DOWNLOAD PDF LABORATORY VALUES AND DIAGNOSTICS

Chapter 1 : Laboratory Values - GlobalRPH

The nurse's knowledge related to laboratory values and diagnostics tests takes on special meaning when working with older adults. The older a person is, the more difficult is the interpretation of findings and the more important are the nurse's skills.

Advanced Search Abstract Urinary tract infections UTIs are among the most common bacterial infections and account for a significant part of the workload in clinical microbiology laboratories. Enteric bacteria in particular, Escherichia coli remain the most frequent cause of UTIs, although the distribution of pathogens that cause UTIs is changing. More important is the increase in resistance to some antimicrobial agents, particularly the resistance to trimethoprim-sulfamethoxazole seen in E. Physicians distinguish UTIs from other diseases that have similar clinical presentations with use of a small number of tests, none of which, if used individually, have adequate sensitivity and specificity. Among the diagnostic tests, urinalysis is useful mainly for excluding bacteriuria. Urine culture may not be necessary as part of the evaluation of outpatients with uncomplicated UTIs, but it is necessary for outpatients who have recurrent UTIs, experience treatment failures, or have complicated UTIs, as well as for inpatients who develop UTIs. Urinary tract infections UTIs are among the most common bacterial infections. It has been estimated that symptomatic UTIs result in as many as 7 million visits to outpatient clinics, 1 million visits to emergency departments, and , hospitalizations annually [1]. UTIs are challenging, not only because of the large number of infections that occur each year, but also because the diagnosis of UTI is not always straightforward. Physicians must distinguish UTI from other diseases that have a similar clinical presentation, some UTIs are asymptomatic or present with atypical signs and symptoms, and the diagnosis of UTIs in neutropenic patients who do not typically have pyuria may require different diagnostic criteria than those used for the general patient population. It therefore comes as no surprise that the laboratory examination of urine specimens accounts for a large part of the workload in many hospital-based laboratories. The purpose of this review is to summarize the laboratory diagnosis of routine UTI using current diagnostic methods. The review will not cover the diagnosis of UTI in special patient populations, a topic that merits a separate review. Only a limited amount of data has been published regarding changes in the frequency of causative agents among outpatients. Enteric bacteria in particular, Escherichia coli have been and remain the most frequent cause of UTI, although there is some evidence that the percentage of UTIs caused by E. In contrast, significant changes in the causes of nosocomial UTI have been reported since Candida albicans is the most common cause of funguria, followed by Candida glabrata, Candida tropicalis, Candida parapsilosis, Candida krusei, and other yeasts [16]. Table 1 Percentage distribution of etiologic agents of urinary tract infections among outpatients and inpatients, by pathogen. Specimen Collection, Transportation, and Processing Specimen collection. Suprapubic aspiration is the best method to avoid contamination of specimens with bacteria in the distal urethra. This collection method is used infrequently because it is not indicated clinically except in rare circumstances , it is invasive and uncomfortable, and it requires too much time and too many resources to be practical. Collection of urine by use of a single catheter straight catheter technique is the next-best technique for obtaining urine specimens with minimal contamination, but, again, it is not indicated clinically for most patients because it is too labor intensive and costly for routine use and it is invasive. It has added disadvantages, because the process of inserting a catheter through the urethra can introduce bacteria into the bladder and thereby cause UTI , and rare complications have been reported. Most urine specimens are obtained from adult patients via the clean-catch midstream technique. This technique has the following advantages: Colony counts from urine specimens collected by this method correlate reasonably well with those of specimens collected via suprapubic aspiration or straight catheterization [15]. The obvious disadvantage of this technique is that the urine sample passes through the distal urethra and can become contaminated with commensal bacteria. Simple procedures that have been developed to decrease the contamination rate include cleansing of skin and mucous membranes adjacent to the urethral orifice before micturition, allowing the first part of the urine stream to pass into the toilet, and collecting urine for culture from the midstream [17]. Although the clean-catch midstream method is accepted

and used widely, the available evidence suggests that the cleansing procedures may not decrease urine contamination rates significantly and, therefore, may be unnecessary as a routine [18â€”23]. There may be difficulties with proper collection of samples from elderly patients, as well as from those patients who have physical or other types of impairments, which adds to the importance of collecting specimens properly to avoid contamination. As discussed below, correct processing and handling of urine specimens, as well as correct interpretation of test results, is dependent on the method used to collect the specimen. It is, therefore, of obvious importance for clinicians to specify the method of collection on the test requisition slip. Other information that should be included on the test requisition slip includes the date and time of specimen collection, patient demographic information, and any clinically relevant information e. Several studies have demonstrated the adverse effect of delays in transportation or processing of urine specimens on their quality [24â€”26]. In each study, urine specimens were plated within 2 h after collection and then were plated again after delays of up to 24 h; results were compared to determine whether delays in plating resulted in an increase in colony counts. On the basis of the results of these and other similar studies, it is currently recommended that urine specimens be plated within 2 h after collection unless specimens have been refrigerated or kept in a preservative [17]. Routine urine cultures should be plated using calibrated loops for the semiquantitative method. For urine specimens obtained from outpatients, it is not necessary to routinely inoculate a medium that is selective for gram-positive bacteria, because nearly all UTIs in outpatients are caused by aerobic and facultative gram-negative bacteria table 1 [27 , 28]. Even in patient populations in which Staphylococcus saprophyticus is a common cause of UTIs, it is not necessary to use selective media. In contrast, urine specimens obtained from hospitalized patients are likely to contain enterococci, which have emerged as the second most common cause of nosocomial infections. Laboratories may want to consider inoculating urine specimens obtained from hospitalized patients, or from patients in whom gram-positive bacterial infection is suspected but not documented, to a medium that is selective for gram-positive cocci. A medium such as phenylethyl alcohol suppresses the growth of swarming Proteus species and other gram-negative bacilli that can overgrow gram-positive cocci in the specimen. Most pathogenic yeasts grow well on blood agar plates, so it is unnecessary to use selective fungal media for urine cultures, even for samples obtained from patients with suspected funguria. Selective fungal media can be used in those rare instances in which there is a high clinical probability that a UTI is caused by a more fastidious yeast or mold. Urine specimens obtained from patients with suspected mycobacterial UTIs should be processed and plated to the appropriate mycobacterial media [32]. Bacteriuria can be detected microscopically using Gram staining of uncentrifuged urine specimens, Gram staining of centrifuged specimens, or direct observation of bacteria in urine specimens. Gram stain of uncentrifuged urine specimens is a simple method. A volume of urine is applied to a glass microscope slide, allowed to air dry, stained with Gram stain, and examined microscopically. The performance characteristics of the test are not well-defined, because different criteria have been used to define a positive test result. Other investigators have found the test to be of low sensitivity for the detection of UTI [33â€”42]. Table 2 Performance characteristics of Gram staining for detection of bacteriuria. Table 2 View large Download slide Performance characteristics of Gram staining for detection of bacteriuria. The urine Gram stain test has the important advantage of providing immediate information as to the nature of the infecting bacterium or yeast rarely infectious agents such as microsporidia and thereby guiding the physician in selecting empiric antimicrobial therapy. This is of importance in some settings, but the Gram stain test has 3 disadvantages that limit its usefulness in most clinical settings. Second, the test is too labor intensive for it to be practical for most clinical microbiology laboratories to offer it on more than a select basis. Because of these limitations, its use should be limited to patients with cases of acute pyelonephritis, patients with invasive UTIs, or other patients for whom it is important to have immediate information as to the nature of the infecting pathogen. Detection of bacteriuria by nitrite test. Bacteriuria can be detected chemically when bacteria produce nitrite from nitrate. The biochemical reaction that is detected by the nitrite test is associated with members of the family Enterobacteriaceae the pathogens most commonly responsible for UTIs , but the usefulness of the test is limited because nitrite production is not associated with urinary-tract pathogens such as S. Detection of pyuria by urine microscopy. Pyuria can be detected and quantified microscopically by measuring the urinary

leukocyte excretion rate, counting leukocytes with a hemocytometer, counting leukocytes in urine specimens using Gram staining, or counting leukocytes in a centrifuged specimen. The advantages to urine microscopy are that leukocytes, leukocyte casts, and other cellular elements are observed directly. One disadvantage to urine microscopy is that leukocytes deteriorate quickly in urine that is not fresh or that has not been adequately preserved. In addition, each of these methods has disadvantages that limit its usefulness as a routine test [28]. Because of these disadvantages, urine microscopy should be limited to patients in whom pyelonephritis or other more serious infections are suspected. The most accurate microscopic method for quantitating pyuria is to measure the urinary leukocyte excretion rate [43]. The test is impractical for clinical use, however, making it necessary for laboratories to use other methods. A simple and inexpensive alternative is to count urine leukocytes with a hemocytometer. Although using a hemocytometer to count leukocytes is easier than measuring urinary leukocyte excretion rates, it is impractical for clinical laboratories to use a hemocytometer to count leukocytes on a routine basis. The most practical microscopic method involves counting the number of leukocytes in the sediment of centrifuged urine specimens. As reviewed by Pappas [

Chapter 2 : CLPNA Diagnostic Testing and Lab Values Course

Laboratory values helpful tools in understanding clinical signs and symptoms Abnormal laboratory results trigger comprehensive patient assessments, obtaining information about clinical signs and symptoms, patient history, and psychosocial and physical examination.

Imaging Tests If you have had a stroke or stroke warning signs, your doctor may need additional information to fully understand your problem or plan the best treatment. In addition to blood tests, you may need to schedule special tests or procedures to examine your brain, heart or blood vessels. Here are the tests doctors use most often in stroke diagnosis. Click on the test name for more information. A CT scan can be used to diagnose ischemic stroke, hemorrhagic stroke, and other problems of the brain and brain stem. The MR scan shows the brain and spinal cord in more detail than CT. MR can be used to diagnose ischemic stroke, hemorrhagic stroke, and other problems involving the brain, brain stem, and spinal cord. Tests that View the Blood Vessels that Supply the Brain Carotid doppler Carotid duplex, Carotid ultrasound Painless ultrasound waves are used to take a picture of the carotid arteries in your neck, and to show the blood flowing to your brain. This test can show if your carotid artery is narrowed by arteriosclerosis cholesterol deposition. Cerebral arteriogram Cerebral angiogram, Digital subtraction angiography, [DSA] A catheter is inserted in an artery in your arm or leg, and a special dye is injected into the blood vessels leading to your brain. X-ray images show any abnormalities of the blood vessels, including narrowing, blockage, or malformations such as aneurysms or arterio-venous malformations. Cerebral arteriogram is a more difficult test than carotid doppler or MRA, but the results are the most accurate. The ultrasound probe may be placed on your chest trans-thoracic echocardiogram, TTE or deep in your throat trans-esophageal echocardiogram, TEE. Sometimes the EKG is recorded continuously over days, with the signals sent to a portable recorder Holter monitor or by radio to a hospital monitoring station telemetry. Abnormalities may alert your doctor to important problems such as pneumonia or heart failure. Urinalysis UA A urine sample is often obtained to screen for bladder infection or kidney problems. If infection is suggested, a urine culture test may be required. Pulse oximetry Blood oxygen This painless test is sometimes done in the emergency room or hospital to determine if your blood is receiving enough oxygen from the lungs. A small probe with a red light is usually attached to one finger. EEG is not routinely used for stroke diagnosis, but would be ordered if your doctor thinks that you may have had a seizure. Lumbar puncture LP, spinal tap A needle is inserted in your lower back to obtain a sample of the fluid cerebrospinal fluid, CSF which surrounds your brain and spinal cord. LP is not routinely used for diagnosis of ischemic stroke. However, LP is often required if subarachnoid hemorrhage bleeding from a cerebral aneurysm is suspected. LP may also be needed if your doctor suspects a nervous system infection such as meningitis or inflammation. EMG is not used for stroke diagnosis, but might be needed if your doctor suspects a problem with the nerves in your arms or legs. Brain biopsy This is a surgical procedure in which a small piece of the brain is removed for microscopic examination. It is very rarely used for stroke diagnosis, often only when cerebral vasculitis is suspected.

Chapter 3 : Normal Laboratory Values For NCLEX Review: Cheat Sheet - Nurseslabs

Common Laboratory Values Cheat Sheet Diagnostic tests are crucial in any aspect of clinical practice since they assist clinicians in establishing and determining the.

Patients with DKA will get many labs drawn at various intervals. Like sepsis, this is another doozy! If ascites is also present, the fluid most likely will be analyzed. They may be tested for Hep B or C if not already diagnosed. These are the basic labs drawn when a patient is diagnosed with a stroke. Please keep in mind there are both ischemic and hemorrhagic strokes, and additional labs may be ordered for varying degrees of severity, as well as if something else is going on with the patient. Normal sodium is ; do not over correct or correct too quickly. Also must evaluate if the HDL are too low, which can promote the inflammatory response source. HDL, high density lipoproteins: One of the exclusionary criteria for tPA administration is if their platelets are less than , There are three different Hep B tests you can do. The selection of which depends on the circumstancesâ€¦ so if you want to see if a vaccinated person still has immunityâ€¦ if someone is suspected of having Hep Bâ€¦. The Hepatitis B surface antibody test or anti-HBs detects any antibody produced in response to the Hep B surface antigen. Source What labs do you draw for clostridium difficile c. If it is suspected a patient has c. This tests for the c. So this antigen is produced in high amounts by c. So if this screening test comes back positive, another test is performed. Typically, the nurse is sending down the stool sample, and this 2-step process is taken care of within the lab by their own processes. The other option is a PCR assay, which results quickly and is very sensitive and reliableâ€¦ but not all labs have the capabilities for this particular test. We created an entire course which focuses solely on these labs. How to chart lab values: However, if you need to actually type lab values into the chart there are a few things to remember: Double check for accuracy. If it is a critical lab value abnormally high or low , make sure you chart who you notified, when, and any orders you received. Many institutions have specific charting requirements for Correct: Markson notified at It makes writing down and referencing information for report significantly faster. Nurses love these things. However, the trick is that not everyone writes them the same. What is important is that you do it the same way every time. Consistency is key, people! What lab values do you monitor with isotretinoin Accutane? Essentially, a lipid panel, CBC, and hepatic panel. What lab values do you monitor with valproic acid Depakote? What lab values do you monitor with heparin? If a patient has a continuously infusing heparin drip, typically an aPTT is drawn at routine intervals. This lets you know if you need to increase, decrease, or maintain your dosage. The therapeutic range is dependent upon the reasoning for the drip in the first place. However, some institutions draw an anti-Xa rather than an aPTT to determine the therapeutic level of heparin in the blood. What lab values does heparin effect? PTT, Anti-Xa â€” monitoring one of these and titrating appropriately is the normal process. Platelets â€” we monitor these, but hoping not to see a change or decrease below ,â€¦ otherwise the patient may be developing heparin-induced thrombocytopenia. To monitor platelets, you would draw a CBC. What lab values do you monitor with furosemide Lasix? The frequency of lab monitoring really depends on how much they are getting and what route. For example, a patient being started on 20 mg orally once a day versus someone with a continuous IV infusion. What lab values do you monitor with lithium? The lithium test is required to assess the therapeutic level of lithium. Currently, the therapeutic range is 0. However, whenever someone is initially being started on lithium, a baseline CBC, BMP, lipid profile, fasting glucose and hepatic panel are drawn. What lab values do you monitor with enoxaparin Lovenox? CBC specifically looking at platelets , hemoccult to check for bleeding at varying intervals is typically completed. To check renal status or if a patient has a history of renal issues, checking a BUN and creatinine is a good idea BMP. Wondering what lab values you need to know as a nurse? As you begin working as a nurse on a specialized unit you will have to learn different labs that are important to that field. On our lab value podcast , 63 Must Know Labs Cheatsheet , and Lab Value course we try to dive deeper into some of the most common laboratory values used in medicine today. To break it down even further for you and to answer the question that we get from student daily: I have created this short video. Lab Values Mentioned in the Video:

Chapter 4 : Laboratory Values: NCLEX-RN || racedaydvl.com

Normal Laboratory Values - Etiology, pathophysiology, symptoms, signs, diagnosis & prognosis from the Merck Manuals - Medical Professional Version.

Dehydration, hypoxia, cigarette smoking, polycythemia vera, tumors, erythropoietin abuse, lung diseases, blood doping, erythrocytosis, cor pulmonale Low Level: Erythropoietin, iron supplements Drugs that may decrease hemoglobin: Aspirin, antibiotics, anti-neoplastic drugs D. Platelet Count Platelets are also known as thrombocytes. They circulate in the bloodstream and bind together to form a clot over any damaged blood vessel. Determining platelet count is vital in assessing patients for tendencies of bleeding and thrombosis. Cancer, allergic reactions, polycythemia vera, recent spleen removal, chronic myelogenous leukemia, inflammation, secondary thombocytosis Low Level: Viral infection, aplastic anemia, leukemia, alcoholism, vitamin B12 and folic acid deficiency, systemic lupus erythematosus, hemolytic uremic condition, HELLP syndrome, disseminated intravascular coagulopathy, vasculitis, sepsis, splenic sequestration, cirrhosis Drugs that may increase platelet: Romiplostim, steroids, human IgG, immunosuppressants Drugs that may decrease platelet: Aspirin, hydroxyurea, anagrelide, chemotherapeutic drugs, statins, ranitidine, quinidine, tetracycline, vancomycin, valproic acid, sulfonamides, phenytoin, piperacillin, penicillin, pentoxifylline, omeprazole, nitroglycerin E. White Blood Cell White blood cells, also known as leukocytes, defend the body against infections and other foreign bodies. Infections, cigarette smoking, leukemia, inflammatory diseases, tissue damage, severe physical or mental stress Low Level: Autoimmune disorders, bone marrow deficiencies, viral diseases, liver problems, spleen problems, severe bacterial infections, radiation therapy Drugs that may increase white blood cells: Corticosteroids, heparin, beta-adrenergic agonists, epinephrine, granulocyte colony-stimulating factor, lithium Drugs that may decrease white blood cells: Diuretics, chemotherapeutic drugs, histamine-2 blockers, captopril, anticonvulsants, antibiotics, antithyroid drugs, quinidine, chlorpromazine, terbinafine, clozapine, sulfonamides, ticlopidine II. Urinalysis Urinalysis is usually done as part of routine diagnostic examinations. A standard urinalysis involves three stagesâ€” visual exam, dipstick test and microscopic exam. The presence of bacteria can also affect its appearance: Here are some examples: Clear to dark yellow â€” normal Amber to honey yellow â€” dehydration Orange â€— dehydration, intake of rifampicin, consumption of orange food dye Brown ale â€— severe dehydration, liver disease Pink to reddish â€— consumption of beets, rhubarb or blueberries, mercury poisoning, tumors, kidney diseases, prostate problems, UTI Blue or green â€— consumption of asparagus, genetic disorders, excess calcium, heartburn medications, multivitamins Deep purple â€— porphyria B. Dipstick Urine Test The dipstick urine test is done by dipping a plastic strip into the urine sample. This strip has partitions impregnated by different chemicals that correspond to certain substances present in the urine, so abnormalities will be detected. Once the strip is dipped into the urine, there will be some changes in the color of the partitions. The following are the chemical tests usually included in reagent strips: In some circumstances, too acidic or basic urine produces crystals. When this phenomenon happens inside the kidney, kidney stones can develop. Specific Gravity Specific gravity reflects how concentrated the urine is. It can measure the proportion of solutes present in the urine when compared to pure water. Determining specific gravity is useful when you want to detect a particular substance in the urine sample. For example, if you suspect that a patient secretes small amounts of protein in the urine, the first morning-void urine is the best sample because it has high specific gravity and appears concentrated. Protein Albumin is usually the first type of protein compound excreted in the urine whenever there is a kidney problem. Other types of protein compounds are not detectable in dipstick test and can be measured through a different urine protein test. Conditions that usually produce high amounts of protein in the urine include preeclampsia, multiple myeloma, inflammation, urinary tract injuries, malignancies and other disorders that destroy red blood cells. Glucose Glucose should not be present in the urine. However, in some circumstances, the renal threshold allows the excretion of glucose in the urine when the blood glucose levels are too high. The conditions that can cause glucosuria are pregnancy, diabetes mellitus, liver diseases and hormonal disorders. Ketones Like glucose, ketones should not be present in the urine. Ketones are by-products

of fat metabolism and they form whenever there is not enough carbohydrate present for energy production. Ketones also form when insulin levels are not enough to initiate carbohydrate metabolism so the body just uses fat in order to produce the energy needed for daily activities. Other conditions that produce ketones in the urine are diabetes mellitus, frequent vomiting, strenuous exercise, and high protein diet. Blood The presence of blood in the urine is called hematuria and this usually happens when there is an injury in the urinary tract. Other conditions that may induce hematuria include cigarette smoking, strenuous exercise, kidney problems, and trauma. Leukocyte Esterase Leukocyte esterase is the enzyme produced by white blood cells. Normally, there are white blood cells present in the urine, but they are so few that there is no leukocyte esterase detectable in dipstick test. On the other hand, when there are many white blood cells present in the urine, the leukocyte esterase level elevates and it could be detected in strips. White blood cells in the urine increase in response to urinary tract infections. Bilirubin Bilirubin, a part of bile, is the yellow fluid secreted into the intestines to aid in digestion. It should not be present in a normal urine sample but once detected, it can reflect the presence of liver diseases. Urobilinogen Urobilinogen is formed from bilirubin. It is excreted in the urine in small amounts. High urobilinogen levels in the urine can signify liver diseases and other conditions that can cause RBC destruction. For people with liver problems and obvious signs of liver dysfunction, the absence of urobilinogen may indicate the presence of a hepatic or biliary obstruction. However, the detection of nitrite in the urine is not used as a sole basis for the determination of UTI as some people can still have UTI with a negative nitrite result. Microscopic Examination In microscopic examination, the urine sample is centrifuged so sediments will settle at the bottom and the clear part can be discarded. Few drops of this centrifuged urine will be examined under a microscope. The sediments observed under the microscope are measured in terms of per lower power field LPF or per high power field HPF. The following are the entities measured in a microscopic examination: Red blood cells RBCs RBCs are present in the urine sample of a person with severe urinary tract infection, renal disorders, urinary tract injuries and inflammation. It can also reflect an improper collection of urine specimen e. Urine contaminated by blood from menstruation or hemorrhoids. It can also reflect improper urine sample collection as in the case of urine specimen contaminated by vaginal secretions. Epithelial cells In a normal urine specimen, there are few epithelial cells that can be seen under microscopic examination. However, in cases of severe urinary tract infection, inflammation and malignancies, there will be an increased number of epithelial cells in the urine. An elevated number of epithelial cells can also signify an improper collection of the urine specimen, especially if it is not collected using the midstream-catch technique. Microorganisms A normal urine sample is ideally sterile and free from microorganisms. Results should be correlated clinically as these microorganisms are also present externally in the genitals. Casts Casts are cylindrically shaped particles formed from the coagulated protein secreted by renal cells. Examples include fatty casts, granular cast, and waxy casts among others. Examples of casts that are not typically present in the urine include leucine, cystine, and tyrosine. These casts may signify malignancies and abnormal metabolic processes. Potassium Potassium is critical in nerve and muscle function because it communicates impulses. The movement of nutrients into the cell and the transport of waste products out of the cell are also mediated by potassium. Whenever potassium levels are increased or decreased, the heart rhythms are affected as signified by EKG changes. Anorexia nervosa, malnutrition, diarrhea, vomiting, poorly managed diabetes, hyperaldosteronism Drugs that may increase potassium: Amphotericin B, gentamicin, carbenicillin, corticosteroids, beta-adrenergic agonists, potassium-wasting diuretics B. Sodium Sodium reflects a part of renal function as kidneys are responsible for eliminating it from the body. It also plays a part in motor and nerve function. Patients are tested for serum sodium levels in cases of dehydration, edema, abnormal blood pressure levels, and changes in motor functions. Cushing syndrome, diabetes insipidus, excessive fluid loss, malnutrition, dehydration Low Level: Chloride Together with sodium, potassium and carbon dioxide, chloride maintains the normal acid-base balance of the body through balancing body fluids. Abnormal changes in serum chloride levels is usually an indicator of metabolic changes in the body. Diarrhea, metabolic acidosis, compensated respiratory alkalosis, renal tubular acidosis, bromide poisoning, kidney diseases, Cushing syndrome, hyperventilation Low Level: Carbonic anhydrase inhibitors Drugs that may decrease chloride: Calcium Calcium is usually binded with protein in the blood. For this reason, a standard calcium test can be

misleading and determination of ionized calcium is recommended. The ionized calcium test measures the calcium that is not attached to proteins. Determining serum calcium levels is important if the patient is suffering from existing nerve and motor dysfunctions. Malnutrition, vitamin D deficiency, hypoparathyroidism, low blood level of albumin, kidney failure, magnesium deficiency, liver disease, osteomalacia, pancreatitis Drugs that may increase calcium: Lithium, tamoxifen, thiazides, calcium supplements, vitamin D supplements Drugs that may decrease calcium: No known drug E. Magnesium Magnesium is important in muscle and nerve functions, blood pressure regulation, and immune system. It also plays a role in blood sugar regulation. Its level is checked and tested whenever there are changes in motor functions or when patients are suspected of metabolic diseases. Oliguria, dehydration, Addison disease, chronic renal failure, diabetic acidosis Low Level: Chronic diarrhea, alcoholism, hemodialysis, ulcerative colitis, delirium tremens, hypoparathyroidism, hyperaldosteronism, hepatic cirrhosis, pancreatitis, toxemia of pregnancy Drugs that may increase magnesium: Milk of magnesia, lithium carbonate Drugs that may decrease magnesium: It also participates in the production of ATP. Phosphorus plays an important role in the acid-base balance of the body and in glycolysis. Hypoparathyroidism, diabetic ketoacidosis, liver disease, kidney failure Low Level:

Chapter 5 : Laboratory Tests: MedlinePlus

-Laboratory values are helpful tools in understanding clinical signs and symptoms -Abnormal laboratory results trigger comprehensive patient assessments, obtaining information about clinical signs and symptoms, patient history, and psychosocial and physical examination.

It is an expectation of practice that they will critically appraise all assessment data to arrive at the best nursing care for each individual client. This course provides information and learning activities related to diagnostic tests and laboratory lab values, one source of client assessment data. The LPN should understand the rationale for conducting specific diagnostic and laboratory tests when delivering care, as well as the implications of the results of those tests. The course lists common diagnostic and lab tests and values in an organized manner, with opportunities for participants to test their knowledge through short case studies and interactive quizzes. Entry level LPNs are expected to meet the knowledge requirement for obtaining, assessing and monitoring diagnostic tests and lab values commonly used in healthcare. To access a learning activity, simply click on the Link. After you have completed an activity, return to this page to proceed to the next activity. Course Content and Exercises Part I: Diagnostic Procedures Read Introduction, Module 1 and Module 2 in the Study Guide PDF Digital Case Studies â€" An interactive exercise with several scenarios designed to test your knowledge of the appropriate applications, interpretation and possible complications of diagnostic health testing. Diagnostic Procedures Quiz â€" This quiz is designed to assess your knowledge and understanding of the 20 commonly used diagnostic procedures described in the Study Guide. Common Lab Tests Quiz â€" This quiz is designed to assess your knowledge of and understanding of the 32 chemical, hematology and urine laboratory tests described in the Study Guide. Diagnostics Procedures App â€" This learning app provides easy look-up information on the 20 common diagnostic procedures described in the Study Guide. The data provided on each diagnostic test includes description, indications, procedure, interfering factors and nursing implications. Common Lab Tests App â€" This learning app provides easy look-up information on 32 chemical, hematology, and urine lab tests described in the Study Guide. The data provided on each test includes normal range, indications, test explanation, purpose, interfering factors, and results and significance. My Alberta Health Tests and Treatments. Goverment of Alberta, Everyone else, leave in the default number. If you want a copy of the Final Exam Results e-mailed to yourself or anyone else , enter the appropriate e-mail address. Otherwise, leave it blank. Results are ONLY e-mailed if you have passed the exam. Course Evaluation Course Evaluation â€" Please complete this online survey after finishing this self-study course. Your feedback and comments will greatly assist CLPNA in developing and delivering effective, quality nursing educational resources. Diagnostic and laboratory test results throughout most of the world except United States are reported in SI units. Use this quiz to review and refresh your knowledge of these SI measurement units. Assess and refresh your general knowledge of common diagnostic tests, their applications and limitations. Critical Diagnostic Test Values: Review and refresh your knowledge of the critical values of some diagnostic and laboratory tests â€" results that indicate immediate medical attention is required. The critical values in this quiz are presented in SI units. Diagnostic Tests I App: This learning app contains data on laboratory tests that analyze blood, biopsies, cultures, fluids, stools, sputum and urine to assist in the diagnosis, monitoring and treatment of human diseases and disorders. Normal laboratory values are expressed in SI units; conventional units are presented in parenthesis after the SI units. Diagnostic Tests II App: This learning app contains data on 91 electrodiagnostic, endoscopic, manometric, nuclear scan, ultrasound and x-ray tests used to confirm, monitor and treat human diseases and disorders. For Android devices, iSpring Play is available here. The quizzes can also be downloaded and saved on your mobile device and completed off-line at your convenience. No results or scores are recorded or tracked!

Chapter 6 : â€ŽLab Values Medical Reference on the App Store

The course lists common diagnostic and lab tests and values in an organized manner, with opportunities for participants to test their knowledge through short case studies and interactive quizzes.

Erythrocyte sedimentation rate ESR: Educating the Client About the Purpose and Procedure of Prescribed Laboratory Tests As previously discussed, clients must be educated about the purpose of the prescribed laboratory test, the procedure for the laboratory test and any preparation the laboratory tests that is indicated. For example, a client in the community may be instructed to remain NPO after midnight. Gather and organize the correct laboratory tubes for the specimens that you will be collecting. Choose a suitable site for the venipuncture. Clean the site with an alcohol prep pad with a circular pattern from the site of the venipuncture to the area surrounding the site of the venipuncture. Allow the area to air dry. Ask the patient to make a fist. Pull the skin taunt so that the desired and suitable vein is accessible. Insert the sterile needle into the vein at a 15 to 30 degree angle. Pop the tube onto the tubing. Take the tourniquet off when the last tube is filled. Take the needle out. Place sterile gauze on the site using sufficient pressure to prevent bleeding for about 1 or 2 minutes. Place an adhesive bandage over the site. Central Line Blood Samples Some central venous catheters have a couple or several lumens, one of may be used to withdraw a blood sample. The port that can be used to draw a blood sample is cleansed with alcohol. Then a small amount of blood is drawn out and discarded, after which the intended blood sample is drawn. After the sample is taken, the central line is then flushed with 20 mL of sterile saline. Obtaining Specimens Other Than Blood for Diagnostic Testing Other than blood, other specimens that are collected include urine, stool and wound specimens. Gently irrigate the wound with sterile normal saline to remove any debris and extraneous matter. Remove the swab from the Culturette tube. Place the swab into the Culturette tube. For example, diabetic clients should have their blood glucose levels are taken and monitored by the nurse and they are also monitored by the client in their home. This monitoring permits the nurse and the client the opportunity to evaluate how well the diabetes is being managed. Notifying the Primary Health Care Provider About Laboratory Test Results The primary health care provider is immediately informed about all abnormal laboratory test results.

Chapter 7 : Laboratory Testing for Diabetes Diagnosis and Management

Getting familiar with and interpreting laboratory values can be intimidating, particularly to new nurses. There's always the fear of messing things up and not being able to meet the patients' health needs.

Chapter 8 : Lab Tests and Procedures | Internet Stroke Center

Following a diagnosis of diabetes, a combination of laboratory and clinical tests can be used to monitor blood glucose control, detect onset and progression of diabetic complications, and predict treatment response.

Chapter 9 : Laboratory Values and Interpretation - A Nurse's Ultimate Guide - NurseBuff

A laboratory test is a procedure in which a sample of blood, urine, other bodily fluid, or tissue is examined to get information about a person's health. Some laboratory tests provide precise and reliable information about specific health problems.