By Nancy Lydia Kimmel R.N., Ph.D., C.H.M.M.

Nurses are trained to learn and apply patient assessment skills. These skills are the cornerstone of being a proficient nurse. The knowledge and procedures for developing these skills are learned in the first two years of nursing school and honed in clinical as the student nurse takes on a greater patient load. The "Standards of Care" that are the basis of nursing include the following:

Standard 1. Assessment

In an assessment the nurse must use all of his or her senses. These include hearing, touching, visual, and therapeutic communication. The cephalocaudal approach is most always used. In other words, assessing a patient from head to toe. The nurse must self aware to be able to conduct a thorough assessment. Data collection forms the basis for the next step in standards of care which is diagnosis. A nurse must have all the necessary equipment, such as a scale, tape measure, thermometer, sphygmomanometer, a stethoscope and pen light. The setting is also very important in doing an assessment. If a client is nervous or anxious they may not be as willing to answer questions that the nurse asks or to be examined. Obtaining a quiet environment is not always possible, especially in an emergency situation. Therefore, the nurse must be very observant, and try to get as much pertinent data as possible to formulate an nursing diagnosis For example, when doing an assessment on a client that is complaining of severe stomach pain, asking them what foods they last ate would give the nurse more pertinent information than asking them how many brothers or sisters they have.

Standard II. Diagnosis

A nursing diagnosis is not a medical diagnosis. A medical diagnosis would be the medical condition of "Diabetes". Whereas, a nursing diagnosis would be, "Altered Tissue Perfusion", related to decreased oxygenation of tissues as evidenced by a pulse oximetry of 92% , secondary to the medical condition of "Emphysema". A nursing diagnosis is a formal statement that relates to how a client reacts to a real or perceived illness. In making a diagnosis the nurse attempts to formulate steps to assist the client in alleviating and or mediating how they respond to real or perceived illness.

Standard III. Outcome Identification

In this process the nurses uses the assessment and diagnosis to set goals for the patient to achieve to attain a greater level of wellness. Such goals may simply be that the patient now comprehends the regime of testing their blood sugar, or perhaps a new mother gleans a sense of security now that she has been instructed in the correct method of breast feeding. The nurse must plan the goals that the client is to achieve around the clients ability. For instance, the goal that a client will walk normally after two days of having knee surgery is unrealistic, in the sense that the client's knee will not be completely healed. However, the goal that the client will be able to demonstrate the correct use of crutches, would be more realistic. This goal is also measurable, since the patient will be in the hospital and the nurse can teach and observe a return demonstration. Therefore, the goals or outcomes for the client must also be measurable.

Standard IV. Planning

The planning standard is designed around the clients activities while in the hospital environment. Therefore the nurse must plan to teach and demonstrate tasks when the patient is free to learn. This would involve administering pain medication prior to learning to walk with crutches or waiting until after a patient has finished a meal before teaching on how to use a syringe. The atmosphere should be conducive for the client to learn.

Standard V. Implementation

This standard requires that the nurse put to the test the methods and steps designed to help the client achieve their goals. In implementation, the nurse performs the actions necessary for the client's plan. If teaching is one of the goals then the nurse would document the time, place, method and information taught.

Standard VI. Evaluation

Evaluation is the final standard. In this step the nurse makes the determination whether or not the goals originally set for the client have been met. If the nurse concludes that the goal or goals have not been met, then the plan has to be revised and documented as such. Goals therefore should be timely and measurable. If the client's goal was to use crutches successfully, and the client was able to perform a repeat demonstration for the nurse, then the goal was met.

The above standards are the cornerstone of the nursing profession. These standards take time and experience to learn and to implement. Experience is the best teacher, and a nurse should continuously strive for excellence in their care of patients, and recognizing how to help patients achieve a higher level of physical and emotional wellness.

Helping the Diabetic Manage Their Diabetes With Family Support

Written by kimmel52

By Nancy Kimmel R.N., Ph.D., C.H.M.M.

The quality of life and health are greatly increased when those who are diabetic control their blood glucose levels consistently throughout the day. Tight glycemic control can prevent many of the illnesses associated with diabetes such as peripheral neuropathy, glaucoma, cardiovascular disease and hypertension. A good predictor of careful blood glucose monitoring is the Hemoglobin A1C test. This test can measure the amount of glucose that has bound to blood cells over ninety to a one hundred and twenty day period, which is the approximate life of a red blood cell. As it happens, glucose, once bound to a red blood cell, stays bound to it for the course of the blood cells life. The acceptable level that indicates good glycemic control is 7.0% or less. (1).

Levels greater than this indicate that the diabetic individual needs to exert greater control over their blood sugar levels. Many times, diabetics will insist that they are doing a successful job at monitoring their blood glucose levels, until their hemoglobin A1C results come back with results greater than 7.0%.

It is not unusual for diabetics to become frustrated, or overwhelmed with the task of managing their blood glucose, administering insulin and eating a well balanced diet. Those diabetics, who have led a sedentary life style, are over weight, drink and or smoke, are placing their health in jeopardy by not adhering to their blood glucose monitoring regime. Finger sticks two to four times a day are not pleasant. Combine that with the insulin injections, and it is no wonder that many diabetics continue to ignore their medical problem. Also, many diabetics will say that they feel good, so there is no reason to monitor their blood glucose carefully. What the diabetic needs to understand is that although they may feel well, their blood glucose can still be at a level that is physiologically destructive. A blood glucose level of 160mg/dl may not make the diabetic notice any physical symptoms, but internally that extra sugar can break down muscle tissue, affect their kidneys and start plaque build up in their arteries by raising their LDL's (low density lipoproteins). Family, friends and visiting nurses can help the diabetic manage their blood glucose consistently. Those members of the family who buy the groceries should keep healthy foods on hand for snack time such as yogurts, carrots, fruit, nuts, and whole grain cereals. Family members should try to eat the same foods as their diabetic member. Limiting carbonated beverages, cakes, cookies and processed sweets in the household will help the diabetic family member realize that they are important and help them to adhere to a well balanced diet. It is important for the diabetic family member to know that they are not alone.

Friends can help in a similar fashion by suggesting a healthy restaurant when dinning out, such as Mediterranean or sea food cuisine. The visiting nurse can help by meeting with the diabetic client and the rest of the family, offering praise, support and knowledge. Praise and encouragement from the nurse can help renew the clients hope and the family's commitment to the health of their loved one. The visiting nurse can bring new knowledge about treatments and tests, verify that the client is using the equipment properly and assess the injection sites. They can also bring supplies to the home, such as syringes, alcohol wipes and brochures.

Diabetic support groups are also very helpful. Family members should encourage their loved one to attend and accompany them. The more knowledgeable a family is about their loved ones illness the better they will be at helping them manage their condition successfully.

Family members need to encourage their diabetic loved one to express their feelings. Let them weep, cry, yell and or scream. Give them the freedom to express their emotions in an accepting and loving environment. Whether the diabetic is six or sixty, diabetes can make one feel all alone, and this can lead to apathy towards their illness. Family and friends can play a crucial role in helping the diabetic manage their blood sugar so that they can live a long, healthy and happy life.

Below is a list of some of the diabetic support groups.

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Foot Care for the Diabetic

Written by kimmel52

By Nancy Lydia Kimmel R.N., Ph.D., C.H.M.M.

Proper foot care is very important for people who are diabetic. People spend a great amount of time on their feet. Knowledge of proper foot care can save the diabetic individual from many future complications that can arise from foot care neglect, such as open wounds, infection, and loss of toe nails, poor circulation, peripheral neuropathy, septicemia and gangrene. Diabetes causes poor circulation, which in turn causes the diabetic individual a loss of sensation. The feet are the farthest away from the heart and are therefore the most susceptible to complications from injury.

Using common sense and taking some simple precautions will go a long way to promoting healthy feet. Here is a list of some of some healthy tips for diabetics regarding their foot care.
- Water should be tested with the person's hand, and should be tepid not hot. Due to peripheral neuropathy, it is possible to use water that is too hot and can cause injury to the tissue.
- Use soap that is gentle on the skin, such as Ivory. or Dove.. Antibacterial soaps can be harsh on the skin, cause allergic reactions in some people.
- Instead of clipping the toe nails, use an emery board. Clipping the toe nails can lead to breaking the skin or ingrown toe nails.
- See a podiatrist on a regular basis, at least monthly. The podiatrist can clip the toe nails and determine if there are any areas of concern.
- Wear foot coverings at all times. Going barefoot can lead to unexpected injury from foreign objects as well as bacterial infection. Sandals that are open toed should be avoided. Always try to cover the entire foot. Use slippers while in the home.

Be sure to have comfortable shoes. Choose shoes that are a half size bigger and wide enough to accommodate cotton socks. Leather shoes are better than vinyl man made materials. The type of activity that someone engages in usually dictates the type of shoes to be worn. Comfort should be their priority. A diabetic may choose not to wear socks with their tennis shoes while engaging in an activity. If they are wearing shoes made of vinyl or leather, their feet will sweat profusely. Sweat from feet, especially in a slightly anaerobic environment (without oxygen) can become acidic, rather than alkaline. The acid sweat can irritate the skin and excoriate areas where there are sores beginning to form.

- Always use cotton socks. Cotton absorbs sweat more than any other material. Avoid nylon socks if possible.
- Avoid shoes that have high heels. High heels will push the toes forward and can easily cause ingrown toe nails and loss of feeling.
- Try to elevate the feet during the day. Schedule daily rest periods. When elevating the feet, try to keep the feet higher than the heart. This position allows blood to flow easier and enhances circulation.
- Avoid perfumed lotions on the feet. If dryness is a problem, use alcohol and perfumed free lotions. Be sure to thoroughly massage all of lotion into the foot, or dry off excess lotion.
- Dry feet thoroughly after each washing and air out feet if possible during the day.
- Avoid standing for long periods of time. Blood has a tendency to pool in the foot and ankle area, making it harder to circulate back to the heart.
- Avoid activities that can cause injury to the foot, such as soccer and football. If those games cannot be avoided, then choose good foot protection.

Using proper foot care sense with good hygiene can make living with diabetes easier and prevent unnecessary complications that could affect the quality of ones life.

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So, You are a Diabetic!

Written by kimmel52

By Nancy Kimmel R.N. Ph.D. C.H.M.M.

So, you are a diabetic. If you have just been recently diagnosed, then there is much to learn. Be careful where you get your information. The doctor should be your first source. Your doctor should prepare you with literature and other teaching material, as well as give you referrals to help groups. Being a diabetic doesn't mean your life is going to change. It does mean that you will have to make important decisions about your health maintenance. If your diagnoses requires that you take oral hypoglycemics then you need to know how they work, when to take them, and the signs and symptoms of hypoglycemia and hyperglycemia. For those who are required to take

injections of insulin, they must learn how to give themselves injections, and take their blood glucose level. The best idea is to take it slow. All of this information may seem overwhelming at the beginning. No one expects you to know everything. Most of all be patient with yourself.

It is important to understand why you have diabetes. Diabetes whether Type I or Type II has been determined to have certain genetic links. Genetically speaking, Type I Diabetes risk to offspring from the mother is 1%-3%, risk to offspring of diabetic fathers is 4 %-6%, with identical twin concordance between 30%-50%. (1) In regards to Type II Diabetes the genetic predisposition of risk to first degree relatives is 10%-15% and identical twin concordance can exceed 90%. (1)

In Type I Diabetes the autoimmune system of the individual gradually destroys the beta cells within the pancreas. Signs and symptoms of diabetes do not begin to manifest until 80%-90% of the beta cells are destroyed. Beta cells are important because they are responsible for the production of insulin. Insulin is a hormone that controls the amount of glucose in the blood stream at any particular time. For instance, when a person indulges in a meal that is high in sugar content, there will be large amounts ofo circulating glucose in the blood. To protect the body from excessive amounts of glucose, there is cascade of hormonal signals that stimulate the pancreas to produce insulin and put the unused glucose back into the cell where it will stay until the body requires it. High glucose levels can put the person in danger of diabetic ketoacidosis. Excessively low levels of blood glucose can be just as dangerous as in hypoglycemia. The acceptable range of blood glucose levels considered optimum range between 90-120 mg/dl. The diagnoses of diabetes require blood tests for confirmation. Usually one of the following blood tests are done;

1. Fasting Plasma glucose level exceeding 126 mg/dl

2. Random, or casual, plasma glucose exceeding 200mg/dl, with the inclusion of the signs and symptoms of Type I Diabetes.
3. Two hour Oral Glucose Tolerance Test level exceeding 200mg/dl using a glucose load of 75mg.

Type II Diabetes is by far the most prevalent in those people diagnosed with diabetes. Also, certain populations have a predisposition to diabetes more so than others. Native Americans, Hispanics and African Americans appear to have higher rates of Type II diabetes than their non-Hispanic white counterparts.

The signs and symptoms of diabetes can differ depending on whether the person is Type I or Type II. For Type I diabetics, the symptoms include, polyuria (frequent urination), polydipsia (excessive thirst), and polyphagia (excessive hunger) as well as weight loss, weakness and fatigue. The signs and symptoms of Type II Diabetes are not as obvious as Type I. In Type II Diabetics, the onset is later in life. Also, their pancreas is still producing some endogenous insulin. Therefore, their symptoms are not as detectable. Symptoms include, delayed wound healing, peripheral neuropathy (decreased sensation or pain in extremities), fatigue and visual changes. or Diabetes, just like hypertension is a disease that must be treated for life. Diabetics who take proper care of themselves can live long healthy lives into their nineties.

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The Dawn Phenomenon in Diabetics

Written by kimmel52

Nancy Lydia Kimmel R.N., Ph.D., C.H.M.M.

Diabetes is an illness that the patient must live with the rest of their lives. The key to living with diabetes successfully is managing tight glycemic control, or controlling blood sugar levels. Blood sugar levels can vary from time to time depending on several factors such as stress levels, amount of food consumed, type of food consumed, amount of insulin used or insufficient insulin coverage and the time of day.

The human being responds to Circadian Rhythms. These are regular changes in mental and physical characteristics that occur in the course of a day. This term may be more familiar as the, "biological clock". A good example is that of someone working midnights for the first time. They find it very difficult to sleep during the day and stay awake all through the night. It is as if their body has a mind of its own. In fact, there is some truth to that statement. Bears hibernate because of their biological clock.

Circadian Rhythms combined with the above mentioned factors can produce wide fluctuations in the blood glucose levels of diabetics while they sleep. A diabetic's blood glucose level may be at 135 mg/dL prior to bedtime and at two A.M. may drop to 40 mg/dL, causing a severe state of hypoglycemia. The body responds to such a drop by producing glucose from alternate sources, since there is no source of ingested food. The only sources of glucose come from the liver via gluconeogenesis, lipolysis (break down of lipids) and glycogenolysis.

The body's hormones stimulate this cascading response to dangerously low blood sugar. The results of such a response, is that of high blood sugar. This rebound hyperglycemia can in turn causes ketosis. Ketosis occurs because the body is fooled into thinking that there is not enough glucose, since the cells are starved, and the glucose is floating in the blood stream instead of being utilized within the cells. The body then begins to break down proteins which in turn cause the release of ketones. The release of ketones causes the pH of the system to drop. If the pH of the body drops below 7.35, a state of Diabetic Ketoacidosis occurs, which can cause a diabetic coma.

This rebound hyperglycemia known to occur in response to hypoglycemia in the early hours of the morning between two and four A.M., is called, the Somogyi Effect. A good way of detecting the Somogyi Effect is to have the diabetic test their blood sugar during those hours. If their blood sugar is low, then they can correct it by eating a snack, before going back to sleep.

The Somogyi Effect can occur at anytime during the day, but is most often equated with the early hours of the morning. Symptoms include headache, nightmares and night sweats. The treatment of this phenomenon usually involves lowering insulin dosage prior to sleep.

Another disorder similar to the Somogyi Effect is known as the Dawn Phenomenon. Although most diabetics are affected by this disorder, it seems to occur more often in pubescent adolescents. Adolescents' blood sugar is affected adversely by their body releasing counter regulatory hormones. These counter regulatory hormones produce precipitously high blood sugar levels. It is thought that the growth hormone has some impact in relation to the production of counter regulatory hormones. Usually upon waking, the diabetic's blood sugar is excessively

high. Correction of the Dawn Phenomenon requires an increase in insulin coverage prior to bedtime.

It is easy to see how both of these disorders can be mistakenly diagnosed for the other. That is why it is important for the diabetic to test their own sugar on several early morning intervals and present the results to their doctor. Correct determination of which disorder is occurring is crucial to continued health of the diabetic.

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Dietary Teaching for Diabetes

Written by kimmel52

Once a patient is diagnosed as having diabetes, their world suddenly changes. Now they must monitor their glucose before meals and at bedtime, they must watch the sugars that they consume and be aware of the signs and symptoms of hypoglycemia and hyperglycemia and know what actions to take. This is a lot of information to process for a diabetic of any age. Type 1 diabetics tend to develop diabetes during adolescence. Type 1 indicates that they are dependent upon insulin to control their blood sugar. Type II diabetics usually develop diabetes later on in life and they are prescribed oral hypoglycemic agents to control their blood sugar. A healthy diet can make a positive impact on the diabetic's life expectancy. Knowing what foods to eat and what foods to avoid is the cornerstone of managing diabetes, as well as tight glycemic control. Therefore nutritional intervention is the responsibility of the nurse, to help promote the health and well being of the patient. Nutritional recommendations for diabetic's is similar to that of the National Cholesterol Education Program.

In the diabetic patient, their production of insulin (a necessary enzyme produced by the beta cells on the Islets of Langerhan within the pancreas) is insufficient. In type I diabetes, insulin deficit occurs at an early age, whereas in type II diabetes this insulin deficiency takes years to deplete.

Lack of insulin allows proliferation of large amounts of glucose to travel freely throughout the blood stream. Insulin administered subcutaneously or via pill form, helps to move glucose from the blood stream back into the cells. Levels of normal blood glucose levels range from 70 -120 mg/dl, although some literature suggests levels up to 145mg/dl as normal. Excessive amounts of glucose in the blood stream can cause numerous health problems. Diabetes has been directly related to some of the following illnesses; kidney disease, high blood pressure, peripheral neuropathy, glaucoma and heart disease. Therefore it is essential for the diabetic patient to have a good understanding of the foods that will benefit them. Recommendations include choosing carbohydrates from grains, fruit and vegetables. Consistency of carbohydrates eaten regularly for snack and at meal time is a crucial factor in glycemic control, more than the type of carbohydrate eaten. Diabetics who receive either insulin or Lantus® (a long lasting insulin) at night should be instructed to eat a snack in the middle of the night to prevent a dramatic drop in blood sugar in the dawn hours. Hypoglycemia can be just a dangerous as hyperglycemia. The signs and symptoms of each state mimic the other. The rule of thumb is to treat the onset of either with a source of fast acting glucose source, such as a hard candy or fruit juice, and then check the blood sugar. Hypoglycemia can cause a coma. The brain is the only organ in the body that utilizes pure glucose. Therefore, by depleting the brains only source of food, the brain will cease to function. So, it is better to treat with fast acting sugar first. This is not going to raise the blood sugar appreciably if the blood sugar is already high. However, if the persons blood sugar is very low, then the addition of a fast acting sugar can save their life immediately. Of course, in a hospital setting, the nurse would immediately check the client's blood sugar with a glucometer. Sucrose can replace starch without effecting blood sugar levels dramatically. The client should make a list of the foods that they are used to eating on a regular basis and with the help of the nurse re-structure their diet with choices from the food pyramid. Allow the client to choose the foods that they want to substitute. This is going to be their life diet, and it is very important that they be the one to structure how and what they eat. The patient should verbalize the benefits of the foods and what type of sugar source the foods represent. Once the patient can express their dietary plan, and the type of foods that are beneficial as opposed to those foods that are merely empty calories, the patient will feel encouraged and become more involved in their blood glucose monitoring.

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Diabetic Ketoacidosis

Written by kimmel52

When the individual's blood sugar gets very high and they are profoundly deficient in insulin, the body becomes unable to utilize blood sugar efficiently. The body then begins to burn fat stores for food. As these fat stores are burned, a by product is released called Ketones. It is ketones that are responsible for lowering the body's pH level below 7.35. Metabolic acidosis occurs when the pH of the body drops below 7.35. The body attempts to excrete the ketones via the kidneys, causing ketones to be released in the urine, a term called ketonuria. However along with the negative ketones, the body's positively charged electrolytes are also excreted. This leads

to an electrolyte imbalance. The body continues to burn other glucose stores in the body such as proteins, causing nitrogen losses.

Now the body has depletion in electrolytes. This can cause nausea and vomiting, depleting more electrolytes. The individual is now in a severe hyperglycemic state and is hypovolemic as well. If these conditions are left untreated, the person can go into hypovolemic shock, become comatose and die.

Outward signs and symptoms of DKA include the following; eyeballs are soft and appear sunken, skin turgor is poor, (Dehydration of tissues can be tested by pinching the skin fold on the sternum. If the skin stays in one place or does not loose its shape rapidly, then dehydration can be assumed.), the person is very pale, cold, clammy, and exhibits deep rapid respirations, an effort the body makes to eliminate excess carbon dioxide. The individual may also exhibit severe abdominal pain and tachycardia, (heart rate greater than 100 beats per minute.) Diagnostic laboratory findings from arterial blood gases would indicate a pH less than 7.35, blood glucose level greater than 250 mg/dL, serum bicarbonate level less than 15 mEq/L, as well as ketones in the urine.

Interventions must be immediate to prevent irreversible destruction to the body's organs and prevent coma or death. Ensure a patent airway, and begin to administer oxygen via nasal cannula or mask. Establish an intravenous access with a large bore needle (18 to 20 gauge). Begin fluid stabilization with 0.9 Normal Saline. This is an isotonic fluid, compatible with the body's pH. The purpose of using an isotonic infusion initially is to re-establish blood pressure which was low and to increase urinary out put to 30-60ml/hr. When urinary output is less than 30 ml/hr, kidney failure can rapidly occur. Fluids should continue for one hour or until stabilization occurs. Next begin insulin infusion with a drip rate or 0.1U/kg/hr. During this time it is important to monitor the person's vital signs every fifteen minutes until stable or for at least one hours after

treatment begins. If necessary, potassium should be administered to correct for hypokalemia, and sodium bicarbonate to correct for metabolic acidosis, if the pH is less than 7.0. The person should also have electrocardiogram leads placed on chest to monitor heart rhythms.

When the diabetic is at home and feels these bodily signs and symptoms beginning to occur, they should take the following steps; call 911, check their blood sugar, administer insulin per sliding scale, drink an electrolytic fluid, (i.e., sports fluids), breath into a paper bag, use oxygen if available, lie down, raise feet level with the heart and wait for the ambulance.

Preventative measures to avoid DKA include consistent control of blood sugar with administration of insulin per protocol. The diabetic should avoid too much food intake, and avoid taking too much or too little insulin. Stressful life situations can also cause elevations in glucose levels. Therefore the diabetic should prepare to check their blood sugar more often during times of stress and administer insulin as prescribed.

Understanding the complications of diabetes can help the diabetic take the necessary actions to prevent DKA from occurring and help them live a healthy life.

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Diabetes and Heart Disease

Written by kimmel52

Diabetes can be a real threat to the cardiovascular system. It comes on slowly and can wreak havoc with the bodies systems before the individual knows that they even have diabetes. Diabetes can cause harm not only to the cardiovascular system but the eyes, the nerves, the kidneys, and impede the healing process. A clinical sign that someone may have diabetes is that they may have a difficult time healing from the slightest of skin injuries. People that have diabetes are at a two to four fold increase to developing heart disease or having a stroke. The advantage that pre-menopausal women have over men is diminished when they have diabetes. (1)

According to Christopher Saudek, M.D professor of medicine at Johns Hopkins University in Baltimoore and past president of The American diabetes Association (ADA)., "having diabetes is such a strong risk factor for heart disease that it's equivalent to already having had a heart attack," Just why diabetes causes heart disease on such a destructive is unknown. Dr. Robert H. Eckel, M.K., professor of medicine at the University of Colorado Denver and past president of the American Heart Association., say "It's a complicated connection".
From a physics standpoint, it can be seen that the heart is muscle and one that is reposonispible for pumping blood to the entire body. Since muscles need glucose to move and expend energy, it can be inferred what when there is a problem with he functioning of glucose iin the body, there will also be a problem with the heart as well.
There are those people that are insulin resistant. This implies that their bodies do not respond to insulin like other people. Insulin is responsible for putting sugar or glucose back into the cells instead of having it run rampant throughout the system. "insulin resistance leads to vascular dysfunction, which indicate that there is an altering of the function of the blood vessels to respond normally to the bodies hormonal signals that tell veins to expand and or contract., notes, David M. Nathan, M.D. , professor medicine at Harvard Medical School and director of the Massachusetts general hospital Diabetes Center. "It also leads to systemic, inflammation, as measured by levels of C=reactive protein and inflammatory cytokines. In this scenario, when type 2 diabetes develops there is a system of cascading events that effects many systems and causing such untoward effects such as high blood pressure, kidney disease, and heart disease. Given as such wide spread evidence on the effects of diabetes on the cardiovascular system and other body functions, the reality of taking precautionary health measures becomes important. An estimated two out of every three adults with diabetes have hypertension. Diabetic dyslipidemia requires frequent blood work so that the individual knows what their levels of good cholesterol (HDL) and bad cholesterol (LDL) are. When the two are out of sync, a condition called atherosclerotic heat disease can occur. These people are usually candidates for heart bypass surgery, since their arteries become clogged.
In summary, those people with diabetes should take an active role in controlling their disease process. They can do this by getting regular fasting blood glucose levels and having their HDL and LDL tested. Normal values of these cholesterol levels are as follows; total cholesterol should be under 200; LDL under 200 and HDL above 50 for women, 40 for men, and triglycerides below 150. if you're LDL, HDL and triglyceride levels are also at desirable levels and you have no other risk factors for heart disease, total blood cholesterol below 200 mg/dL puts you at

relatively low risk of coronary heart disease. Even with a low risk, however, it's still smart to eat a health diet, avoid tobacco smoke and try to exercise daily… Have your cholesterol levels checked every five years or as your doctor recommends, and get regular fasting blood glucose levels. This preventative health maintenance should help increase your lifespan and provide many healthy and fulfilling years.

Hyperkalemia

Written by kimmel52

Electrolyte imbalances within the body can occur in response to many factors. When a person is dehydrated either from sickness or starvation, their electrolytes can become depleted. Certain medications can cause electrolyte imbalances as well as chronic diseases such as diabetes and renal failure. Electrolytes have a large role in balancing all metabolic reactions related to the delicate pH balance of the body, which is 7.35-7.45. Within this limited pH range all metabolic reactions can go to completion. For instance ATP can be released and produced, muscle contractions occur in simple or complex body movements, our thinking processes and those muscle contractions not in conscious control such as our beating heart and peristalsis of the bowel. When a particular electrolyte is either in to great or too small a concentration the pH of the body responds in kind to correct the imbalance by pulling from other sources in the body. When this happens the person begins to have symptoms that something is wrong. Sometimes the symptoms are barely noticeable while other times the person must be immediately hospitalized in intensive care. Hyperkalemia deals with an electrolyte imbalance in which there is too much potassium or (K+) in the body. When the serum potassium levels rise above 5.3 mEq/L or the blood pH drops below 7.35 the person is considered to be in a state of hyperkalemia. Hyperkalemia is diagnosed in up to 8% of hospitalized patients. Death can be as high as 67% if severe hyperkalemia is not treated quickly. Drugs are an underlying cause in 75% of inpatient cases. Some of the causes of hypekalemia can be seen in the table below;

Decreased Excretion	Excessive Ingestion	Interstitial Fluid Shift
Renal Failure (creatinine <10mL/min	Rapid IV infusion	Metabolic acidosis
Use of potassium sparing diuretics	Potassium supplements	Diabetic Ketoacidosis, K+ moves out into blood stream
Decreased aldosterone secretion	Metabolic acidosis	Anti hypertensives such as Beta Blocker and ACE Inhibitors

Signs and symptoms of hyperkalemia include muscle cramps, weakness in the lower extremities, nausea, diarrhea, low blood pressure, bradycardia, and an abnormal electrocardiogram. It is important to carefully monitor the elderly and small children for hyperkalemia. Normal occurrences like diarrhea and vomiting can be life threatening to infants and the elderly. This is due to the lack of fluids within them prior to the occurrence. Therefore careful observation for the above signs and symptoms can save a life. The first step in treatment is to determine whether life threatening cardiac toxicity is present and treat if required. Treatment is based on eliminating or decreasing potassium intake, shifting potassium form the ECF to the ICF, and improving renal and gastrointestinal potassium excretion. With cardiac arrhythmias or changes in the ECG, IV

calcium gluconate is given first, then insulin or sodium bicarbonate is administered. If output does not exceed greater than 30 mL per hour then dialysis is usually started.

ECG abnormalities from hyperkalemia related to the P wave include either a low amplitude or wide and flattened to non discernible in severe states. The PR interval may be normal or prolonged, or not measurable if there is no P wave. The QRS complex is widened, and the T wave is tall and peaked. The QT interval is shortened and the ST segment may be elevated.

References

Lippincott Williams & Wilkins, *ECG Interpretation an Incredibly Easy Pocket Guide.,* copyright 2006

Macklin, Murphy-Ende., Saunders *Nursing Survival Guide Fluids and Electrolytes,* Copyright 2006, Saunders Elsevier, St. Louis Missouri