DIABETIC CARE FOR NURSES IN THE CLINICAL SETTING VOLUME 1

DIABETES MELLITUS IN THE CLINICAL SETTING VOLUME 1

CARE

LEARNING OBJECTIVES

1) RECOGNIZE INSULIN DISCOVERIES.
2) RELATE THE ORIGIN AND FUNCTION OF INSULIN.
3) DISTINGUISH BETWEEN DIABETES INSIPIDUS AND DIABETES MELLITUS.
4) DKA CASE STUDY

THE CONTENTS OF THIS PROGRAM IS INTENDED TO HELP NURSES IN THE CLINICAL SETTING . IT IS NOT INTENDED AS A SUBSTITUTE FOR YOUR INSTITUTION'S POLICIES AND PROCEDURES. PLEASE ENJOY!

WHAT EXACTLY IS DIABETES?

Diabetes Mellitus should not to be confused with Diabetes Insipidus. Each illness follows a different course. Diabetes Mellitus is a chronic condition, which results in a number of health problems ,if left untreated.

In 1921,Best and Banning made exciting discoveries about Insulin.Insulin plays a major role in controlling blood glucose (blood sugar).

Diabetes accounts for a tremendous amount of lost work days and poor health. Amputation of limbs,heart disease, eye problems (including blindness are all consequences of diabetes. Diabetes and its complications are considered to be one of the leading causes of death in the USA.

TYPES OF DIABETES

TYPE 1- diabetes is referred to as "insulin dependent diabetes. It generally occurs in childhood and carries more serious consequences.Management can be difficult because of the age group involved. Insulin is needed to manage this type of diabetes, hence the name"insulin dependent".

TYPE 2 - this type of diabetes accounts for up to 90%. It may very readily be managed by diet and exercise. The pancreas still has the ability to produce some insulin.Hypoglycemic agents (pills to lower blood sugar) and lifestyle changes may be all that is needed to control blood glucose (blood sugar).

DKA - Diabetic Ketoacidosis

HHNK- Hyperosmolar Hyperglycemic Nonketotic Coma, these are complications of diabetes.

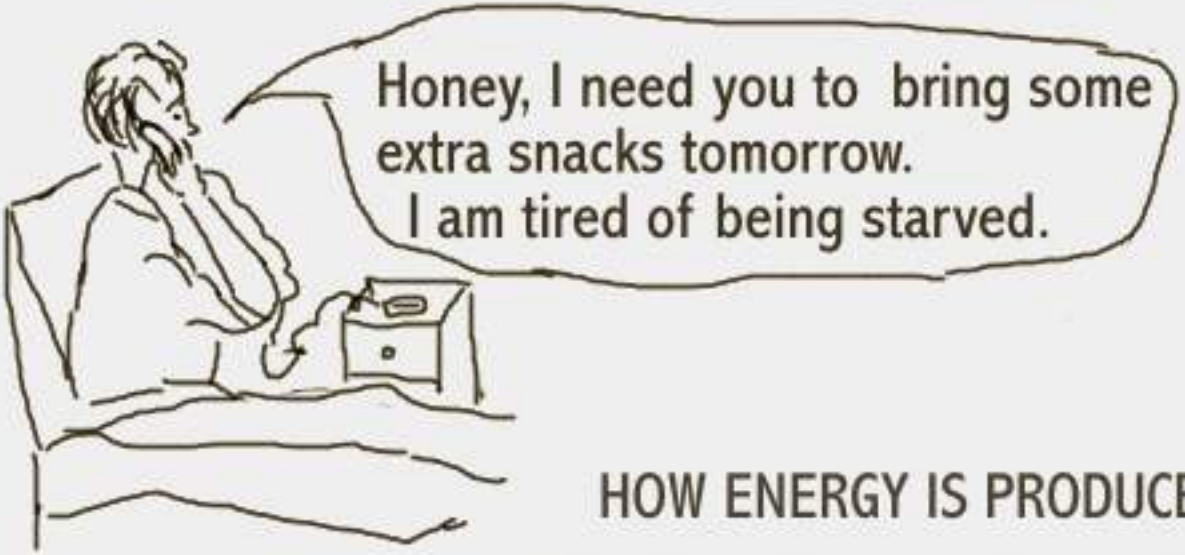
THE DOCTOR USUALLY ORDERS ANY MEDICATIONS THAT ARE NEEDED TO CONTROL BLOOD GLUCOSE.

ENERGY PRODUCING FOODS

When we walk, run, ride or play, we use energy. The foods we eat provide energy. Some examples are :
Carbohydrates- breads, cakes, pies,bananas, pasta, candies and fruits.
Protein- beef, pork, chicken, beans,nuts.
Fats- bacon, cheese, milk, eggs.
There are many people who have diffculty understanding how to make healthy food choices.

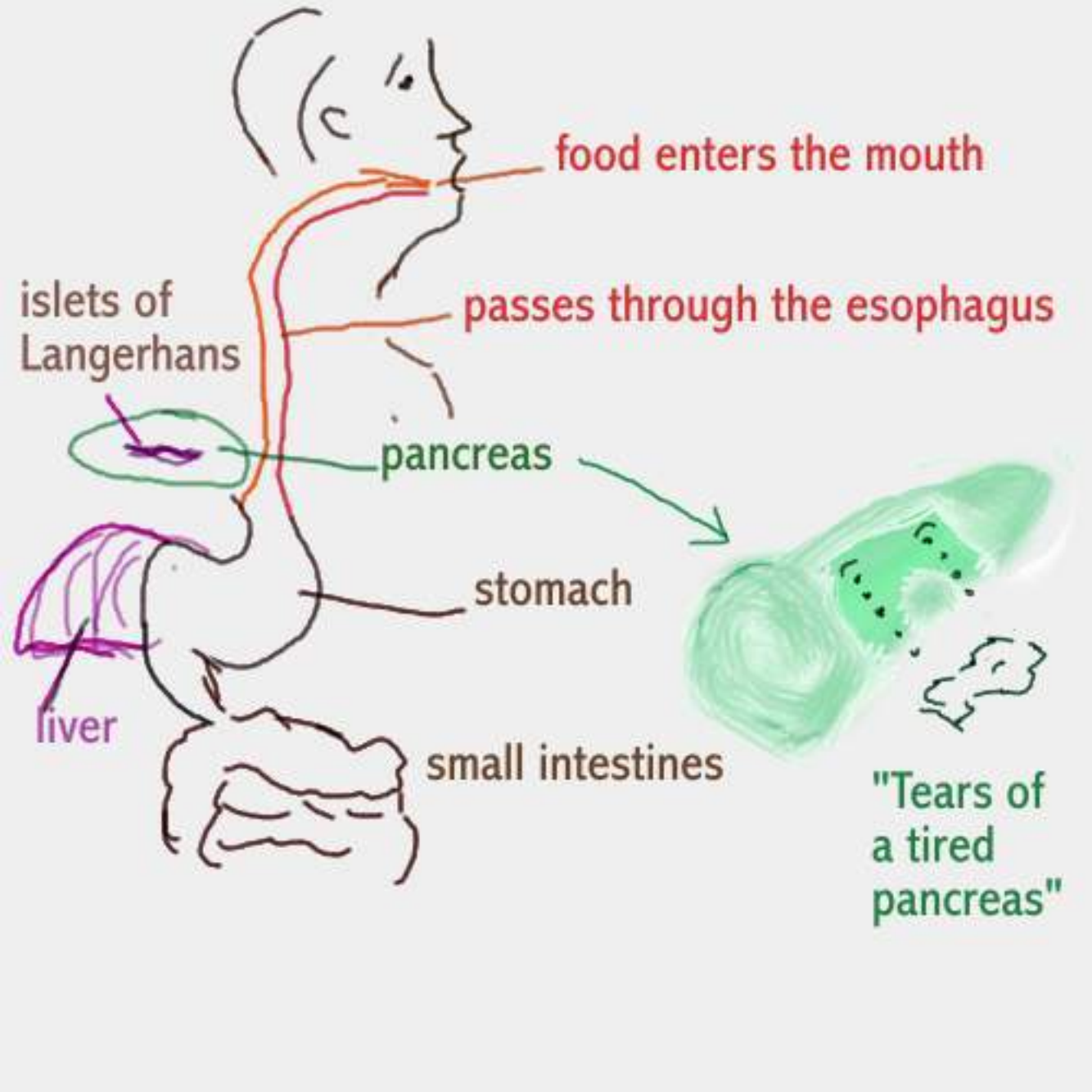
DIETARY CONSULTS ARE USUALLY ORDERED BY THE DOCTOR, TO DETERMINE A CALORIE COUNT SUITED TO EACH PATIENT'S NEEDS. TEACHING THE PATIENT HOW TO DO AN EXCHANGE OF FOOD ITEMS TO STAY WITHN THE CALORIE COUNT IS DONE BY THE DIETICIAN.

Remember ,healthy food choices will help prevent poor health and you will be able to enjoy a better quality of life.The long term results of bad eating habits and lack of exercise are not worth it.



HOW ENERGY IS PRODUCED

We use energy when we walk, run or play.The foods we eat produce energy.
Glucose (a form of sugar) is used for energy inside our bodies .


food enters the mouth
passes through the esophagus
islets of Langerhans
pancreas
stomach
liver
small intestines
"Tears of a tired pancreas"

DIABETES MELLITUS SHOULD NOT BE CONFUSED WITH DIABETES INSIPIDUS

DIABETES INSIPIDUS

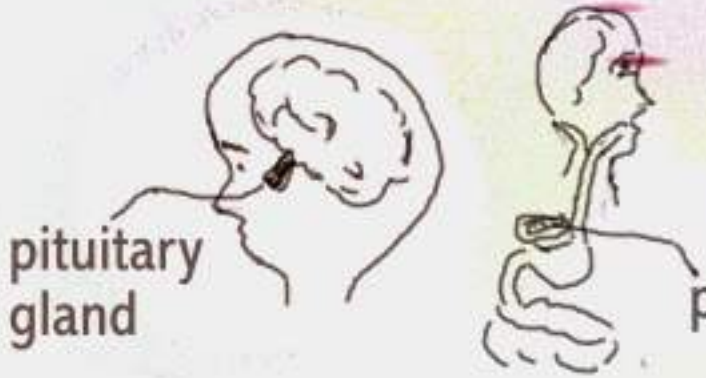
Diabetes Insipidus should not be confused with Diabetes Mellitus. The disease process follows a different course. Diabetes Insipidus is caused by a deficiency of ADH (vasopressin).
Causes include surgical procedures, brain trauma or tumors.
Signs and symptoms:
Polyuria (excesssive urination) Urine is very dilute.
If left untreated severe dehydration results.
Polydipsia (excessive thirst).
Hypernatremia (increased sodium).
Treatment- DDAVP (desmopressin acetate) is used to correct the problem. DDAVP may be given IV, SQ or via nasal spray.

Diabetes Insipidus

Source of the problem is caused by the pituitary gland in the brain.ADH (vasopressin is lacking)
Signs and symptoms include :
excessive urination,
excessive thirst,
elevated serum sodium and dehydration.

Diabetes Mellitus

Source of the problem is caused by the pancreas. The islets of Langerhans in the pancreas are not able to produce the insulin hormone to control blood glucose.
Signs and symptoms include :
excessive thirst,
excessive urination,
weight loss and fatigue
elevated blood glucose.



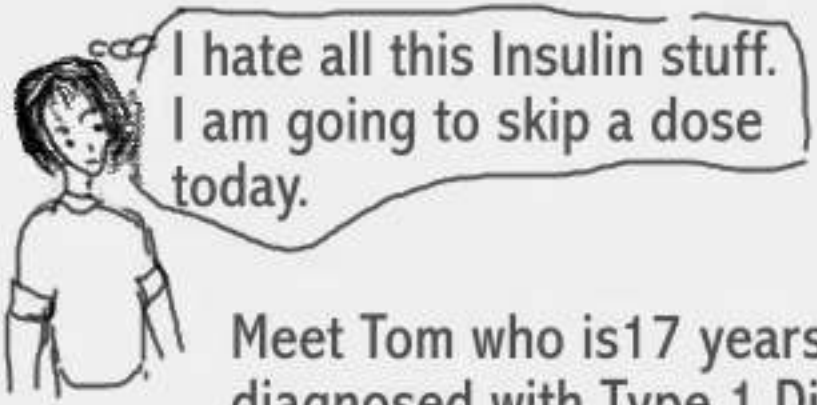
DKA -OVERVIEW

Diabetic Ketoacidosis is commonly found in Type1 Diabetes. It is considered to be a life threatening event. If left untreated , it may result in coma and death.

CAUSES - Any additional stress on the body brought on by illness, surgical procedures, a car accident , changes in routine or not sticking to the Insulin regimen and many more may result in DKA.

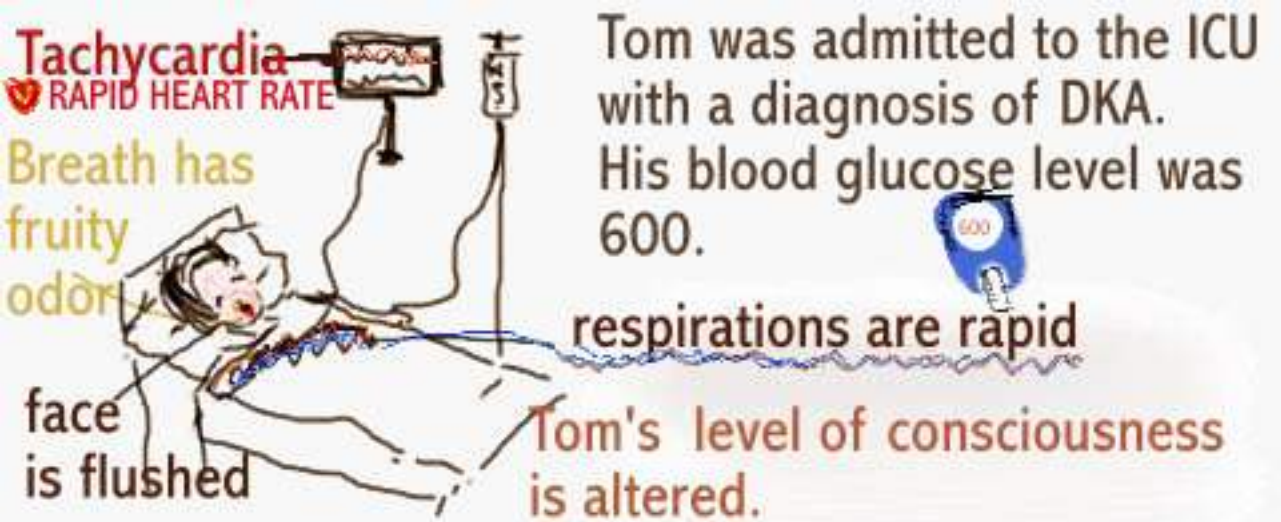
SIGNS and SYMPTOMS - patients may complain of abdominal pain, nausea and vomiting.Fatigue, lethargy and finally coma ensue.

The lack of readily available blood glucose,results in fats being broken down.The cells within the body become acidotic as a result of fat burning.The breath has a " fruity odor".



Meet Tom who is17 years old.He was diagnosed with Type 1 Diabetes about six months ago.
Tom has been given specific instructions on how to manage his diet and Insulin usage. However, he feels frustrated with having to take Insulin injections daily.He thinks he can skip the occasional dose " to make life easier."Tom finally goes into DKA. His blood sugars became very high and he became very lethargic. He was found comatose and taken to ER.

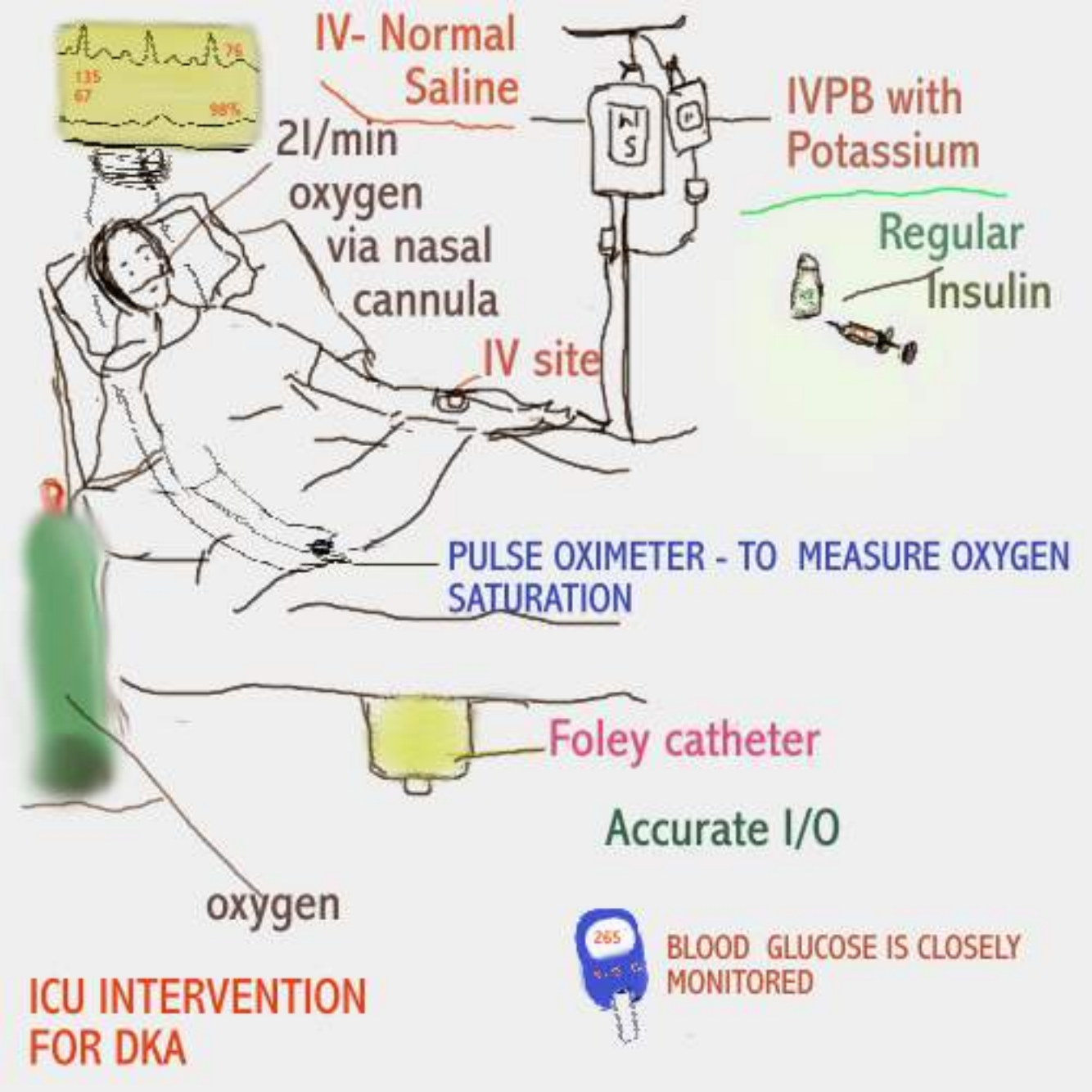
DIABETIC KETOACIDOSIS (DKA)
A CASE STUDY

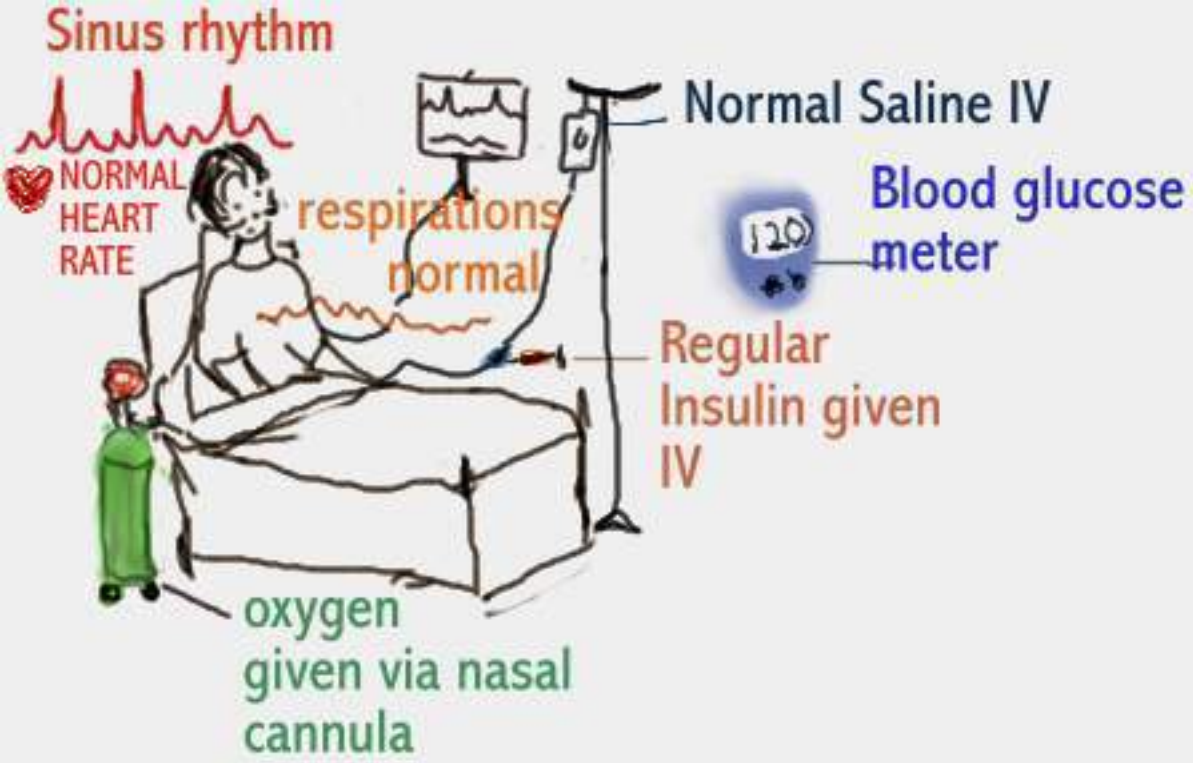


IMMEDIATE INTERVENTION IS NECESSARY!

PATIENTS WILL REQUIRE ICU CARE

Patients who are experiencing the signs and symptoms of DKA may also complain of
polyuria- excesive urination
polydipsia -excessive thirst


IV- Normal Saline
IVPB with Potassium
2l/min oxygen via nasal cannula
Regular Insulin
IV site
PULSE OXIMETER - TO MEASURE OXYGEN SATURATION
Foley catheter
Accurate I/O
oxygen
BLOOD GLUCOSE IS CLOSELY MONITORED
ICU INTERVENTION FOR DKA

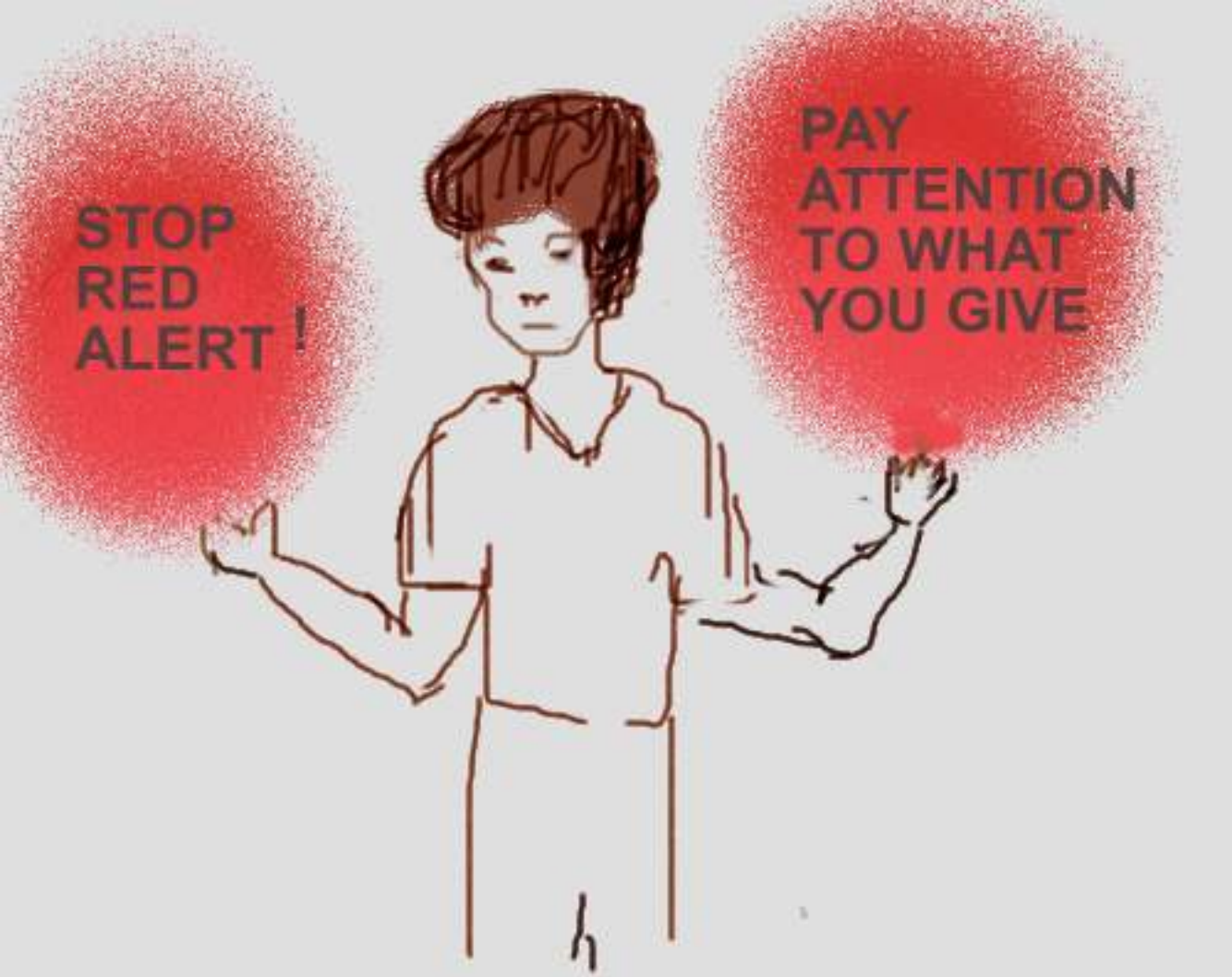


In the ICU, Tom's blood glucose,arterial blood gas and vital signs were closely monitored.IV fluids were given to combat dehydration, which is a consequence of DKA. Regular Insulin IV was given, as well as Potassium replacements.As Tom's blood glucose returned to normal, his respirations and heart rate were not as rapid.His mental status also improved. Tom will need further teaching in order to comply with his Insulin regimen.

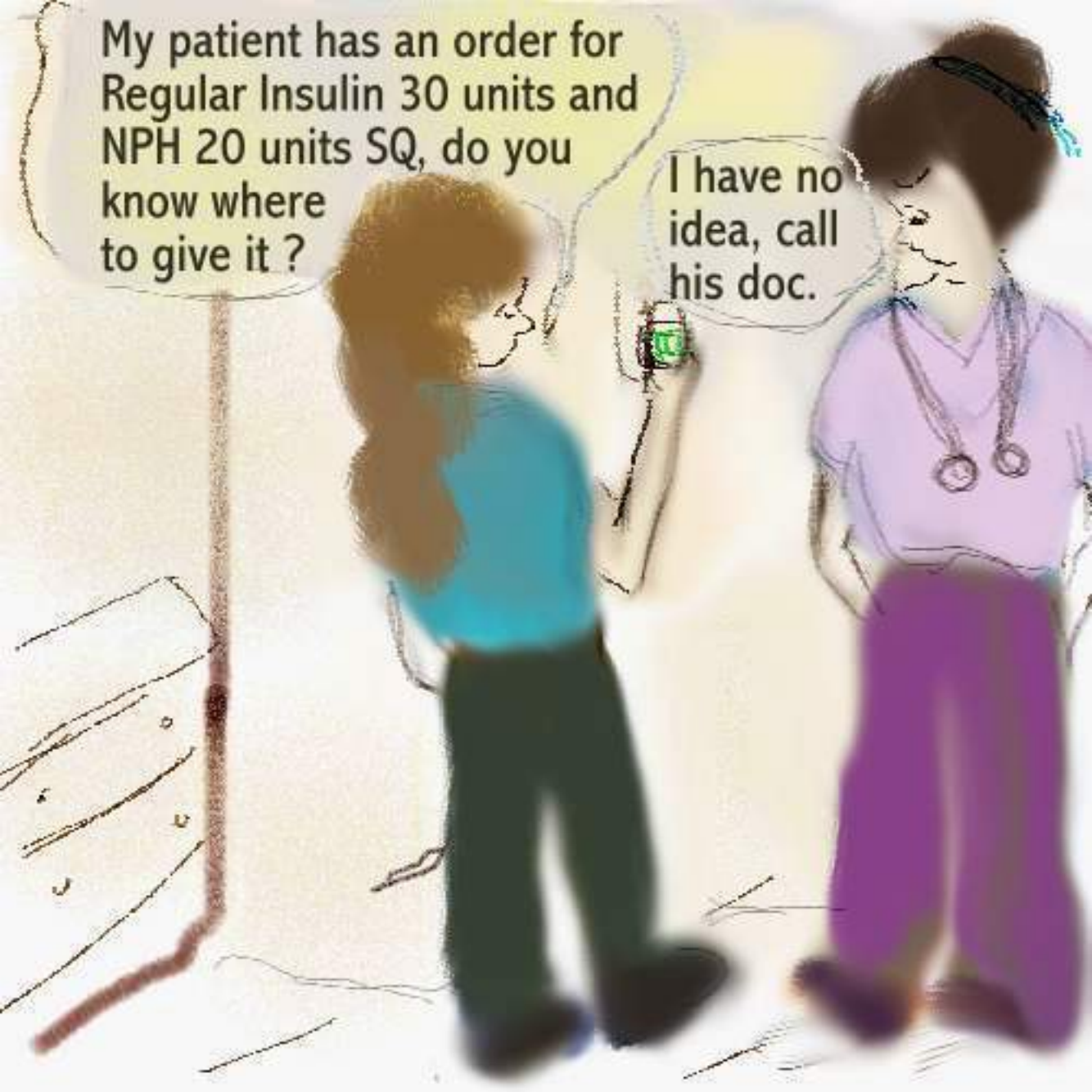
Monitoring blood glucose is essential to maintain glucose within normal limits. Normal blood glucose is 60-120. Typically blood glucose is measured before mealtime. This will make for a more accurate reading. There are many different blood glucose meters on the market.

Follow the manufacturer's instructions for accurate meter reading. MD orders are usually written to follow a sliding scale for each patient.

Finger sticking for glucose monitoring is usually done off to the side of the finger. Rotation of sites is essential to allow healing .



HAVE YOU DONE ANY PATIENT EDUCATION?
IS IT INCLUDED IN YOUR CARE PLAN ?


My patient has an order for Regular Insulin 30 units and NPH 20 units SQ, do you know where to give it ?
I have no idea, call his doc.


I am not sure where to put this injection , I think the order said IV.
INJECTION SITES IS NOT A GUESSING GAME. USING THE WRONG SITE MAY BE FATAL.

INSULIN ADMINISTRATION

PATIENTS WHO ARE "INSULIN DEPENDENT" WILL REQUIRE INSULIN ON A DAILY BASIS. THE DOCTOR USUALLY ORDERS THE DOSE NEEDED FOR THE PATIENT.

INSULIN IS GIVEN SQ (SUBCUTANEOUSLY) ,IN THE FATTY TISSUE UNDER THE SKIN. THERE ARE CIRCUMSTANCES WHEN IT IS GIVEN IV (INTRAVENOUSLY) , FOR EXAMPLE IN INTRAVENOUS NUTRITION OR IN THE IMMEDIATE TREATMENT OF DKA.

AN OVERVIEW OF TYPES OF INSULIN

TYPICALLY, INSULINS MAY BE DESCRIBED AS BEING: RAPID ACTING, SHORT ACTING, INTERMEDIATE ACTING OR LONG ACTING. REGULAR INSULIN IS CONSIDERED TO BE SHORT ACTING, NPH IS DESCRIBED AS BEING INTERMEDIATE ACTING.

PLEASE CONSULT YOUR PHARMACY FOR MORE INFORMATION ON INSULIN.

THE DOCTOR ORDERS THE DOSE THAT IS NEEDED. HYPOGLYCEMICS IF USED, IS ALSO ORDERED BY THE DOCTOR.

HELPFUL HINTS FOR INSULIN ADMINISTRATION

IF YOU ARE THE NURSE WHO GIVES INSULIN TO A PATIENT, ALWAYS MAKE SURE THERE IS SOME ORANGE OR APPLE JUICE ON HAND (NOT "SUGAR FREE") , IN CASE THE MEAL ARRIVES LATE AND THE INSULIN GOES TO WORK BEFORE THE PATIENT CAN EAT.

REMEMBER, REGUAR INSULIN WHICH IS FREQUENTLY USED IS SHORT ACTING !

ADVISE THE PATIENT IF HE /SHE STARTS TO FEEL WEAK OR "SHAKY" AFTER 30 MINUTES OF INSULIN ADMINISTRATION , TO DRINK THE JUICE AND CALL FOR HELP.

Sally was diagnosed with Type 2 diabetes 4 weeks ago. She has 20 units of Regular Insulin SQ ordered q am at 0730. Breakfast is usually served at 0800.

This morning breakfast is late.

Her nurse gave her insulin as scheduled , but there was no breakfast to follow

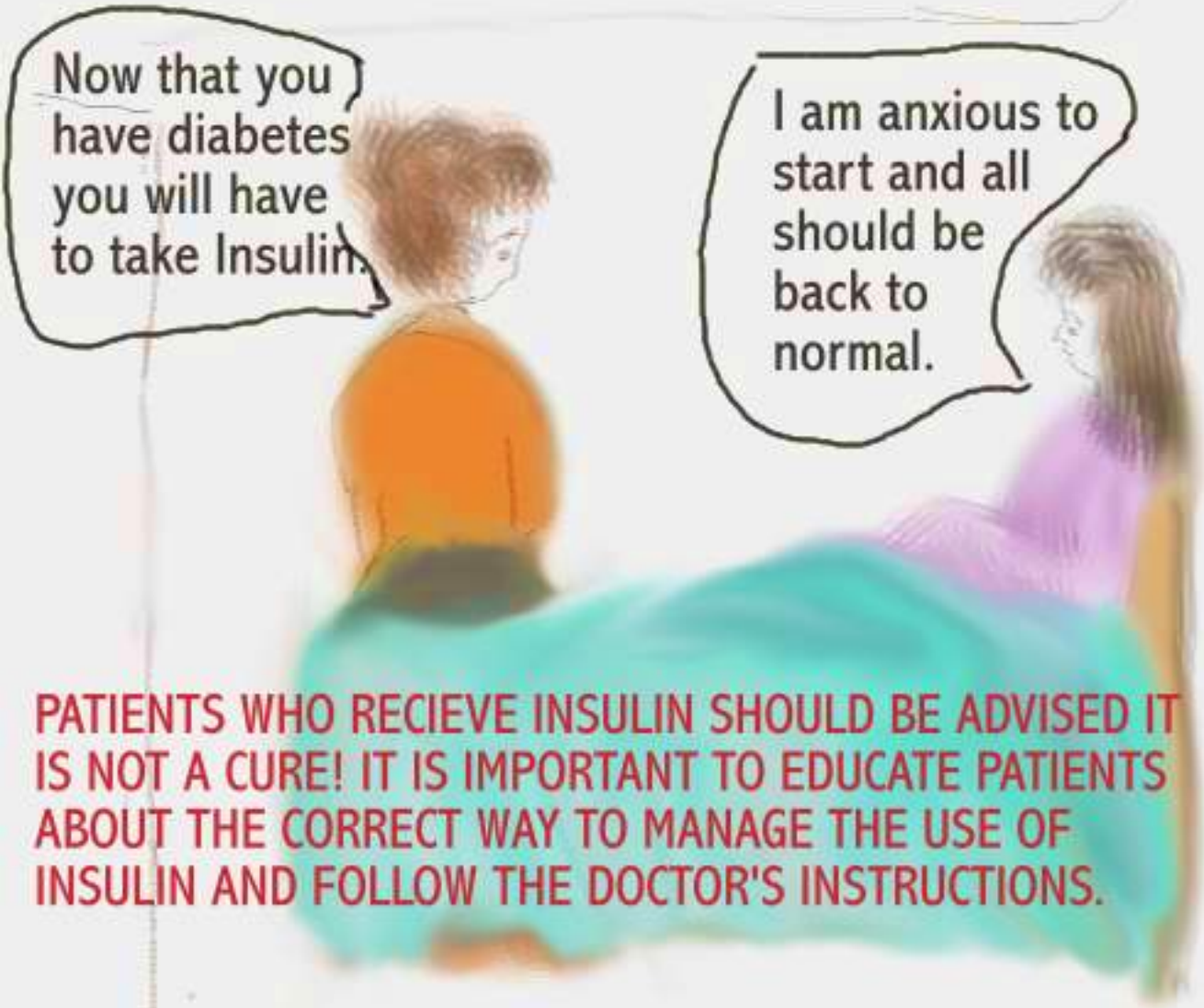

INTERCOM
May I help you?
Nurse, since you gave me that Insulin shot I feel weak and shaky.
IT IS NOW 0830 AND SALLY IS HAVING AN INSULIN REACTION.

HOW COULD A REACTION HAVE BEEN AVOIDED?

Sally's nurse should have placed some orange juice at the bedside and advised her patient to drink it, if breakfast did not arrive in time.


This is the admission Melinda left for the night shift. Pay close attention to what happens next.
Steve, what's up? I keep talking and getting no response.
THIS PATIENT IS HAVING A REACTION TO INSULIN. HE NEVER ATE DINNER AFTER RECEIVING INSULIN AND NO ONE CHECKED ON HIM AT SHIFT CHANGE.
PATIENT EDUCATION IS IMPORTANT.
ALWAYS MAKE SURE YOUR PATIENT DOES NOT NEGLECT MEALTIMES FOLLOWING INSULIN ADMINISTRATION.

MISCONCEPTIONS ABOUT DIABETES



PATIENTS WHO RECIEVE INSULIN SHOULD BE ADVISED IT IS NOT A CURE! IT IS IMPORTANT TO EDUCATE PATIENTS ABOUT THE CORRECT WAY TO MANAGE THE USE OF INSULIN AND FOLLOW THE DOCTOR'S INSTRUCTIONS.

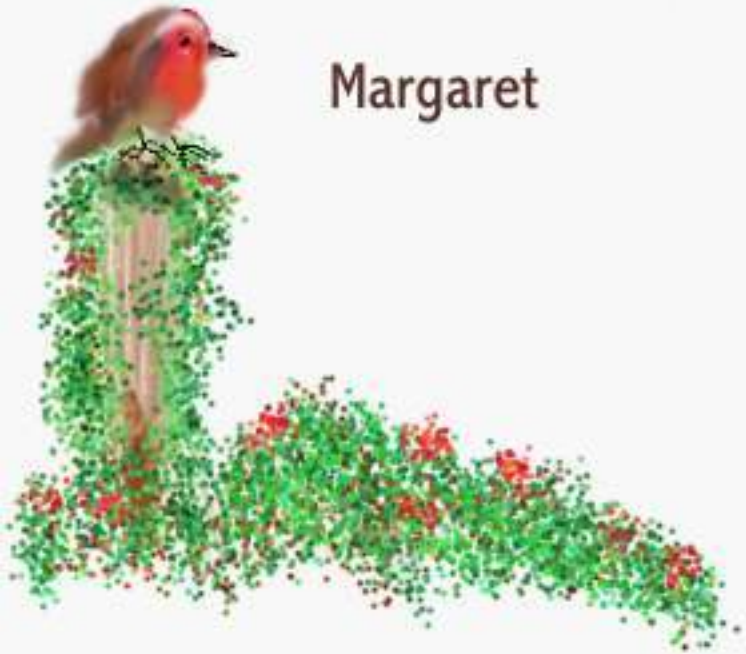
NURSES THE INFORMATION PROVIDED IN THIS BOOKLET MAY BE HELPFUL TO YOUR PATIENTS.

UNDERSTANDING DIABETES FOR THE LAYPERSON

MARGARET AGARD RN, BSN,CCRN

Dear nurses,

Hope you enjoyed DIABETIC CARE FOR NURSES in THE CLINICAL SETTING Volume1. Well, do not feel you have been left alone. There is more to come.Volume 2 will focus on COMPLICATIONS OF DIABETES.



Margaret