes Mellitus**

Personal data

Age:

Sex: male()female()

Address:

1- Education level :illiterate()primary()high school(
)university()

Medical condition

Type of diabetic:type2()type1() 2-

Duration: 3-

Medication: Oral pill ()Insulin ()

Other chronic disease: 4-

Hypertension ()Heart disease ()Lung disease ()
)Other

Family history of diabetes mellitus

Socioeconomic states : Occupation ()Income ()

Marital status: single ()married () Divorced ()
Widow ()

5-Physical activity : ones/week () Twice/ week ()
never ()

6-Duration of exercise per day :- 30min () less than 30min () more than 30 min ()

Smoking history: current smoker ()past smoker

About diabetes: 7-

Do you visit physician to monitor:

a- Blood sugar: weekly () monthly () every 3 month ()

b - do you came in the centre for : routine flow up () ill ()

you know the risk factor of diabetes mellitus : C- Are

Obesity : () Age () Genetic () Physical activity() Smoking () Un healthy diet ()

Are you know singe and symptom of hypoglycemia D-

Confusion: Headache ()Irritability()Palpitation () Sweating()Hunger()Anxiety()Numbness in mouth and tongue ()

F- Are you know Singe and symptom of hyperglycemia :- Increased thirst()Headache()Trouble in concentrating()Blurred vision()Frequent peeing()

Can you correct if hypo or hyperglycemias onset:- G-

Do you can do daily rotten activity :- H-

8- What is the barrier that barring you came to follow-up : distance () low economic status ()

9- How many time you develop for hyperglycemia attack : sometime () rare () always ()

10- How many time you develop for hypoglycemia attack :- sometime () rare () always ()

Thank you for your good cooperation