DOWNLOAD PDF DIABETES INSIPIDUS

Chapter 1 : Diabetes insipidus - Wikipedia

Diabetes insipidus is a rare disorder that occurs when a person's kidneys pass an abnormally large volume of urine that is insipidâ€"dilute and odorless. In most people, the kidneys pass about 1 to 2 quarts of urine a day. In people with diabetes insipidus, the kidneys can pass 3 to 20 quarts of.

It is not related to the more common diabetes mellitus sugar diabetes , in which the body does not produce or properly use insulin. CDI is a distinct disorder caused by complete or partial deficiency of the protein, arginine vasopressin AVP , which is required by the kidneys to manage water balance in the body. If affected individuals do not have access to water, dehydration may occur. Eventually, more serious symptoms can develop including changes in consciousness and confusion associated with dehydration and elevation in serum sodium concentration hypertonic dehydration. CDI may be caused by any condition that affects the creation, transport or release of vasopressin. CDI may be inherited or acquired. In some cases, no cause can be identified idiopathic. CDI is characterized by excessive thirst polydipsia and excessive urination polyuria , even at night nocturia. The severity and progression of CDI varies from case to case. Some individuals may have a severe form of the disorder complete CDI with little or no vasopressin activity. Others may have a mild form of the disorder partial CDI with residual vasopressin activity. Without appropriate AVP secretion, individuals with central diabetes insipidus are unable to concentrate the urine by reabsorbing water in the kidneys. This results in obligatory excessive urine output of dilute urine. Consequently, individuals must drink excessively to prevent dehydration. In response to thirst, affected individuals may drink several gallons of water a day. If affected individuals are deprived of water for an extended period of time, rapid dehydration will occur. Thirst cravings can be strong enough to awaken people from sleep. In infants, additional symptoms may occur including irritability, lethargy, vomiting, constipation and fever. If left untreated, repeated episodes of dehydration can potentially result in seizures, brain damage, developmental delays, and physical and mental retardation. However, with proper diagnosis and prompt treatment intelligence and development is usually normal unless more global problems in development of the brain are associated. Affected children may develop bedwetting enuresis , fatigue, weight loss, and growth retardation. Individuals with CDI are at risk of developing dehydration and cardiovascular symptoms including irregular heartbeats, fever, dry skin and mucous membranes, confusion, seizures, change in consciousness, and potentially coma. Affected adults may develop orthostatic hypotension, a condition in which there is a dramatic decrease in blood pressure upon standing or sitting. Causes CDI is caused by partial or complete deficiency of the antidiuretic hormone, arginine vasopressin. This deficiency usually results from damage to the hypothalamus or pituitary gland. In extremely rare cases, vasopressin deficiency is caused by a genetic mutation that is inherited as an autosomal dominant or autosomal recessive trait. In approximately one third of cases, no specific cause can be identified idiopathic and may be autoimmune in etiology. The hypothalamus is a portion of the brain that acts as a link between the brain and the endocrine systems. The hypothalamus releases neuro-hormones that influence the secretion of other hormones such as those that aid in the regulation of various metabolic process, growth, reproductive function and autonomic functions of the body. One of the substances secreted by the hypothalamus is vasopressin, which travels via nerve fibers to the posterior pituitary gland. The pituitary is a small gland located near the base of the brain that stores several hormones and releases them into the bloodstream as needed by the body. These hormones regulate many bodily functions. The posterior lobe of the pituitary gland is known as the neurophysis neurohypophsyeal region , which stores hormones and eventually secretes them into the bloodstream. After the hypothalamus produces vasopressin, the hormone travels to the pituitary gland, and is stored in the neurophysis. Vasopressin is eventually released into the bloodstream as needed by the body. Vasopressin travels to the kidneys where it binds to receptor proteins found on the surface of certain kidney cells, initiating a process through which the kidneys reabsorb water into the body. Without proper levels of vasopressin, water is not reabsorbed and is lost through urination. Damage to the hypothalamus, pituitary gland or the connection between the hypothalamus and pituitary gland pituitary stalk may impair the production, transport, storage, or release of vasopressin, which in turn impairs the ability of the

body to conserve water. Such damage may occur from trauma due to an accident or surgery e. In rare cases, CDI may be inherited as an autosomal dominant trait. Genetic diseases are determined by the combination of genes for a particular trait that are on the chromosomes received from the father and the mother. Dominant genetic disorders occur when only a single copy of an abnormal gene is necessary for the appearance of the disease. The abnormal gene can be inherited from either parent, or can be the result of a new mutation gene change in the affected individual. Even rarer is an autosomal recessive mode of inheritance in which neither parent is affected but each carries an abnormal gene which when combined together in the offspring result in disease. Investigators have determined that some cases of inherited CDI are caused by disruptions or changes mutations of the arginine vasopressin AVP gene. Mutations of the AVP gene impair the production synthesis or secretion of vasopressin. The AVP gene is located on the short arm p of chromosome 20 20p Chromosomes, which are present in the nucleus of human cells, carry the genetic information for each individual. Human cells normally have 46 chromosomes. Pairs of human chromosomes are numbered from 1 through 22 and the sex chromosomes are designated X and Y. Males have one X and one Y chromosome and females have two X chromosomes. Chromosomes are further sub-divided into many bands that are numbered. The numbered bands specify the location of the thousands of genes that are present on each chromosome. Researchers believe that some cases of idiopathic CDI may be caused by autoimmune factors. In CDI, the body produces antibodies or lymphocytes that attack cells that secrete vasopressin. CDI may also occur as part of a larger syndrome or disorder including Wolfram syndrome or septo-optic dysplasia. For more information on these disorders, choose the specific disorder name as your search term in the Rare Disease Database. Affected Populations CDI affects males and females in equal numbers and can occur at any age. Onset is more common between the ages of 10 and 20 years. The inherited form of CDI is extremely rare with fewer than cases reported in the medical literature. CDI is estimated to occur in 1 out of every 25, individuals. Comparisons may be useful for a differential diagnosis. Nephrogenic diabetes insipidus NDI is a rare kidney disorder that may be inherited or acquired. In this situation, the problem is not a defect in synthesis or secretion of vasopressin, but rather an inability of the kidney to respond to the vasopressin that is secreted. NDI causes chronic excessive thirst polydipsia , excessive urine production polyuria , and potentially dehydration. If left untreated, repeated episodes of severe dehydration may develop, eventually resulting in serious complications. Most cases of hereditary NDI are inherited as an X-linked recessive trait. Rare cases are inherited as an autosomal recessive or dominant trait. Two different genes have been identified that cause hereditary NDI: AVPR2 which codes for the vasopressin receptor and AQP2 which codes for acquaporin that facilitates water transport and reabsorption in the kidney. NDI may also be acquired during life as a result of drug use e. Diabetes mellitus insulin dependent diabetes is a common disorder in which the body does not produce enough insulin or is unable to properly use available insulin. Therefore, the body is not able to properly transport glucose a form of suger into the cells of the body. The disorder has different etiologies: Although the most obvious symptoms are usually excessive thirst and urination, diabetes mellitus is not related to diabetes insipidus and therefore the treatments are different. Primary psychogenic polydipsia is a rare disorder in which individuals drink excessive amounts of water in the absence of any normal stimulus for thirst. Affected individuals will produce excessive amounts of urine polyuria because they drink excessively, not because they are unable to concentrate the urine. In response to the excessive intake of water, their pituitary secretes less vasopressin. Primary psychogenic polydipsia can potentially cause water intoxication â€" a condition that can cause serious complications. Some cases of primary psychogenic polydispsia occur as part of mental illness. In other cases, the cause is unknown. Diagnosis A diagnosis of CDI may be suspected based upon the identification of characteristic findings, specifically excessive thirst and excessive urination. A thorough clinical evaluation, a detailed patient history, and a variety of specialized tests may be used to confirm a diagnosis. Physicians may take blood and urine samples to determine the concentration of salts, and sugar within those samples. The ratio of these substances to water within the blood or urine is known as osmolality. Individuals with CDI have a high osmolality in their blood and a low osmolality in their urine. The urine osmolality may be estimated by the specific gravity, which is low in untreated diabetes insipidus. Additional tests may be necessary to confirm a diagnosis or rule out other causes of diabetes insipidus. Assay

of vasopressin in the circulation is problematic since it is unstable and has a short half-life. Copeptin is cosecreted with vasopressin and is more stable. Therefore, it provides a surrogate marker of vasopressin secretion. Individuals with a different form of diabetes insipidus i. Conversely, individuals with CDI respond to supplemental vasopressin treatment. In some individuals an additional test, known as a water deprivation test, may be required to confirm a diagnosis. During this test, affected individuals cannot ingest any fluids and can only eat dry foods for a specific period of time. Blood and urine samples will be taken to measure serum sodium concentration or osmolality and urine output, osmolality or specific gravity. This dehydration provides a stimulus for vasopressin secretion which can be estimated by measuring copeptin concentrations or by the concentration of the urine. Serum vasopressin levels may be measured as well if handled appropriately. Body weight and vital signs are monitored to prevent excessive dehydration.

Chapter 2 : Diabetes insipidus - Symptoms and causes - Mayo Clinic

Diabetes insipidus (DI) is a condition characterized by large amounts of dilute urine and increased thirst. The amount of urine produced can be nearly 20 liters per day.

What is diabetes insipidus? Diabetes insipidus DI is a disease that causes frequent urination. The amount of urine you make is controlled by antidiuretic hormone ADH. ADH is made in a part of the brain called the hypothalamus. ADH is stored and released by the pituitary gland. The 2 most common types of diabetes insipidus are central and nephrogenic. What causes central DI? CDI can be caused by any of the following: Head injury or brain surgery Infections such as meningitis or encephalitis Medical conditions such as brain cancer or sarcoidosis Family history of CDI What causes nephrogenic DI? NDI can be caused by any of the following: Family history of NDI Damage to the kidneys caused by conditions such as kidney disease or blocked ureters tubes that carry urine from the kidney to the bladder Medicines such as loop diuretics, lithium, and certain antibiotics What other signs and symptoms may I have with DI? Feeling very thirsty and drinking more liquid than usual Losing weight without trying Feeling confused, weak, and dizzy Fatigue Children may have irritability, a loss of appetite, and slow growth How is diabetes insipidus diagnosed? Your healthcare provider will ask about your symptoms and any health problems you have. Tell your healthcare provider if you have any family members who have DI. Also tell him what medicines you take, and how long you have been taking them. You may also need any of the following: A 24 hour urine test may be done. You will need to collect your urine for 24 hours. You will urinate into a container. Healthcare providers will measure and record how much you urinate. The urine will then be sent to a lab for tests. A water deprivation test is done to decide if you have DI and to find the cause. You will be asked not to drink any liquids. Then you will need to give a urine sample so that it can be tested. Your weight will also be checked every hour. You may need blood tests to measure your ADH levels every 2 hours. Healthcare providers will take another blood and urine sample about 1 hour after you get the medicine. A hypertonic saline infusion test may be done. Healthcare providers will give you liquid through an IV. You will not be able to drink any liquids during this test. During the test, healthcare providers will take blood samples about every 30 minutes. The blood is then sent to the lab to check your level of ADH. You may be given dye to help the pictures show up better. Tell the healthcare provider if you have ever had an allergic reaction to contrast dye. Do not enter the MRI room with anything metal. Metal can cause serious injury. Tell the healthcare provider if you have any metal in or on your body. How is diabetes insipidus treated? Treatment depends on the type of DI you have and the cause. If have NDI that is caused by a certain medicine, your healthcare provider may have you stop taking that medicine. If your NDI is caused by a disease, your healthcare provider will work with you to treat that disease. You may also need medicine that helps your kidneys control the amount you urinate. How do I manage my symptoms? Weigh yourself each day. Weigh yourself at the same time each day, on the same scale. Rapid weight loss can be a sign of fluid loss in your body. Drink liquids as directed. Limit sodium as directed. You may need to decrease the amount of sodium salt you eat if you have NDI. This helps decrease the amount of fluids you lose. When should I contact my healthcare provider? You have a dry mouth or cracked lips. You are more tired than usual. You have new headaches or vision changes. You have questions or concerns about your condition or care. When should I seek immediate care or call ? You feel very thirsty all the time, and your thirst is waking you from sleep. You are urinating large amounts of light yellow, or clear urine. You are losing weight daily without trying. You feel weak and dizzy, or you have fainted. You have a seizure. Care Agreement You have the right to help plan your care. Learn about your health condition and how it may be treated. Discuss treatment options with your healthcare providers to decide what care you want to receive. You always have the right to refuse treatment. The above information is an educational aid only. It is not intended as medical advice for individual conditions or treatments. Talk to your doctor, nurse or pharmacist before following any medical regimen to see if it is safe and effective for you.

Chapter 3 : Diabetes Insipidus | NIDDK

Diabetes insipidus (DI) is an uncommon condition in which the kidneys are unable to prevent the excretion of water.

Diabetes insipidus is a condition where the body loses too much fluid through urination, causing a significant risk of dangerous dehydration as well as a range of other illnesses and conditions. It is a rare disorder affecting the regulation of body fluid levels. People with diabetes insipidus produce excessive amounts of urine, resulting in frequent urination and thirst. However, the underlying cause of these two symptoms differs from types 1 and 2 diabetes. The disease takes two main forms: Mephrogenic diabetes insipidus and central or neurogenic diabetes insipidus. Central diabetes insipidus occurs when the pituitary gland fails to secrete the hormone vasopressin, which regulates bodily fluids. In nephrogenic diabetes insipidus, vasopressin secretion is normal, but the kidneys do not correctly respond to the hormone. Diabetes insipidus affects roughly 1 in every 25, people in the United States. Fast facts on diabetes insipidus Here are some key points about diabetes insipidus. More detail and supporting information is in the body of this article. Diabetes insipidus is a condition where the body fails to properly control water balance, resulting in excessive urination. Excessive production of dilute urine in diabetes insipidus is often accompanied by increased thirst and high water intake. Diabetes insipidus can result in dangerous dehydration if a person does not increase their water intake, such as when a patient cannot communicate their thirst or help themselves. As diabetes insipidus is not a common condition, diagnosis involves the exclusion of other common possible explanations for symptoms. Symptoms The need to urinate in large volumes can wake people with diabetes insipidus. The main symptom of all cases of diabetes insipidus is frequently needing to pass high volumes of diluted urine. The second most common symptom is polydipsia, or excessive thirst. In this case, results from the loss of water through urine. The thirst prompts the person with diabetes insipidus to drink large volumes of water. The need to urinate can disturb sleep. The volume of urine passed each day can be anywhere between 3 liters and 20 liters, and up to 30 liters in cases of central diabetes insipidus. Another secondary symptom is dehydration due to the loss of water, especially in children who may not be able to communicate their thirst. Children may become listless and feverish, experience vomiting and diarrhea , and may show delayed growth. Other people unable to help themselves to water, such as people with dementia , are also at risk of dehydration. Extreme dehydration can lead to hypernatremia, a condition in which the sodium concentration of the serum in the blood becomes very high due to low water retention. The cells of the body also lose water. Hypernatremia can lead to neurological symptoms, such as overactivity in the brain and nerve muscles, confusion, seizures, or even coma. Without treatment, central diabetes inspidus can lead to permanent kidney damage. In nephrogenic DI, serious complications are rare, so long as water intake is sufficient. Treatment Diabetes insipidus becomes a serious problem only for people who cannot replace the fluid that is lost in the urine. Access to water and other fluids makes the condition manageable. If there is a treatable underlying cause of the high urine output, such as diabetes mellitus or drug use, addressing this should help resolve the diabetes insipidus. For central and pregnancy-related diabetes insipidus, drug treatment can correct the fluid imbalance by replacing vasopressin. For nephrogenic diabetes insipidus, the kidneys will require treatment. Vasopressin hormone replacement uses a synthetic analog of vasopressin called desmopressin. The drug is available as a nasal spray, injection, or tablet, and is taken when needed. Care should be taken not to overdose, as this can lead to excessive water retention and, in rare, severe cases, hyponatremia and fatal water intoxication. The drug is otherwise generally safe when used at appropriate dosages, with few side effects. It is, however, not effective if diabetes insipidus occurs as a result of kidney dysfunction. Mild cases of central diabetes insipidus may not need hormone replacement and can be managed through increased water intake. Nephrogenic diabetes insipidus treatments may include: Reducing caffeine and protein intake and removing processed foods from the diet can be effective steps to controlling water retention, as well as consuming foods with high water content, such as melons. Causes Both types of diabetes insipidus are linked to a hormone called vasopressin but occur in different ways. Vasopressin promotes water retention in the kidneys. This also keeps blood pressure at a healthy level. The main symptom, excessive urine output, can have other causes. These would usually be ruled

out before making a diagnosis of diabetes insipidus. For example, undiagnosed or poorly managed diabetes mellitus can cause frequent urination. Central diabetes insipidus Central diabetes insipidus is caused by reduced or absent levels of vasopressin. The condition can be present from birth, or primary. Secondary central diabetes insipidus is acquired later in life. The cause of primary central diabetes insipidus is often unknown. Some causes result from an abnormality in the gene responsible for vasopressin secretion. The secondary type is acquired through diseases and injuries that affect how vasopressin is produced. These can include brain lesions resulting from head injuries, cancers , or brain surgery. Other body-wide conditions and infections can also trigger central diabetes insipidus. Nephrogenic diabetes insipidus Nephrogenic diabetes insipidus can also be inherited or acquired. This type affects the response of the kidneys to vasopressin. This affects water balance to varying degrees. Secondary nephrogenic diabetes insipidus can have numerous causes, including:

Chapter 4 : Diabetes Insipidus | DI | MedlinePlus

Diabetes insipidus produces symptoms similar to garden-variety diabetes, but it is far less serious. WebMD explains the causes, symptoms, diagnosis, and treatment of this disorder.

Dipsogenic[edit] Dipsogenic DI or primary polydipsia results from excessive intake of fluids as opposed to deficiency of arginine vasopressin. It may be due to a defect or damage to the thirst mechanism, located in the hypothalamus; [7] or due to mental illness. Gestational[edit] Gestational DI occurs only during pregnancy and the postpartum period. During pregnancy, women produce vasopressinase in the placenta , which breaks down antidiuretic hormone ADH. In rare cases, however, an abnormality in the thirst mechanism causes gestational DI, and desmopressin should not be used. Diabetes insipidus is also associated with some serious diseases of pregnancy, including pre-eclampsia , HELLP syndrome and acute fatty liver of pregnancy. These cause DI by impairing hepatic clearance of circulating vasopressinase. It is important to consider these diseases if a woman presents with diabetes insipidus in pregnancy, because their treatments require delivery of the baby before the disease will improve. Failure to treat these diseases promptly can lead to maternal or perinatal mortality. In general, electrolyte regulation precedes volume regulation. When the volume is severely depleted, however, the body will retain water at the expense of deranging electrolyte levels. The regulation of urine production occurs in the hypothalamus , which produces ADH in the supraoptic and paraventricular nuclei. After synthesis, the hormone is transported in neurosecretory granules down the axon of the hypothalamic neuron to the posterior lobe of the pituitary gland , where it is stored for later release. In addition, the hypothalamus regulates the sensation of thirst in the ventromedial nucleus by sensing increases in serum osmolarity and relaying this information to the cortex. It is encountered as a result of hypoxic encephalopathy, neurosurgery, autoimmunity or cancer, or sometimes without an underlying cause idiopathic. The main effector organ for fluid homeostasis is the kidney. ADH acts by increasing water permeability in the collecting ducts and distal convoluted tubules; specifically, it acts on proteins called aquaporins and more specifically aquaporin 2 in the following cascade. When released, ADH binds to V2 G-protein coupled receptors within the distal convoluted tubules, increasing cyclic AMP , which couples with protein kinase A , stimulating translocation of the aquaporin 2 channel stored in the cytoplasm of the distal convoluted tubules and collecting ducts into the apical membrane. These transcribed channels allow water into the collecting duct cells. The increase in permeability allows for reabsorption of water into the bloodstream, thus concentrating the urine. Nephrogenic DI results from lack of aquaporin channels in the distal collecting duct decreased surface expression and transcription. It is seen in lithium toxicity , hypercalcemia, hypokalemia, or release of ureteral obstruction. Therefore, a lack of ADH prevents water reabsorption and the osmolarity of the blood increases. With increased osmolarity, the osmoreceptors in the hypothalamus detect this change and stimulate thirst. With increased thirst, the patient now experiences a polydipsia and polyuria cycle. Measurement of blood electrolytes can reveal a high sodium level hypernatremia as dehydration develops. Urinalysis demonstrates a dilute urine with a low specific gravity. Urine osmolarity and electrolyte levels are typically low. A fluid deprivation test is another way of distinguishing DI from other causes of excessive urination. If there is no change in fluid loss, giving desmopressin can determine if DI is caused by: Those with DI continue to urinate large amounts of dilute urine in spite of water deprivation. While taking desmopressin, a patient should drink fluids or water only when thirsty and not at other times, as this can lead to sudden fluid accumulation in the central nervous system. If desmopressin reduces urine output and increases urine osmolarity, the hypothalamic production of ADH is deficient, and the kidney responds normally to exogenous vasopressin desmopressin. If the DI is due to renal pathology, desmopressin does not change either urine output or osmolarity since the endogenous vasopressin levels are already high. Whilst diabetes insipidus usually occurs with polydipsia, it can also rarely occur not only in the absence of polydipsia but in the presence of its opposite, adipsia or hypodipsia. Most people with this form have either experienced past head trauma or have stopped ADH production for an unknown reason. Habit drinking in its severest form termed psychogenic polydipsia is the most common imitator of diabetes insipidus at all ages. While many adult cases

in the medical literature are associated with mental disorders, most patients with habit polydipsia have no other detectable disease. The distinction is made during the water deprivation test, as some degree of urinary concentration above isoosmolar is usually obtained before the patient becomes dehydrated. Central[edit] Central DI and gestational DI respond to desmopressin which is given as intranasal or oral tablets. Carbamazepine , an anticonvulsive medication, has also had some success in this type of DI. Also, gestational DI tends to abate on its own four to six weeks following labor, though some women may develop it again in subsequent pregnancies. In dipsogenic DI, desmopressin is not usually an option. Nephrogenic[edit] Desmopressin will be ineffective in nephrogenic DI which is treated by reversing the underlying cause if possible and replacing the free water deficit. The diuretic hydrochlorothiazide a thiazide diuretic or indomethacin can be used to create mild hypovolemia which encourages salt and water uptake in proximal tubule and thus improve nephrogenic diabetes insipidus. Amiloride has additional benefit of blocking Na uptake. Thiazide diuretics are sometimes combined with amiloride to prevent hypokalemia. It seems paradoxical to treat an extreme diuresis with a diuretic, and the exact mechanism of action is unknown but the thiazide diuretics will decrease distal convoluted tubule reabsorption of sodium and water, thereby causing diuresis. This decreases plasma volume, thus lowering the glomerular filtration rate and enhancing the absorption of sodium and water in the proximal nephron. Less fluid reaches the distal nephron, so overall fluid conservation is obtained. Clinicians have been aware of lithium toxicity for many years, and traditionally have administered thiazide diuretics for lithium-induced polyuria and nephrogenic diabetes insipidus. However, amiloride has recently been shown to be a successful treatment for this condition. Application of this name to DI arose from the fact that diabetes insipidus does not cause glycosuria excretion of glucose into the urine.

Chapter 5 : Diabetes Insipidus in Dogs - Symptoms, Causes, Diagnosis, Treatment, Recovery, Manageme

Overview. Diabetes insipidus (die-uh-BEE-teze in-SIP-uh-dus) is an uncommon disorder that causes an imbalance of water in the body. This imbalance leads to intense thirst even after drinking fluids (polydipsia), and excretion of large amounts of urine (polyuria).

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drug for the treatment of diabetes insipidus. Desmopressin is a synthetic, man-made hormone that comes as an injection, nasal spray or pill. Desmopressin helps a patient to manage her symptoms, but it does not cure the disease. Drinking too much water or other fluids increases your risk of having low sodium levels in your blood. Signs of low levels of sodium in the blood include: Patients with nephrogenic diabetes insipidus would use these. Thiazide diuretics are sometimes combined with amiloride to prevent hypokalemia , or low potassium levels in the blood. Amiloride works to increase the amount of sodium and decrease the amount of potassium. Aspirin or ibuprofen is sometimes used to help reduce urine volume as well. Symptoms of a ibuprofen overdose to look out for include: Change Your Diet A diet containing nutrient-dense whole foods with plenty of water-heavy fruits and vegetables can be helpful for people with diabetes insipidus. Starchy vegetables like sweet potatoes, squash, bananas and avocados are also great options. You may also find that coconut water is hydrating and helps to balance your electrolytes. You need to drink extra water to compensate for fluid loss, especially after being active or exercising. Research shows that without enough water present in the body, dehydration and deficits can cause cardiovascular complications, muscle cramping , fatigue, dizziness and confusion. Wearing a medical alert bracelet will alert professionals of your condition and advise them of your need for fluids. Keep Your Electrolytes Balanced The major electrolytes found within the body include calcium, magnesium, potassium, sodium, phosphate and chloride. These nutrients help to stimulate nerves throughout the body and balance fluid levels. You can keep your electrolytes balanced by avoiding packaged or processed foods because of their sodium content. So if your diet is very high in sodium, the kidneys excrete more water. This can cause complications balancing other electrolytes. Check Your Medications Some medications can impact your electrolyte balance, a complication of diabetes insipidus. These include antibiotics, diuretics, hormonal pills, blood pressure medications and cancer treatments. Laxatives and diuretics also change potassium and sodium levels within the blood and urine. Even high levels of physiological stress can impact hormones to the point that fluid and electrolyte levels can become thrown out of balance. Precautions A major complication of diabetes insipidus is dehydration. You can prevent dehydration by increasing the amount of liquids that you drink. If you experience the signs of dehydration, such as confusion, dizziness or sluggishness, seek immediate care. Final Thoughts Diabetes insipidus is a condition that disrupts normal life due to increased thirst and passing of large volumes of urine, even at night. The most common signs and symptoms of diabetes insipidus are extreme thirst and the excretion of an excessive amount of diluted urine. Two major complications of diabetes insipidus are dehydration and an electrolyte imbalance. Desmopressin is a synthetic form of vasopressin used to treat diabetes insipidus.

Chapter 6 : Diabetes insipidus - Diagnosis and treatment - Mayo Clinic

Lifestyle and home remedies. If you have diabetes insipidus: Prevent dehydration. As long as you take your medication and have access to water when the medication's effects wear off, you'll prevent serious problems.

Print Diagnosis Since the signs and symptoms of diabetes insipidus can be caused by other conditions, your doctor will perform a number of tests. If your doctor determines you have diabetes insipidus, he or she will need to determine which type of diabetes insipidus you have, because the treatment is different for each form of the disease. Some of the tests doctors commonly use to diagnose and determine the type of diabetes insipidus and in some cases, its cause, include: This test confirms the diagnosis and helps determine the cause of diabetes insipidus. The water deprivation test is performed under close supervision in children and pregnant women to make sure no more than 5 percent of body weight is lost during the test. Urinalysis is the physical and chemical examination of urine. If your urine is less concentrated â€" meaning the amount of water is high relative to other excreted substances â€" it could be due to diabetes insipidus. Magnetic resonance imaging MRI. An MRI of the head is a noninvasive procedure that uses a powerful magnetic field and radio waves to construct detailed pictures of brain tissues. Your doctor may want to perform an MRI to look for abnormalities in or near the pituitary gland. Genetic screening If your doctor suspects an inherited form of diabetes insipidus, he or she will look at your family history of polyuria and may suggest genetic screening. Treatment Treatment of diabetes insipidus depends on what form of the condition you have. Treatment options for the most common types of diabetes insipidus include: Because the cause of this form of diabetes insipidus is a lack of anti-diuretic hormone ADH , treatment is usually with a synthetic hormone called desmopressin. You can take desmopressin as a nasal spray, as oral tablets or by injection. The synthetic hormone will eliminate the increase in urination. For most people with this form of the condition, desmopressin is safe and effective. If the condition is caused by an abnormality in the pituitary gland or hypothalamus such as a tumor , your doctor will first treat the abnormality. Desmopressin should be considered a medication you take as needed. This is because in most people, the deficiency of ADH is not complete, and the amount made by the body can vary day to day. Taking more desmopressin than needed can result in too much water retention and low sodium levels in the blood. Symptoms of low sodium include lethargy, headache, nausea and, in severe cases, seizures. In mild cases of central diabetes insipidus, you may need only to increase your water intake. This condition is the result of your kidneys not properly responding to ADH, so desmopressin is not a treatment option. Instead, your doctor may prescribe a low-salt diet to help reduce the amount of urine your kidneys make. The drug hydrochlorothiazide, used alone or with other medications, may improve symptoms. Although hydrochlorothiazide is a diuretic usually used to increase urine output , in some cases it can reduce urine output for people with nephrogenic diabetes insipidus. Treatment for most cases of gestational diabetes insipidus is with the synthetic hormone desmopressin. In rare cases, this form of the condition is caused by an abnormality in the thirst mechanism. There is no specific treatment for this form of diabetes insipidus, other than decreasing the amount of fluid intake. However, if the condition is caused by mental illness, treating the mental illness may relieve the symptoms. Lifestyle and home remedies If you have diabetes insipidus: Plan ahead by carrying water with you wherever you go, and keep a supply of medication in your travel bag, at work or at school. Wear a medical alert bracelet or carry a medical alert card in your wallet. If you have a medical emergency, a health care professional will recognize immediately your need for special treatment. However, in some cases when you call to set up an appointment you may be referred to a specialist called an endocrinologist. What you can do Be aware of any pre-appointment restrictions. Your doctor may ask you to stop drinking water the night before â€" do so only if your doctor asks you to. Be prepared to answer specific questions about how often you urinate and how much water you drink each day. Write down key personal information, including any major stresses or recent life changes. Your doctor will also want to know about any recent injuries to your head. Take a family member or friend along, if possible. Sometimes it can be difficult to remember all the information provided to you during an appointment. Someone who accompanies you may remember something that you missed or forgot. Write down questions to ask your doctor. For diabetes

insipidus, some basic questions to ask your doctor include: What kinds of tests do I need? Is my condition likely temporary or will I always have it? What treatments are available and which do you recommend for me? How will you monitor whether my treatment is working? Will I need to make any changes to my diet or lifestyle? I have these other health conditions. How can I best manage these conditions together? Are there any dietary restrictions I need to follow? Are there brochures or other printed material I can take home or websites you recommend? What to expect from your doctor Your doctor is likely to ask you a number of questions, including: When did you begin experiencing symptoms? How much more are you urinating than usual? How much water do you drink each day? Do you get up at night to urinate and drink water? Are you being treated or have you recently been treated for other medical conditions? Have you had any recent head injuries or have you had neurosurgery? Has anyone in your family been diagnosed with diabetes insipidus? Does anything seem to improve your symptoms? What, if anything, appears to worsen your symptoms? Avoid activities that might cause dehydration, such as physical exertion or spending time in the heat.

Chapter 7 : Diabetes Insipidus | Definition of Diabetes Insipidus by Merriam-Webster

Diabetes insipidus (DI) causes frequent urination. You become extremely thirsty, so you drink. Then you urinate. This cycle can keep you from sleeping or even make you wet the bed.

Confusion Diagnosis Since the signs and symptoms of diabetes insipidus can be caused by other conditions, your doctor will perform a number of tests. If your doctor determines you have diabetes insipidus, he or she will need to determine which type of diabetes insipidus you have, because the treatment is different for each form of the disease. Some of the tests doctors commonly use to diagnose and determine the type of diabetes insipidus and in some cases, its cause, include: This test confirms the diagnosis and helps determine the cause of diabetes insipidus. The water deprivation test is performed under close supervision in children and pregnant women to make sure no more than 5 percent of body weight is lost during the test. Urinalysis is the physical and chemical examination of urine. If your urine is less concentrated â€" meaning the amount of water is high relative to other excreted substances â€" it could be due to diabetes insipidus. Magnetic resonance imaging MRI. An MRI of the head is a noninvasive procedure that uses a powerful magnetic field and radio waves to construct detailed pictures of brain tissues. Your doctor may want to perform an MRI to look for abnormalities in or near the pituitary gland. Genetic screening If your doctor suspects an inherited form of diabetes insipidus, he or she will look at your family history of polyuria and may suggest genetic screening. Treatment Treatment of diabetes insipidus depends on what form of the condition you have. Treatment options for the most common types of diabetes insipidus include: Because the cause of this form of diabetes insipidus is a lack of anti-diuretic hormone ADH , treatment is usually with a synthetic hormone called desmopressin. You can take desmopressin as a nasal spray, as oral tablets or by injection. The synthetic hormone will eliminate the increase in urination. For most people with this form of the condition, desmopressin is safe and effective. If the condition is caused by an abnormality in the pituitary gland or hypothalamus such as a tumor , your doctor will first treat the abnormality. Desmopressin should be considered a medication you take as needed. This is because in most people, the deficiency of ADH is not complete, and the amount made by the body can vary day to day. Taking more desmopressin than needed can result in too much water retention and low sodium levels in the blood. Symptoms of low sodium include lethargy, headache, nausea and, in severe cases, seizures. In mild cases of central diabetes insipidus, you may need only to increase your water intake. This condition is the result of your kidneys not properly responding to ADH, so desmopressin is not a treatment option. Instead, your doctor may prescribe a low-salt diet to help reduce the amount of urine your kidneys make. The drug hydrochlorothiazide, used alone or with other medications, may improve symptoms. Although hydrochlorothiazide is a diuretic usually used to increase urine output , in some cases it can reduce urine output for people with nephrogenic diabetes insipidus. Treatment for most cases of gestational diabetes insipidus is with the synthetic hormone desmopressin. In rare cases, this form of the condition is caused by an abnormality in the thirst mechanism. There is no specific treatment for this form of diabetes insipidus, other than decreasing the amount of fluid intake. However, if the condition is caused by mental illness, treating the mental illness may relieve the symptoms. Lifestyle and home remedies If you have diabetes insipidus: Plan ahead by carrying water with you wherever you go, and keep a supply of medication in your travel bag, at work or at school. Wear a medical alert bracelet or carry a medical alert card in your wallet. If you have a medical emergency, a health care professional will recognize immediately your need for special treatment. However, in some cases when you call to set up an appointment you may be referred to a specialist called an endocrinologist. What you can do Be aware of any pre-appointment restrictions. Your doctor may ask you to stop drinking water the night before â€" do so only if your doctor asks you to. Be prepared to answer specific questions about how often you urinate and how much water you drink each day. Make a note of key personal information, including things like recent life changes, or major stresses. Your doctor will also want to know about any recent injuries to your head. Take a family member or friend along, if possible. Sometimes it can be difficult to remember all the information provided to you during an appointment. Someone who accompanies you may remember something that you missed or forgot. Write down a list of questions to ask your doctor.

For diabetes insipidus, some basic questions to ask your doctor include: What kinds of tests do I need? Is my condition likely temporary or will I always have it? What treatments are available and which do you recommend for me? How will you monitor whether my treatment is working? Will I need to make any changes to my diet or lifestyle? I have these other health conditions. How can I best manage these conditions together? Are there any dietary restrictions I need to follow? Are there brochures or other printed material I can take home or websites you recommend? What to expect from your doctor Questions your doctor is likely to ask include: When did you begin experiencing symptoms? How much more are you urinating than usual? How much water do you drink each day? Do you get up at night to urinate and drink water? Are you being treated or have you recently been treated for other medical conditions? Have you had any recent head injuries or have you had neurosurgery? Has anyone in your family been diagnosed with diabetes insipidus? Does anything seem to improve your symptoms? What, if anything, appears to worsen your symptoms? Avoid activities that might cause dehydration, such as physical exertion or spending time in the heat. Terms of use Medically reviewed on Jul 28, Learn more about Diabetes insipidus Associated drugs.

Chapter 8 : Diabetes Insipidus | UCLA Pituitary Tumor Program

Diabetes insipidus is a condition that results from insufficient production of the antidiuretic hormone (ADH), a hormone that helps the kidneys and body conserve the correct amount of water. Normally, the antidiuretic hormone controls the kidneys' output of urine. It is secreted by the hypothalamus.

The pituitary gland and the hypothalamus are situated within the brain and control hormone production. Female urinary system Female urinary system Your urinary system â€" which includes the kidneys, ureters, bladder and urethra â€" is responsible for removing waste from your body through urine. Your kidneys, located toward the back in your upper abdomen, produce urine by filtering waste and fluid from your blood. That urine then travels through your ureters to your bladder, where the urine is stored until you can eliminate it at an appropriate time. Normally, your kidneys remove excess body fluids from your bloodstream. This fluid waste is temporarily stored in your bladder as urine, before you urinate. When your fluid regulation system is working properly, your kidneys conserve fluid and make less urine when your body water is decreased, such as through perspiration. The volume and composition of your body fluids remain balanced through a combination of oral intake and excretion by the kidneys. The rate of fluid intake is largely governed by thirst, although your habits can increase your intake far above the amount necessary. The rate of fluid excreted by your kidneys is greatly influenced by the production of anti-diuretic hormone ADH , also known as vasopressin. Your body makes ADH in the hypothalamus and stores the hormone in your pituitary gland, a small gland located in the base of your brain. ADH is released into your bloodstream when your body starts to become dehydrated. ADH then concentrates the urine by triggering the kidney tubules to release water back into your bloodstream rather than excreting as much water into your urine. The way in which your system is disrupted determines which form of diabetes insipidus you have: The cause of central diabetes insipidus in adults is usually damage to the pituitary gland or hypothalamus. This damage disrupts the normal production, storage and release of ADH. The damage is commonly due to surgery, a tumor, an illness such as meningitis , inflammation or a head injury. For children, the cause may be an inherited genetic disorder. In some cases the cause is unknown. This defect makes your kidneys unable to properly respond to ADH. The defect may be due to an inherited genetic disorder or a chronic kidney disorder. Certain drugs, such as lithium or the antiviral medications cidofovir and foscarnet Foscavir , also can cause nephrogenic diabetes insipidus. Gestational diabetes insipidus is rare and occurs only during pregnancy and when an enzyme made by the placenta â€" the system of blood vessels and other tissue that allows the exchange of nutrients and waste products between a mother and her baby â€" destroys ADH in the mother. This condition â€" also known as dipsogenic diabetes insipidus or psychogenic polydipsia â€" can cause excretion of large volumes of dilute urine. Rather than a problem with ADH production or damage, the underlying cause is intake of excessive fluids. Prolonged excessive water intake by itself can damage the kidneys and suppress ADH, making your body unable to concentrate urine. Primary polydipsia can be the result of abnormal thirst caused by damage to the thirst-regulating mechanism, situated in the hypothalamus. Primary polydipsia has also been linked to mental illness. In some cases of diabetes insipidus, doctors never determine a cause. Nephrogenic diabetes insipidus usually affects males, though women can pass the gene on to their children. Complications Dehydration Except for primary polydipsia, which causes you to retain too much water, diabetes insipidus can cause your body to retain too little water to function properly, and you can become dehydrated.

Chapter 9 : Diabetes insipidus Disease Reference Guide - calendrierdelascience.com

Diabetes insipidus is a condition where the body loses too much fluid through urination, causing a significant risk of dangerous dehydration as well as a range of other illnesses and conditions.

Physical Exam A physical exam can help diagnose diabetes insipidus. Urinalysis Urinalysis tests a urine sample. A health care provider tests the sample in the same location or sends it to a lab for analysis. The test can show whether the urine is dilute or concentrated. The test can also show the presence of glucose, which can distinguish between diabetes insipidus and diabetes mellitus. The health care provider may also have the patient collect urine in a special container over a hour period to measure the total amount of urine produced by the kidneys. The blood test measures sodium levels, which can help diagnose diabetes insipidus and in some cases determine the type. A health care provider can perform two types of fluid deprivation tests: A short form of the deprivation test. A health care provider instructs the patient to stop drinking all liquids for a specific period of time, usually during dinner. The next morning, the patient will collect a urine sample at home. The patient then returns the urine sample to his or her health care provider or takes it to a lab where a technician measures the concentration of the urine sample. A formal fluid deprivation test. A health care provider performs this test in a hospital to continuously monitor the patient for signs of dehydration. Patients do not need anesthesia. A health care provider weighs the patient and analyzes a urine sample. The patient loses 5 percent or more of his or her initial body weight. Urine concentration increases only slightly in two to three consecutive measurements. A specially trained technician performs the procedure in an outpatient center or a hospital, and a radiologistâ€”a doctor who specializes in medical imagingâ€”interprets the images. A patient does not need anesthesia, although people with a fear of confined spaces may receive light sedation. An MRI may include an injection of a special dye, called contrast medium. With most MRI machines, the person lies on a table that slides into a tunnel-shaped device that may be open ended or closed at one end. Some MRI machines allow the patient to lie in a more open space. MRIs cannot diagnose diabetes insipidus. How is diabetes insipidus treated? The primary treatment for diabetes insipidus involves drinking enough liquid to prevent dehydration. A health care provider may refer a person with diabetes insipidus to a nephrologistâ€”a doctor who specializes in treating kidney problemsâ€”or to an endocrinologistâ€”a doctor who specializes in treating disorders of the hormone-producing glands. A synthetic, or man-made, hormone called desmopressin treats central diabetes insipidus. The medication comes as an injection, a nasal spray, or a pill. This treatment helps a patient manage symptoms of central diabetes insipidus; however, it does not cure the disease. In some cases, nephrogenic diabetes insipidus goes away after treatment of the cause. Medications for nephrogenic diabetes insipidus include diuretics, either alone or combined with aspirin or ibuprofen. Aspirin or ibuprofen also helps reduce urine volume. Researchers have not yet found an effective treatment for dipsogenic diabetes insipidus. People can try sucking on ice chips or sour candies to moisten their mouths and increase saliva flow, which may reduce the desire to drink. For a person who wakes multiple times at night to urinate because of dipsogenic diabetes insipidus, taking a small dose of desmopressin at bedtime may help. A health care provider can prescribe desmopressin for women with gestational diabetes insipidus. Most women will not need treatment after delivery. Eating, Diet, and Nutrition Researchers have not found that eating, diet, and nutrition play a role in causing or preventing diabetes insipidus. The hormone vasopressin, also called antidiuretic hormone, controls the fluid removal rate through urination. The types of diabetes insipidus include central, nephrogenic, dipsogenic, and gestational. Each type of diabetes insipidus has a different cause. The main complication of diabetes insipidus is dehydration if fluid loss is greater than liquid intake. A health care provider can diagnose a person with diabetes insipidus based on a medical and family history, a physical exam, urinalysis, blood tests, a fluid deprivation test, and magnetic resonance imaging MRI. What are clinical trials, and are they right for you? Clinical trials are part of clinical research and at the heart of all medical advances. Clinical trials look at new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. Find out if clinical trials are right for you. What clinical trials are open? Clinical trials that are currently open

and are recruiting can be viewed at www. This information may contain content about medications and, when taken as prescribed, the conditions they treat. When prepared, this content included the most current information available. For updates or for questions about any medications, contact the U. Consult your health care provider for more information. The NIDDK translates and disseminates research findings through its clearinghouses and education programs to increase knowledge and understanding about health and disease among patients, health professionals, and the public.