ANCC MEDSURG-BC - Quiz Questions with Answers

Assessment and Diagnosis

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1.

Prior to auscultation of heart sounds, it is important to locate the auscultatory sites. Which of the following areas is located in the second right intercostal space?

Aortic area

Tricuspid area

Mitral area or apex

Pulmonic area

Correct answer: Aortic area

The aortic area of the heart is generally auscultated in the second right intercostal space (ICS), near the sternum.

The tricuspid area is in the fourth left ICS, close to the sternum (left lower sternal border). The point of maximum impact in the mitral area lies within the fifth left ICS (midclavicular line). The pulmonic valve area is near the sternum in the second left ICS.

2.

Which of the following would the nurse **most** expect to see in the urinalysis results of a patient with renal cell carcinoma?

Hematuria

Proteinurea

Ketonuria

Bilirubinuria

Correct answer: Hematuria

Hematuria is present in 60% of patients who have renal cell carcinoma, and may be either microscopic or gross. Proteinurea, bilirubinuria, and ketonuria may or may not be present, but are not commonly expected in patients with renal cell carcinomas.

3.

During this phase of the menstrual cycle, the endometrial thickness increases six-fold due to a spike in estrogen levels, and the cervical mucus changes to become more favorable to sperm:

Proliferative phase

Menstrual phase

Secretory phase

Ischemic phase

Correct answer: Proliferative phase

During the proliferative phase of the menstrual cycle (days 6 to 14), the endometrium significantly thickens as estrogen levels increase, and cervical mucus becomes more favorable to sperm as it becomes thin, watery, clear, and more alkaline.

The menstrual phase (days 1 to 5) is when menses occurs if fertilization does not take place and the endometrium is shed. The secretory phase (days 15 to 26) includes ovulation, and finally the ischemic phase (days 27 to 28) only occurs if fertilization does not take place, and estrogen and progesterone levels drop sharply.

4.

Which of the following is the location where fertilization occurs?

Fallopian tubes

Uterus

Ovaries

Vagina

Correct answer: Fallopian tubes

The fallopian tubes are bilateral ducts that enter the uterus on either side; they conduct ova via peristalsis from the space around the ovary to the uterus, and fertilization usually occurs here, in the distal two-thirds of the tube (ampulla).

The uterus is the site of fetal development; the ovaries secrete hormones and develop and release eggs; the vagina serves as the birth canal, connecting the uterus to the outside, and lies between the urethra and the rectum.

5.

Which of the following statements is true related to autoimmune disorders?

Myasthenia gravis is not considered a systemic autoimmune disease.

In autoimmune disorders, T cells produce autoantibodies (antibodies to host cells).

In autoimmune disorders, B cells become autosensitized (sensitized to host cells).

Idiopathic thrombocytopenic purpura (ITP) is a type of systemic autoimmune disease.

Correct answer: Myasthenia gravis is not considered a systemic autoimmune disease.

Autoimmune disorders most often start in a system other than the immune system, but the immune system is involved because of the body's normal response to a threat. The immune system starts to attack the body's own cells.

In autoimmune disorders, B cells produce autoantibodies (antibodies to host cells), while T cells become autosensitized (sensitized to host cells). ITP and myasthenia gravis are organ-specific autoimmune diseases.

6.

The heart sound that is best heard in the left fifth intercostal space (ICS) along the midclavicular line, and whose soft *lub* sound indicates closure of the tricuspid and mitral (AV) valves is:

S1

S2

S3

S4

Correct answer: S1

Heart sounds are the noises generated by the beating heart and the resultant flow of blood through it. Specifically, the sounds reflect the turbulence created when the heart valves snap shut. There are two normal heart sounds (in healthy adults) often described as a lub and a dub, that occur in sequence with each heartbeat. These include the first heart sound (S1 lub) and second heart sound (S2 dub), produced by the closing of the AV valves and semilunar (aortic and pulmonic) valves, respectively.

The rarer extra heart sounds, S3 and S4, form gallop rhythms and are heard in both normal and abnormal situations. S3 is an additional sound heard after S1 and S2. S4 falls late in the cycle; so late, that on auscultation, it seems to precede the next S1-S2.

7.

Which of the following transfusion reactions is most likely to occur with the administration of non-compatible blood?

Acute hemolytic

Febrile nonhemolytic

Allergic reaction

Transfusion-related acute lung injury (TRALI)

Correct answer: Acute hemolytic

Acute hemolytic reactions occur because of the administration of non-compatible blood types.

Febrile nonhemolytic reactions occur because cytokines from leukocytes in the transfusion react with the recipient. Allergic reactions occur in response to allogeneic proteins in the donor's plasma. Transfusion-related acute lung injury occurs because of donor-recipient interactions of granulocyte antibodies that lead to pulmonary edema.

8.

Which of the following is the **most common** complication of peptic ulcer disease?

GI hemorrhage

Pyloric sphincter obstruction

Perforation

Barretts esophagus

Correct answer: GI hemorrhage

Gastrointestinal hemorrhage is the most common complication of peptic ulcer disease. While pyloric sphincter obstruction and perforation are potential serious complications of peptic ulcer disease, they are less common than GI hemorrhage. Barretts esophagus is not a complication of peptic ulcer disease.

9.

Which of the following **best** describes valvular insufficiency?

The valve does not close completely.

Lesions develop on the valve leaflets.

Blood flow through the valve is restricted.

The valve has a congenital malformation.

Correct answer: The valve does not close completely.

Valvular insufficiency, also called valvular regurgitation or valvular prolapse, is a condition in which the valve does not close completely, allowing blood to flow back and forth across the valve. Valvular insufficiency may be caused by lesions that develop on the valve leaflets or by a congenital malformation, but these do not correctly describe valvular insufficiency and may cause valvular stenosis as well. Blood flow through the valve being restricted describes valvular stenosis, not valvular insufficiency.

10.

What structure transports sperm to the urethra?

Vas deferens

Cowper's glands

Prostate gland

Mons pubis

Correct answer: Vas deferens

The vas deferens is a duct that transports sperm from the epididymis, the structure that curves over the testes, to the urethra.

The Cowper's glands, also called the bulbourethral glands, are located behind the urethra and secrete mucus into semen.

The prostate gland surrounds the neck of the bladder and urethra, functioning to add a fluid to semen that helps sperm survive in the female reproductive system.

The mons pubis is part of the female reproductive system.

11.

Electrical activity of the heart is facilitated by the transmembranal exchange of all of the following ions except:

Phosphorous

Sodium

Potassium

Calcium

Correct answer: Phosphorous

Excitability of the heart is affected by the ionic exchange across cell membranes. Ions which facilitate electrical activity in the heart include sodium, potassium, calcium, and magnesium.

12.

A low thyroid-stimulating hormone (TSH) level with elevated triiodothyronine (T3) and thyroxine (T4) levels indicates:

Primary hyperthyroidism

Secondary hyperthyroidism

Primary hyperparathyroidism

Secondary hypothyroidism

Correct answer: Primary hyperthyroidism

Primary hyperthyroidism results from hypersecretion of thyroid hormones and is evidenced by increased serum T3 and T4, and decreased serum TSH.

In rare cases of secondary hyperthyroidism (excess secretion of TSH), the TSH level will be increased. Primary hyperparathyroidism is characterized by a state of hypersecretion of one or more of the parathyroid glands, which is usually due to benign adenoma or hyperplasia.

In rare cases of secondary hypothyroidism (decreased secretion of TSH), the TSH level will be decreased, as well as T3 and T4.

13.

Which of the following is NOT a type of burn?

Convection burns

Chemical burns

Electrical burns

Radiation burns

Correct answer: Convection burns

Thermal burns are burns that are caused by hot temperatures. Burns that occur from fire or heat are due to the thermal component, and heat may be transferred by convection, causing a burn. While convection may transfer heat, the method by which the heat is transferred is not a type of burn, and these burns would be considered thermal burns. Convection burns are not recognized as a type of burn.

Chemical burns, electrical burns, and radiation burns are all types of burns.

14.

When human immunodeficiency virus (HIV) initially attaches to a host cell, what genetic material is released into the cell’s cytoplasm?

RNA

DNA

Chromosome

Ribosome

Correct answer: RNA

Human immunodeficiency virus (HIV) is a small particle of genetic material surrounded by a protein shell and is an RNA-containing virus. Upon entering the bloodstream, HIV attaches to the surface of a white blood cell, called a CD4 lymphocyte (also known as a T helper cell or T4 cell). The viral membrane and CD4 cell fuse and the HIV particle release its RNA into the CD4 cell. Reverse transcriptase enzyme then orchestrates the conversion of the HIV single-stranded RNA to double-stranded DNA, which then enters the nucleus of the infected CD4 cell and becomes a part of the cell's DNA.

A chromosome is a large DNA molecule found in cells and is not normally present in viruses. Ribosomes are proteins in the cell that may contain RNA but do not store genetic information.

15.

Which of the following patients **most likely** to develop polycystic kidney disease?

A 55-year-old male whose mother had polycystic kidney disease

A 61-year-old female who has used alcohol heavily for 12 years

A 35-year-old male who had a ruptured kidney in a car accident that occurred three years previously

A 45-year-old female with type one diabetes mellitus

Correct answer: A 55-year-old male whose mother had polycystic kidney disease

Polycystic kidney disease is an inherited disorder, and the patients who would be most likely to develop this condition would be those with a family history of the disease. Heavy alcohol use, kidney trauma, and diabetes do not cause polycystic kidney disease.

16.

Which of the following best describes decorticate posturing?

The arms are bent inward, fists are clenched, and the legs are held out straight

The arms are held out straight and turned outward, the fists are clenched, and the legs are held out straight

The legs are bent at the knees when the neck is flexed so that the chin touches the chest

The body is lying facing upward with the palms of the hands open and facing upward

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Correct answer: The arms are bent inward, fists are clenched, and the legs are held out straight

Decorticate posturing is an abnormal neurological response in which the arms are bent inward, fists are clenched, and the legs are held out straight.

The condition where the arms are held out straight and turned outward, the fists are clenched, and the legs are held out straight describes decerebrate posturing. Brudzinski's sign indicates meningeal irritation and is positive when the knees bend when the neck is flexed so that the chin touches the chest. The body is lying facing upward with the palms of the hands open and facing upward describes the anatomical position.

17.

Antidiuretic hormone (ADH) is synthesized in the:

Hypothalamus

Pituitary gland

Thalamus

Pineal gland

Correct answer: Hypothalamus

Antidiuretic hormone is an example of a neuroendocrine hormone; it has components of both the endocrine and the nervous system. It is synthesized in the hypothalamus and travels along axons that terminate adjacent to capillaries in the posterior pituitary.

18.

Heberden's nodes are finger joint deformities associated with which of the following conditions?

Osteoarthritis

Rheumatoid arthritis

Osteomyelitis

Gout

Correct answer: Osteoarthritis

Osteoarthritis is a joint disease characterized by degenerative changes in articular cartilage; joint pain and functional impairments are the hallmarks of this disease. Bony overgrowths on the finger joint closest to the fingernail (distal interphalangeal joints) are called Heberden's nodes and are commonly seen in osteoarthritis patients as joints begin to exhibit deformities, appearing enlarged and swollen.

Heberden's and Bouchard's nodes (bony growths on the proximal interphalangeal joints) are more often associated with moderate to severe osteoarthritis rather than rheumatoid arthritis though they can also present with rheumatoid arthritis. Heberden's nodes are not associated with osteomyelitis (infection of the bone) or gout (uric acid and crystal deposits in the joints).

19.

The hemoglobin A1c level indicates a patient's blood glucose control over which of the following approximate times?

The previous 2 to 3 months

The previous 2 to 3 weeks

The previous 3 to 4 months

The previous 3 to 4 weeks

Correct answer: The previous 2 to 3 months

Hemoglobin A1C levels reflect the plasma glucose level during the past 2-3 months and give a general indication of an individual's blood glucose control over this period. A Hemoglobin A1C of less than 7% reflects good control and decreased risk of complications, whereas greater than or equal to 8% indicates poor glycemic control and increased risk of complications.

In general, an A1C of 4%-7% correlates with an average blood glucose level of approximately 60-150 mg/dL.

20.

The med/surg nurse is assessing a patient who was recently diagnosed with hyperthyroidism. Which of the following symptoms would the nurse **not** expect to see?

Constipation

Tachycardia

Arrhythmias

Tremors

Correct answer: Constipation

Hyperthyroidism causes an increased metabolic rate that can lead to tachycardia, arrhythmias, tremors, and diarrhea. Constipation is very unlikely to occur with hyperthyroidism, and is more common with hypothyroidism.

21.

Which of the following statements related to leiomyomas of the uterus is true?

They are tumors that develop from smooth muscle cells in the myometrium

They are more common in Caucasian women than in women of other races

These tumors become malignant, and treatment often includes cryosurgery

The incidence of these tumors increases after menopause

Correct answer: They are tumors that develop from smooth muscle cells in the myometrium

Leiomyomas are also called myomas, fibromyomas, or fibroids; they are benign tumors that develop from smooth muscle cells in the myometrium. Although they have an unknown etiology, their growth is related to estrogen.

They are more common in African-American women than in Caucasian women and are often untreated unless symptomatic. They often shrink and usually cease after menopause.

22.

In an EKG, the P wave represents:

Depolarization of the atria

Repolarization of the atria

Depolarization of the ventricles

Repolarization of the ventricles

Correct answer: Depolarization of the atria

The P wave on an EKG represents atrial depolarization.

Repolarization of the atria is not observed in an EKG; it is masked by the depolarization of the ventricles (represented by the QRS complex). Repolarization of the ventricles is represented by the T wave of an EKG.

23.

Which of the following is true for vital signs in the shock patient?

The pulse will increase, and the respirations will increase

The pulse will increase, and the respirations will decrease

The pulse will decrease, and the respirations will increase

The pulse will decrease, and the respirations will decrease

Correct answer: The pulse will increase, and the respirations will increase

In shock, the pulse increases (tachycardia) to help improve cardiac output, and respirations increase (tachypnea) to help maximize oxygenation of circulating blood.

24.

You are supervising a nursing student who is caring for a patient who has just been diagnosed with myasthenia gravis. Which statement made by the nursing student to the patient will require correcting?

"Myasthenia gravis symptoms are the worst the during morning."

"Myasthenia gravis happens because the muscles are not able to receive impulses from the nerves like they should."

"Myasthenia gravis is an autoimmune disease."

"Myasthenia gravis often makes eating harder."

Correct answer: "Myasthenia gravis symptoms are the worst during the morning."

Myasthenia gravis occurs because acetylcholine receptors are lost or blocked in neuromuscular junctions. Symptoms worsen with muscle use, making symptoms worse throughout the day. Symptoms will be least obtrusive in the morning and will worsen throughout the day.

Telling the patient that myasthenia gravis occurs because the muscles are not able to receive impulses from the nerves like they should would be an accurate description of the pathology. Myasthenia gravis is an autoimmune disease. Myasthenia gravis often affects facial muscles, making eating more difficult.

25.

The nurse suspects a patient of having meningitis. Which of the following interventions would **best** help the nurse assess for this condition?

Flex the patient's neck

Raise the patient's arms to a 90-degree angle from their body

Have the patient rapidly touch their finger to their nose, then the nurse's finger and back

Administer Tylenol and monitor the patient's response

Correct answer: Flex the patient's neck

Flexing the patient's neck and observing for flexion in the hips and knees is how Brudzinski's sign is assessed. Positive flexion of the hips and knees indicates irritation of the meningitis and indicates that meningitis may be present. Raising the patient's arms to a 90-degree angle from their body and observing for drift is a method of assessing for stroke. Having the patient rapidly touch their finger to their nose, then the nurse's finger and back is a method of assessing for ataxia, but this is not an ideal assessment to determine the presence of meningeal irritation. Administering Tylenol and monitoring the patient's response will not help assess for meningitis.

26.

A nurse is caring for an elderly patient with congestive heart failure. The nurse keeps in mind that respiratory changes associated with aging include diminished effectiveness of gas exchange between alveolus and capillary walls leading to:

A decline in pO2 and O2 saturation

Thinning of pulmonary vasculature

Thinning of moist mucous membranes

An increase in pH and pCO2

Correct answer: A decline in pO2 and O2 saturation

With age, the respiratory system changes in relation to environmental factors, heredity, and other disease processes. Pulmonary vasculature typically becomes thicker (not thinner) and fibrous, which in turn diminishes the effectiveness of gas exchange between alveolus and capillary walls; pO2 and O2 saturations decline, while pH and pCO2 remain the same (not increase). In addition, the gradual decline in body fluid composition affects moist mucous membranes, which become thick (not thin) and tenacious. Lastly, calcification of costal cartilages causes a decline in lung tissue elasticity and reduced compliance of the thorax.

27.

The respiratory center is located in the:

- **Medulla oblongata and pons**
- Medulla oblongata and thalamus
- Medulla oblongata and midbrain
- Pons and midbrain

Correct answer: Medulla oblongata and pons

Respiration is regulated by the respiratory center (in the medulla oblongata and pons of the brain), and the autonomic nervous system. The autonomic nervous system regulates smooth muscles of the airways via the parasympathetic and sympathetic systems.

28.

The posterior lobe of the pituitary gland secretes which of the following hormones?

Oxytocin

Prolactin

Thyroid-stimulating hormone (TSH)

Adrenocorticotropic hormone (ACTH)

Correct answer: Oxytocin

The posterior lobe of the pituitary gland is the smaller lobe and secretes two major hormones, oxytocin and antidiuretic hormone (ADH). Oxytocin is secreted during labor, during lactation, and sexual intercourse. ADH increases water permeability of the distal nephron and is released in response to plasma osmolality. ADH release may also be stimulated in response to a drop in effective blood volume.

ACTH, TSH, luteinizing hormone (LH), follicle-stimulating hormone (FSH), prolactin, and growth hormone (GH) are all secreted by the anterior lobe of the pituitary gland (the larger lobe).

29.

Which of the following statements is TRUE related to cardiac valvular disorders?

Rheumatic fever is the most common cause of valvular disorders worldwide.

Valve stenosis refers to the inability of the valve to completely close, allowing backflow of blood.

Mitral insufficiency is more common in women than in men.

Left ventricular hypertrophy is associated with mitral stenosis.

Correct answer: Rheumatic fever is the most common cause of valvular disorders worldwide

Rheumatic fever causes lesions to develop on valve leaflets and leads to their inability to function effectively.

Valvular insufficiency (such as regurgitation or prolapse), not stenosis, refers to the inability of the valve to completely close. Mitral insufficiency is more common in men, and mitral stenosis is more common in women. Left ventricular hypertrophy is associated with aortic stenosis, not mitral stenosis.

30.

The nurse understands that the patient with pernicious anemia will have which of the following distinguishing laboratory findings?

Absent intrinsic factor

Elevated Schilling's test

Sedimentation rate of 16 mm/hr

Red blood cell count of 5 million

Correct answer: Absent intrinsic factor

The defining characteristic of pernicious anemia is the lack of the intrinsic factor, which results from atrophy of the stomach wall. Without the intrinsic factor, vitamin B12 cannot be absorbed in the small intestines, and folic acid needs vitamin B12 for DNA synthesis of red blood cells (RBCs).

An elevated excretion of the injected radioactive vitamin B12, which is protocol for the Schilling test, indicates that the patient has the intrinsic factor and can absorb vitamin B12 from the intestinal tract. A sedimentation rate of 16 mm/hour is normal for both men and women and is a nonspecific test to detect the presence of inflammation (not specific to anemias). A red blood cell count of 5 million is a normal value for both men and women and does not indicate anemia.

31.

If the SA node becomes damaged and nonfunctional, which of the following is the MOST likely to occur?

Another part of the heart, possibly the AV node, will become the pacemaker.

The heart will stop.

The ventricles will continue contracting, but the atria will stop.

The atria will keep contracting normally, but at a slower rate.

Correct answer: Another part of the heart, possibly the AV node, will become the pacemaker

The SA node, referred to as the usual pacemaker, initiates atrial depolarization. If this component of the conduction system stops working, the atria and ventricles can continue to contract as long as the pacing is taken over by another pacer, likely the AV node. While the atria may continue to contract, if they are paced by another part of the heart, they may not be synchronized as they would be by the SA node.

32.

Which of the following cardiovascular conditions is the most common type of heart disease?

Coronary artery disease

Cardiomyopathy

Hypertension

Atrial fibrillation

Correct answer: Coronary artery disease

Coronary artery disease (CAD) is a condition in which the arteries that supply blood to the heart harden and become narrow from the accumulation of plaque, cholesterol, and connective tissues inside the coronary vessels. This narrowing of the arteries (known as atherosclerosis) obstructs blood flow to the heart muscle and can cause a heart attack. CAD is a progressive disease, developing over several years, and is the most common type of heart disease, killing nearly 380,000 people annually.

Cardiomyopathy is a type of heart disease that affects the cardiac muscle itself; hypertension is a disease of the arteries and veins, not a disease of the heart itself; and atrial fibrillation is a cardiac condition affecting the electrical system of the heart.

33.

What is a healthy adult bladder capacity without having to stretch the wall of the bladder?

300-500 mL

500-700 mL

100-300 mL

700-900 mL

Correct answer: 300-500 mL

The bladder is a muscular storage pouch in the lower pelvis. The normal adult bladder capacity is 300-500 mL. While the bladder may stretch to hold more than 500 mL, this is not its normal, healthy function.

34.

The most common presenting symptoms in patients with disorders of the gastrointestinal tract include:

Pain, nausea/vomiting, change in bowel pattern

Pain, change in bowel pattern, evidence of bleeding

Nausea/vomiting, evidence of bleeding, weight loss

Evidence of bleeding, pain, nausea/vomiting

Correct answer: Pain, nausea/vomiting, change in bowel pattern

The most common presenting symptoms in patients with disorders of the GI tract include:

- *Pain, but it may not arise until significant tissue damage has occurred. Referred pain is also common.*
- *Nausea/vomiting*
- *Change in bowel pattern, including constipation, diarrhea, and characteristics of the stool*
- *Appetite changes, including dysphagia, weight loss/gain, and food intolerance (type and/or amount)*
- *Family history: GI disease and/or cancer*
- *Social history: alcohol and recreational drug use, work, activity, stressors (financial, environmental, family), coping mechanisms*

Evidence of bleeding is an uncommon presenting symptom with gastrointestinal tract disorders and is a cause for concern when present.

35.

A patient with streptococcal pneumonia is admitted to the medical-surgical unit. The patient in the next room is being treated for mycoplasmal pneumonia. Despite the different causes of the various types of pneumonia, all of them share which feature?

Inflamed lung tissue

Abrupt onset

Elevated white blood cell (WBC) count

Responsiveness to penicillin

Correct answer: Inflamed lung tissue

The common feature of all types of pneumonia is an inflammatory pulmonary response to the offending organism or agent.

Although most types of pneumonia have a sudden onset, a few (such as anaerobic bacterial pneumonia and mycoplasmal pneumonia) have an insidious onset.

Antibiotic therapy is the primary treatment for most types of pneumonia; however, the antibiotic must be specific for the causative agent, which may not be responsive to penicillin. A few types of pneumonia, such as viral pneumonia, aren't treated with antibiotics.

Although pneumonia usually causes an elevated WBC count, some types, such as mycoplasmal pneumonia, do not.

36.

Which of the following diagnostic studies best identifies abnormal cardiac rhythms?

Electrocardiogram

Echocardiogram

Stress test

Cardiac catheterization

Correct answer: Electrocardiogram

An electrocardiogram (ECG) is a test that records the electrical activity of the heart, shows abnormal rhythms (arrhythmias), and can detect damage to the heart's electrical conduction.

An echocardiogram, or echo, uses sound waves to evaluate the heart's chambers and valves, as well as its pumping function. A stress test is done to monitor the heart, breathing, and blood pressure of a patient whose heart is stressed by exercise or medication, and may be used to detect coronary artery disease or to determine safe levels of exercise after a heart attack or heart surgery.

Cardiac catheterization is a comprehensive test showing arterial narrowing, heart chamber size, how well the heart pumps, and how well the valves open and close, as well as a measurement of the pressures within the heart chambers and arteries. It involves the insertion of a catheter into the heart. Cardiac catheterization does not identify abnormal electrical activity in the heart.

37.

Which type of burn is characterized by damage resulting from heat made by a flowing current?

Electrical burn

Thermal burn

Chemical burn

Radiation burn

Correct answer: Electrical burn

The causes of burns include thermal, chemical, electrical, and radiation. Electrical burns are damage resulting from heat made by flowing current. The nerves and blood vessels are very good conductors in this type of burn, and electrical current travels through most conductive tissue.

Thermal burns are burns to the skin caused by any external heat source, such as an open flame or a scald from steam or hot liquid. Chemical burns occur when the skin or eyes come into contact with an irritant, such as an acid or a base chemical agent. Radiation burns occur due to exposure to radiation particles or waves.

38.

Noninvasive diagnostic studies of the cardiovascular system include:

MRI, phonocardiogram, echocardiogram

MRI, phonocardiogram, nuclear cardiology

Echocardiogram, nuclear cardiology, thallium imaging

MRI, nuclear cardiology, echocardiogram

Correct answer: MRI, phonocardiogram, echocardiogram

Noninvasive diagnostic studies of the cardiovascular system include MRI, phonocardiogram, echocardiogram, EKG, and chest x-ray.

MRI (magnetic resonance imaging) provides images in multiple planes with uniformly good resolutions. It cannot be used in persons with any implanted ferromagnetic metallic devices unless they are MRI safe. Phonocardiograms and echocardiograms are also noninvasive procedures because they do not involve the injection of any substances. A phonocardiogram uses microphones to record cardiac activity, and an echocardiogram uses ultrasound to record the activity of the heart.

Nuclear cardiology involves the injection of a radioactive isotope, and thallium imaging involves the injection of thallium. Since both of these procedures require the infusion of substances, they are considered to be invasive procedures.

39.

Which of the following is **most likely** to a pre-renal cause of kidney failure?

Endocarditis

Systemic lupus erythematosus

Glomerulonephritis

Renal calculi

Correct answer: Endocarditis

Pre-renal causes of kidney failure are causes of decreased perfusion that occur due to factors that occur before blood reaches the kidneys. Endocarditis can lead to decreased circulation due to decreased cardiac output and is a potential cause of pre-renal kidney failure. Intra-renal causes of kidney failure are due to the kidneys themselves and include glomerulonephritis or diseases affecting the kidneys directly, such as systemic lupus erythematosus. Post-renal causes of kidney failure are causes that occur distal to the kidneys in the urinary tract, and can be caused by renal calculi.

40.

A patient is diagnosed with scoliosis with a spinal curve of 45 degrees. What is the recommended treatment?

Surgery to correct spinal curvature

Close monitoring every 6 months for disease progression

Postural exercises

Back bracing in the patient

Correct answer: Surgery to correct spinal curvature

Surgery is generally recommended for curves greater than 40 degrees. Surgical options include anterior or posterior spinal fusion, or combined anterior and posterior surgery as a staged procedure.

Curves of less than 20 degrees require close observation for progression every six months with postural exercises that may be prescribed. Curves of 20-40 degrees require bracing in a growing child, and surgery in the adult (bracing is ineffective in skeletally mature patients).

41.

An obese, type 2 diabetic patient who is non-insulin dependent is best controlled by weight loss for which of the following reasons?

Because obesity reduces insulin binding at receptor sites

Because obesity reduces the number of insulin receptors

Because obesity reduces pancreatic islet cell exhaustion

Because obesity reduces pancreatic insulin production

Correct answer: Because obesity reduces insulin binding at receptor sites

Obesity reduces insulin binding at the receptor sites (insulin resistance), which leads to pancreatic hypersecretion of insulin and eventual pancreatic cell exhaustion.

Diet, exercise, and weight loss are extremely important to improve insulin sensitivity and resistance.

42.

You are caring for a patient who was just diagnosed with Hodgkin’s lymphoma who asks you "What are my chances of surviving this cancer?" Which of the following responses is best?

"Hodgkin's lymphoma is one of the most treatable cancers an adult can have."

"Hodgkin's lymphoma is not something that can kill you; you will just be sick for a few months."

"There is no cure for Hodgkin's lymphoma, and it is almost always a terminal disease."

"Your odds of surviving would be better if you had non-Hodgkin's lymphoma."

Correct answer: "Hodgkin's lymphoma is one of the most treatable cancers an adult can have."

Hodgkin's lymphoma is considered to be among the most treatable of adult cancers.

While Hodgkin's lymphoma may have a better prognosis than most types of cancer, it can still be fatal. Hodgkin's lymphoma is often not a terminal disease if treated correctly. Hodgkin's lymphoma is associated with better survival rates that non-Hodgkin's lymphoma.

43.

When deep palpation is used to assess a patient's abdomen, which of the following would the nurse **not** expect to be able to palpate?

The spleen

The right kidney

The liver

The colon

Correct answer: The spleen

The spleen may be palpable when using deep palpitation; however, this would be an abnormal finding. Parts of the right kidney, the liver, and the colon may be expected to be palpable during deep palpation. Deep palpation should only be performed by midlevel providers or phsycians.

44.

When evaluating a patient for symptoms associated with acute pancreatitis, the nurse would observe for:

Turner's sign

Increased intracranial pressure (ICP)

Bradycardia

Hypertension

Correct answer: Turner's sign

Turner's sign is bruising of the lower abdomen and flank areas, indicative of a retroperitoneal bleed associated with acute pancreatitis.

ICP is not affected in a patient with pancreatitis. Tachycardia (not bradycardia) is usually associated with hypovolemic or pulmonary complications of pancreatitis. Hypotension (not hypertension) is associated with shock as seen in acute pancreatitis.

45.

Which of the following conditions is strongly associated with the HLA-B27 antigen?

Ankylosing spondylitis

Osteoarthritis (OA)

Fibromyalgia syndrome

Spinal stenosis

Correct answer: Ankylosing spondylitis

Ankylosing spondylitis is a type of arthritis in which there is long-term inflammation of the joints of the spine; the sacroiliac joint (between the spine and the pelvis) is also often affected.

Human leukocyte antigen (HLA)-B27 is an antigen found ankylosing spondylitis, as well as in rheumatoid arthritis (RA).

46.

Your patient, Mr. S., was admitted to the medical-surgical unit for a gastrointestinal bleed associated with a duodenal ulcer. You are completing an admission assessment on him. Which of the following statements do you know is true related to clinical manifestations of gastrointestinal bleeding?

Vasomotor instability is the most sensitive indicator of blood loss

Dark, tarry stools indicate rapid blood loss

Platelet counts initially decrease due to delayed coagulation process

Massive blood loss leads to venous, then peripheral artery dilation

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Correct answer: Vasomotor instability is the most sensitive indicator of blood loss

90% of all upper GI bleeds are associated with peptic ulcers and account for the majority of gastrointestinal hemorrhages. When caring for a patient with a GI bleed, vasomotor instability is the most sensitive indicator of blood loss; changes of 20 bpm or 10 mm Hg systolic indicate a loss of 15%-20% of total blood volume.

Massive blood loss leads to venous constriction, then peripheral artery constriction. Dark, tarry stool are indicative of a slow bleed, while frank blood indicates either sigmoid or rectal bleeding, or a massive lesion higher in the colon. Platelet counts increase due to instant coagulation process as the body attempts to stop the bleeding.

47.

Which of the following is an endogenous chemical that is released in response to excessive stretching of the heart muscle cells?

Brain natriuretic peptide (BNP)

Creatinine phosphokinase (CPK)

Myoglobin

Troponin

Correct answer: Brain natriuretic peptide (BNP)

Brain natriuretic peptide (BNP) is an endogenous chemical secreted by the ventricles of the heart in response to elevated pulmonary capillary wedge pressure, or excessive stretching of the heart muscle cells. The most important use of natriuretic peptides is in helping to establish the diagnosis of heart failure in a patient; a level greater than 100 pg/mL is indicative of heart failure. This test does not need to be drawn while fasting.

48.

The exchange of gases and nutrients between blood and tissues is a major function of:

Capillaries

Veins

Arteries

Arterioles

Correct answer: Capillaries

Capillaries are the smallest of the body's blood and lymph vessels that make up the microcirculation of the peripheral vascular system. Their thin endothelial linings are only one cell layer thick, with no elastic or muscle tissue present. They help to enable the exchange of water, oxygen, carbon dioxide, and many other nutrients and waste substances between the blood and the tissues surrounding them.

Veins are large-diameter, thin-walled vessels that, in most cases, return oxygen-depleted blood to the right atrium of the heart. Arteries are muscular-walled tubes by which blood (mainly that which has been oxygenated) is conveyed from the heart to all parts of the body. Arterioles are small branches of an artery leading into capillaries; their smooth muscle allows them to constrict or dilate easily.

49.

The nurse is assessing a patient with endocarditis. Where would the nurse expect to find Janeway lesions?

On the palms of the patient's hands

On the patient's back

Anywhere on the patients limbs

In the patient's hairline

Correct answer: On the palms of the patient's hands

Janeway lesions are hemorrhagic macules that are usually seen with acute bacterial endocarditis. They normally occur on the palms of the hands or on the soles of the feet, and are not likely to be found on the back, limbs, or hairline.

50.

Which of the following is NOT a risk factor for a urinary tract infection (UTI)?

Glomerulonephritis

Enlarged prostate

Diabetes mellitus

Pregnancy

Correct answer: Glomerulonephritis

Infection of the urinary tract is more likely in women who are pregnant or in men with an enlarged prostate. Diabetes mellitus increases the glucose content of the urine, making it more likely to grow bacteria and cause a UTI.

Glomerulonephritis is inflammation of the glomeruli and does not cause UTIs.

51.

Which of the following is **not** true about the posterior pituitary gland?

It is larger than the anterior pituitary gland

It is located within the intracranial vault

It secretes oxytocin

It is also called the neurohypophysis

Correct answer: It is larger than the anterior pituitary gland

The posterior pituitary gland is smaller than, not larger than, the anterior pituitary gland. The anterior pituitary gland is also called the adenophyophysis while the posterior pituitary gland is called the neurohypophysis. It is located within the intracranial vault at the base of the brain and secretes oxytocin and antidiuretic hormone.

52.

A patient's lab results show a critically high potassium level. What is the nurse's priority action?

Notify the physician immediately

Hold any ordered insulin

Encourage the patient to drink more fluids

Repeat the test in an hour to assess the value’s trend.

Correct answer: Notify the physician immediately

Critically high potassium levels can lead to life-threatening cardiac arrhythmias. Notifying the physician immediately ensures that prompt medical interventions can be taken to stabilize the patient.

Insulin can contribute to lowering potassium levels, making this intervention unlikely to be used. Encouraging the patient to drink more fluids is not appropriate as it does not address the immediate danger posed by hyperkalemia. Treatment usually involves specific medications and monitoring. Repeating the test in an hour delays necessary treatment and does not address the urgent need to manage high potassium levels.

53.

Neurological changes related to hyperthyroidism include all of the following except:

Exophthalmos

Tremor

Heat intolerance

Hyperreflexia

Correct answer: Exophthalmos

Hyperthyroidism is a disorder of the thyroid gland in which there is a hypersecretion of thyroid hormones. Neurological changes related to hyperthyroidism include:

- *Tremor*
- *Excessive sweating*
- *Hyperreflexia*
- *Heat intolerance*

Exophthalmos is a specific, miscellaneous change related to Graves' disease (an autoimmune disease affecting the thyroid, and the most common cause of hyperthyroidism); it is characterized by a protrusion of the eyes caused by a collection of mucoproteins behind the eyeball, and is not related to any neurological changes.

54.

Thyroid-stimulating hormone (TSH) is secreted by the:

Anterior pituitary gland

Posterior pituitary gland

Hypothalamus

Adrenal glands

Correct answer: Anterior pituitary gland

The pituitary gland is often considered the most important part of the endocrine system because it produces hormones that control many functions of other endocrine glands. It is a small pea-sized gland located at the base of the brain and is anatomically divided into two major lobes: anterior (adenohypophysis) and posterior (neurohypophysis).

The anterior is the largest lobe of the pituitary gland and secretes several hormones: adrenocorticotropic hormone (ACTH), TSH, luteinizing hormone (LH), follicle-stimulating hormone (FSH), and prolactin.

55.

Which of the following statements is true related to laryngeal cancer?

Tumors that develop from squamous cells are the largest cause of malignant laryngeal cancer

Tumors of the subglottis are the most common form of laryngeal cancer

Race is not a risk factor for the development of this disease, but it is more likely to occur in women

Diagnosis of laryngeal cancer is by CT scan

Correct answer: Tumors that develop from squamous cells are the largest cause of malignant laryngeal cancer

Tumors of the glottis (vocal cords), not the subglottis, are the most common form of laryngeal cancer; subglottic tumors are the least common. Race is a risk factor, as it is more commonly found in African-American males than in white males, and men are more likely to have laryngeal cancer than women. Diagnosis of laryngeal cancer is by visualization via laryngoscopy and biopsy (not CT scan).

56.

Which of the following patients with an MI is **least likely** to need surgical intervention?

A patient with a troponin greater than 1.2 ng/mL

A patient with 80% blockage of the left main coronary artery

A patient with 95% blockage of at least two coronary arteries

A patient who has not responded to medical management

Correct answer: A patient with a troponin greater than 1.2 ng/mL

Indications for surgical intervention of myocardial infarction include a significant (>75%) blockage of any two coronary arteries or the left main coronary artery. Ineffective medical management is also an indication for surgical intervention. Surgical intervention is not typically determined based exclusively on the troponin level.

57.

What is the amount of force the ventricle must exert to eject blood into the arterial system known as?

Afterload

Systolic pressure

Diastolic pressure

Pulse pressure

Correct answer: Afterload

Afterload is the end load against which the heart contracts to eject blood.

Systolic pressure is the peak pressure exerted against the arteries when the heart contracts. Diastolic pressure is residual pressure within the arterial system during cardiac relaxation. Pulse pressure is the difference between the systolic and diastolic pressures.

58.

You are caring for a patient who has been diagnosed with Christmas disease who asks you what causes this condition. Which of the following responses is best?

"This condition is another name for hemophilia B and occurs because your body does not make a certain clotting factor."

"This condition is caused by high sodium intake and is often worse when you eat salty foods like the foods people eat over the holidays."

"This disease occurs because you have clotting throughout your body, which depletes clotting factors and makes bleeding more likely."

"This disease is a complication of infections that are most common in the winter months."

Correct answer: "This condition is another name for hemophilia B and occurs because your body does not make a certain clotting factor."

Christmas disease is another name for hemophilia B and is caused by the body not producing sufficient amounts of factor IX. This condition is named after Doctor Stephen Christmas, and the nomenclature has nothing to do with the holiday season. Systemic clotting leading to depletion of clotting factor is disseminated intravascular coagulation (DIC), not Christmas disease.

59.

When evaluating the urine of a patient with renal failure, the nurse understands which of the following is correct?

Sodium excretion decreases in pre-renal kidney failure and increases in intra-renal kidney failure.

Sodium excretion increases in both pre-renal kidney failure and intra-renal kidney failure.

Sodium excretion increases in pre-renal kidney failure and decreases in intra-renal kidney failure.

For sodium urine results to be valid, the sample must be obtained prior to diuretics, and urine must be less than 24 hours old.

Correct answer: Sodium excretion decreases in pre-renal kidney failure and increases in intra-renal kidney failure.

When analyzing a patient's urine sample for sodium, valid results must be obtained prior to diuretics and on urine less than 30 minutes old (not within 24 hours).

Sodium excretion decreases in pre-renal kidney failure because the body is attempting to compensate for a perceived volume loss by retaining sodium and fluid. Sodium excretion increases in intra-renal kidney failure because of abnormal kidney function, causing excessive sodium loss.

60.

The nurse is performing an admission assessment on a 44-year-old female with abdominal pain. The patient appears acutely ill with severe pain, guarding, and a rigid abdomen. The patient denies smoking or recreational drug use, but does report drinking 10–12 glasses of wine each week. Initial labs show an elevated amylase and mild hypokalemia. Which of the following **best** fits this patient's presentation?

Acute pancreatitis

Cirrhosis

Cholecystitis

Small bowel obstruction

Correct answer: Acute pancreatitis

The patient's symptoms combined with an elevated amylase are indicative of pancreatitis. When combined with the fact that the patient is a heavy alcohol user (defined as more than seven drinks a week for a female), this condition becomes much more likely to be the best fit.

61.

A 42-year-old male patient presents with a skin infection caused by S*treptococcus pyogenes* (a group A beta-hemolytic bacterium). The patient's lower leg is infected from the deep dermis to the subcutaneous fat.

What skin disorder does this describe?

Cellulitis

Impetigo

Folliculitis

Skin abscess

Correct answer: Cellulitis

Cellulitis is a diffuse, acute bacterial infection of the skin and subcutaneous tissues usually caused by Group A beta-hemolytic streptococci or Staphylococcus aureus. It may also be caused by non-group A Streptococcus, Haemophilus influenzae type B, Pseudomonas aeruginosa, or Campylobacter fetus. Common sites of cellulitis include the lower extremities, surgical and traumatic wounds, and tube and drain sites.

Impetigo is a bacterial infection of the skin that is most common in young children. It most often affects exposed skin, such as around the nose and mouth or on the arms or legs. Symptoms include red, itchy sores that break open and leak a clear fluid or pus for a few days.

Folliculitis is a common skin condition that happens when hair follicles become inflamed. It's often caused by an infection from bacteria. At first, it may look like small pimples around the tiny pockets where each hair grows (hair follicles), and will get larger and more uncomfortable if left untreated. The armpits are a common site for folliculitis.

Skin abscesses are another common type of skin infection, are also often bacterial in nature, and cause a collection of pus under the skin.

62.

The lowest fasting plasma glucose level suggestive of a diagnosis of diabetes mellitus (DM) in nonpregnant adults is:

127 mg/dL

90 mg/dL

180 mg/dL

112 mg/dL

Correct answer: 127 mg/dL

Criteria for the diagnosis of diabetes mellitus in nonpregnant adults include the following:

- *Symptoms and random plasma glucose concentration of > 200 mg/dL, or*
- *Fasting plasma glucose level > 126 mg/dL following an overnight fast of at least 8 hours, or*
- *A1C $\geq$ 6.5%, or*
- *2-hour plasma glucose > 200 mg/dL during an oral glucose tolerance test*

63.

A patient is admitted with an initial blood glucose of 652 mg/dl and negative urine ketones. Which of the following conditions would the nurse infer that the patient has?

Hyperosmolar hyperglycemic syndrome

Diabetic ketoacidosis

Type one diabetes mellitus

Acute pancreatitis

Correct answer: Hyperosmolar hyperglycemic syndrome

A blood glucose of greater than 600 mg/dl is normally indicative of Hyperosmolar Hyperglycemic Syndrome (HHS). Diabetic Ketoacidosis (DKA) could be a possibility, although it does not normally result in hyperglycemia to that extent. The absence of urine ketones, however, rules out DKA. HHS is almost always associated with type two diabetes mellitus. While acute pancreatitis can cause HHS, it would be more reasonable to infer that this patient has HHS than to infer a potential cause of HHS.

64.

A patient is admitted to your unit with extreme weakness, pallor, and confusion. He is expectorating bright red blood, and the physician suspects he has a Mallory-Weiss tear. You begin taking a patient history from the patient's wife, who has accompanied him.

Which of the following questions demonstrates your understanding of a Mallory-Weiss tear?

"Tell me about your husband's alcohol usage."

"Is your husband being treated for tuberculosis?"

"Has your husband recently fallen or injured his chest?"

"Describe the spices your husband uses on his foods."

Correct answer: "Tell me about your husband's alcohol usage."

A Mallory-Weiss tear, or esophageal tear, is associated with massive bleeding from a tear at the junction of the esophagus and the stomach; there is a strong correlation with alcohol and aspirin abuse, with resultant vomiting.

The bleeding originates from the stomach, not from the lungs as would be the case with tuberculosis. It does not occur due to chest injuries and is not associated with eating spicy foods.

65.

You are assessing a patient's lung sounds and note bronchovesicular wheezing on expiration. Which of the following conditions is this type of breath sound most likely to be associated with?

Asthma

Heart failure

Pneumonia

Anaphylaxis

Correct answer: Asthma

Asthma causes wheezing in the bronchovesicular areas that is primarily present on expiration. This is due to constriction or edema in the small airways.

Heart failure causes coarse crackles that may be present on both inspiration and expiration, but are more often associated with inspiration and are almost always vesicular and dependent. Pneumonia is also likely to cause coarse or fine crackles, but these are typically limited to the affected lobe and are normally more vesicular in nature. Anaphylaxis does cause wheezing from airway contractions. This wheezing primarily affects the upper airways and would be more bronchial, while bronchovesicular wheezing would be more likely with asthma.

66.

You are assessing a patient who has complaints of a lymph node abnormality. Which of the following findings is most concerning?

The lymph node is painless

The lymph node is well marginated

The lymph node is smooth

The lymph node is not movable

Correct answer: The lymph node is painless

Painless lymph nodes are more consistent with a cancerous etiology than they are with inflammatory lymphadenopathy.

Lymph nodes that are well marginated, smooth, and are not movable are not associated with lymphoma.

67.

When assessing a male patient with pheochromocytoma, a tumor of the adrenal medulla that secretes excessive catecholamine, the nurse is most likely to detect:

Tachycardia

A fasting blood glucose of 60 mg/dL

A supine blood pressure of 100/55

Weight gain

Correct answer: Tachycardia

Pheochromocytomas, rare tumors of the adrenal medulla (chromaffin tissue) that secrete excessive amounts of catecholamines (mostly norepinephrine), cause headaches, hypertension, tachycardia, hyperglycemia, hypermetabolism, and weight loss. Sweating, nervousness, anxiety, chest or abdominal pain, nausea, weakness, and orthostatic hypotension are also common.

68.

The syndrome of inappropriate antidiuretic hormone (SIADH) is:

Characterized by excessive release of antidiuretic hormone

Characterized by the suppression of antidiuretic hormone

Characterized by hypernatremia

Characterized by decreased renal responsiveness to antidiuretic hormone

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Correct answer: Characterized by excessive release of antidiuretic hormone

Syndrome of inappropriate antidiuretic hormone (SIADH) results from hypersecretion (not suppression) of antidiuretic hormone (ADH) and is characterized by hyponatremia (not hypernatremia) and increased urinary hyperosmolality caused by the sustained release of ADH in the absence of osmotic and nonosmotic stimuli. Water retention progresses to water intoxication.

Nephrogenic diabetes insipidus (not SIADH) is characterized by decreased renal responsiveness to ADH.

69.

You are caring for a patient who presents with an area of edema on their lower left leg where the skin is warm to the touch, erythemic, and tender with palpation. Which of the following should you suspect is most likely the cause of the patient's symptoms?

Cellulitis

Right sided heart failure

Lymphedema

Venous insufficiency

Correct answer: Cellulitis

Right sided heart failure and venous insufficiency typically present with bilateral edema, not unilateral edema as described in this scenario. These conditions will also not typically cause erythema or warmth over the edematous area. While lymphedema can cause unilateral edema, this edema is also not typically associated with erythema or warmth. Both erythema and warmth are suggestive of an infectious etiology, which would be most consistent with cellulitis.

70.

Which of the following acid-base imbalances is probable in a patient who is hyperventilating?

Respiratory alkalosis

Metabolic acidosis

Respiratory acidosis

Metabolic alkalosis

Correct answer: Respiratory alkalosis

Respiratory alkalosis occurs when the blood becomes more basic (less acidic) due to the influence of the respiratory system. It typically results from expiring too much carbon dioxide, reducing the acidity of the blood, and raising the pH.

71.

A patient was admitted to the medical-surgical unit complaining of difficulty holding objects. He states that his condition has progressively worsened. Based on the initial examination, the physician suspects Amyotrophic Lateral Sclerosis (ALS). The nurse is aware that characteristics of ALS include all of the following except:

Memory loss

Outbursts of uncontrolled crying

Dysphagia

Fasciculation of involved muscles

Correct answer: Memory loss

ALS is a progressive, degenerative disease involving the destruction of the motor neurons of the anterior horn cells (in the spinal cord), brainstem (especially cranial motor nerves), and cerebral cortex. It results in progressive muscle weakness and wasting of affected muscles; it involves both upper and lower motor neurons, and eventually causes death (within 5-10 years) due to respiratory muscle weakness. Cognitive problems such as memory loss are not present in ALS.

Emotional lability, dysphagia, and fasciculations (muscle twitches) are manifestations of ALS.

72.

This part of the central nervous system is located in the brainstem. It participates in control of the respiratory and gastrointestinal function. It is known as the:

Medulla

Reticular activating system

Dura mater

Pia mater

Correct answer: Medulla

The medulla is the most inferior part of the brainstem. It is a continuation of the spinal cord in the brain and participates in the control of respiratory, cardiac, and gastrointestinal function.

The reticular activating system (RAS) is located in the core of the brain and is involved in consciousness, attentiveness, and the sleep-wake cycle. The dura mater and the pia mater are layers of connective tissue coverings of the brain and spinal cord. They do not participate in controlling any bodily functions.

73.

Which of the following is **least likely** to be a clinical manifestation of nephrotic syndrome?

Polyuria

Hyperlipidemia

Proteinuria

Edema

Correct answer: Polyuria

Nephrotic syndrome is caused by abnormal permeability of the glomerular basement membrane. Nephrotic syndrome tends to cause oliguria, not polyuria. Hyperlipidemia, proteinuria, and edema are all common clinical manifestations of nephrotic syndrome.

74.

The most important factor for regulating respiratory rate is:

CO_2 level in the blood

Bicarbonate level in the cells

Oxygen levels in the cells

Urea concentration in the blood

Correct answer: CO_2 level in the blood

Respiration is regulated by the respiratory center in the brain and the autonomic nervous system. Central chemoreceptors respond to changes in pH, PaO_2, and $PaCO_2$ (partial pressure of carbon dioxide). Small changes in the $PaCO_2$ in the systemic arterial blood flowing to the medulla produce pronounced changes in ventilation; thus, CO_2 is the single most important factor for regulation of respiratory rate. Oxygen levels in the blood will also have a significant role in regulating the respiratory rate, but the oxygen level in the cells does not.

75.

Which of the following is **most important** to monitor in a patient who is having a Myocardial Infarction (MI)?

Cardiac rhythm

Heart rate

Oxygen saturation

Blood pressure

Correct answer: Cardiac rhythm

Cardiac arrhythmias are the leading cause of death in patients who are experiencing an MI. Monitoring the patient's cardiac rhythm is the best way to quickly recognize and treat potentially lethal arrhythmias. While monitoring heart rate, oxygen saturation, and blood pressure are also important, monitoring of the cardiac rhythm is most important.

76.

Which of the following is **not** a renal hormone?

Cortisol

Erythropoietin

Renin

Prostaglandins

Correct answer: Cortisol

Cortisol is released by the adrenal glands that sit on top of the kidneys. Erythropoietin, renin, and prostaglandins are all renal hormones. The kidneys also additionally activate vitamin D, necessary for the absorption of calcium from the gastrointestinal tract.

77.

Conditions that stimulate the sympathetic nervous system (SNS) and lead to cardiac irritability include all of the following except:

Vomiting

Anxiety

Hypoxia

Pain

Correct answer: Vomiting

Anxiety and stress, pain, hypoxia, and fear all stimulate the SNS, which leads to cardiac irritability.

Vomiting, the Valsalva maneuver, and carotid receptor stimulation all activate the parasympathetic nervous system (PNS), leading to cardiac depression.

78.

During the assessment of a patient with chronic obstructive pulmonary disease (COPD), the nurse identifies that the patient is experiencing severe shortness of breath. What should be the nurse's first priority nursing diagnosis?

Ineffective airway clearance

Activity intolerance

Risk for infection

Deficient knowledge

Correct answer: Ineffective airway clearance

Severe shortness of breath in a COPD patient indicates potential airway obstruction or difficulty in clearing secretions. Ensuring airway clearance is the immediate priority to improve breathing and oxygenation.

Activity intolerance may be relevant but does not address the immediate threat to breathing. Priority should be given to resolving airway issues. Risk for infection is not a relevant concern and not the immediate priority when a patient without a known infection is experiencing severe shortness of breath. Deficient knowledge does not address the urgent need to manage the patient's airway and breathing difficulties.

79.

A patient's history reveals that she suffers from daytime symptoms of asthma occurring 3 to 6 days a week. Her asthma severity would be described as:

Mild persistent

Mild intermittent

Moderate persistent

Severe persistent

Correct answer: Mild persistent

In mild persistent asthma, the patient's daytime symptoms of asthma occur 3 to 6 days a week.

In mild intermittent asthma, the patient's daytime symptoms occur no more than twice per week. In moderate persistent asthma, the patient has daily daytime symptoms. In severe persistent asthma, the patient has continual daytime symptoms.

80.

Blood returning to the heart from the inferior vena cava would enter the:

Right atrium

Left atrium

Left ventricle

Right ventricle

Correct answer: Right atrium

Blood flow through the heart: vena cava (superior or inferior) > right atrium > right ventricle through tricuspid valve > pulmonary artery through pulmonic valve > lungs > pulmonary vein > left atrium > left ventricle through mitral valve > aorta through aortic valve

81.

Which of the following abnormal heart sounds is caused by incompetence of valves and/or abnormal blood flow patterns, and is most commonly described as a swishing or whooshing sound?

Murmur

Rub

Gallop

S3

Correct answer: Murmur

A murmur is heard with a stethoscope upon auscultation; it is the sound of abnormal blood flow patterns through the heart, or blood passing through an incompetent valve in the heart. Although most murmurs are innocent and don't require treatment, the clinical nurse is not expected to interpret abnormal heart sounds, but rather identify them correctly and inform the physician of their presence.

A rub is a low-frequency "mechanical" vibration caused by inflamed, infected, or damaged tissues rubbing together. A gallop may be heard when extra heart sounds (S3 and S4) are present. S3 is an additional sound heard after S1 and S2. Extra heart sounds may indicate a loss of cardiac muscle tone.

82.

What is the MOST common complication that occurs in diabetic patients treated with oral sulfonylureas?

Hypoglycemia

Kidney disease

Diabetic ketoacidosis (DKA)

Peripheral neuropathy

Correct answer: Hypoglycemia

Hypoglycemia (low blood sugar) is the most frequently seen complication in diabetic patients treated with insulin. It also occurs in patients treated with oral sulfonylureas and combination therapy (insulin and oral medications). General causes of hypoglycemia include omitting meals and snacks, exercise with inadequate food intake, and errors in medication dose. Typically, treatment involves the 15/15 rule: eat 15 grams of fast-acting carbohydrates and wait 15 minutes. Repeat as needed, until blood glucose levels are greater than 70 mg/dL.

DKA is a less common acute complication in insulin-treated patients, in which the body produces excess blood ketones when there isn't enough insulin in the body. Kidney disease and peripheral neuropathy are chronic complications of diabetes, but not as common as hypoglycemia.

83.

All of the following statements are true related to the parathyroid except:

It consists of two lobes joined by a thin isthmus

It is located close to, or embedded in, the posterior portion of the thyroid

It is responsible for secreting parathyroid hormone

It is essential for calcium regulation

Correct answer: It consists of two lobes joined by a thin isthmus

The thyroid (not the parathyroid gland) consists of two lobes joined by a thin isthmus.

The parathyroid gland consists of four small glands located close to, or embedded in, the posterior portion of the thyroid and is responsible for secreting parathyroid hormone, which is essential for calcium regulation.

84.

Nephrolithiasis is:

Kidney stones

Masses of crystals and protein that obstruct blood flow

All of these

Always going to result in some degree of damage to the urinary tract

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Correct answer: Kidney stones

Nephrolithiasis, also known as kidney stones, are masses of crystals and protein that obstruct urine, not blood flow. They may travel down the urinary tract with or without resultant damage.

85.

Which of the following is the **most** sensitive indicator of damage to the kidneys?

Estimated glomerular filtration rate

Blood urea nitrogen

Serum creatinine

Urinalysis

Correct answer: Estimated glomerular filtration rate

Estimated Glomerular Filtration Rate (eGFR) is the most sensitive indicator of damage to the kidneys of the answers available. eGFR indicates the amount of fluid filtered from the blood into renal capsules in a minute.

86.

The nurse is assessing the urine of a patient with a urinary tract infection. Which of the following characteristic of the patient's urine should the nurse assess in each specimen?

Clarity

Viscosity

Specific gravity

Glucose

Correct answer: Clarity

Urine that is cloudy indicates purulent drainage that is associated with an infection.

Viscosity is subjective and not measurable. Specific gravity gives information related to the fluid balance. Urinary glucose levels are not affected by urinary tract infections.

87.

Which of the following **correctly** describes azotemia?

An elevation in blood urea nitrogen and creatinine levels

An elevation in carbon dioxide levels

An elevation anion gap

A decrease is Glomerular Filtration Rate (GFR)

Correct answer: An elevation in blood urea nitrogen and creatinine levels

Azotemia describes an elevation in blood urea nitrogen and creatinine levels, typically occurring in more advanced renal failure. While azotemia is often accompanied by or accompanies a decreased Glomerular Filtration Rate (GFR), it does not describe a decreased GFR. An elevation in carbon dioxide levels or an elevated anion gap is not referred to as azotemia.

88.

You are admitting a 45-year-old male who presented to the emergency room because his doctor sent him with "abnormal vital signs." The patient has BP 98/59, HR 34, Temp 98.7, RR 14, and O2 sat 98% on room air. The patient's doctor sent an EKG performed today showing sinus bradycardia. The patient is alert, oriented, and denies any symptoms.

Which of the following interventions is most important?

Continue to monitor the patient

Prepare for transcutaneous pacing

Administer 1L NS bolus

Administer atropine 0.5mg IV STAT

Correct answer: Continue to monitor the patient

Asymptomatic bradycardia does not require immediate intervention, but does require monitoring, specifically cardiac monitoring.

Transcutaneous pacing is not needed if the patient is asymptomatic. Administering a fluid bolus is not needed, as the patient is not tachycardic and has a normal blood pressure. Atropine would be indicated for symptomatic bradycardia, but is not needed as the patient is asymptomatic.

89.

Mean arterial pressure (MAP) is calculated by using which of the following formulas?

[(2 x DBP)+SBP] / 3

[(2 x SBP)+DBP] / 3

[(3 x DBP)+SBP] / 2

[(3 x SBP)+DBP] / 2

Correct answer: [(2 x DBP)+SBP] / 3

The mean arterial pressure (MAP) is a term used to describe an average blood pressure in an individual. It is defined as the average arterial pressure during a single cardiac cycle.

Diastolic blood pressure (DBP) counts twice as much as systolic blood pressure (SBP) because 2/3 of the cardiac cycle is spent in diastole. A MAP of about 60 is necessary to perfuse the coronary arteries, brain, and kidneys.

90.

You are caring for a male patient with severe psoriasis. When inspecting his affected areas, you expect to see which type of secondary lesions?

Scales

Crusts

Ulcers

Cysts

Correct answer: Scales

Psoriasis is a common benign, relapsing, and chronic inflammatory skin disease, which involves increased production of epidermal cells with decreased shedding of the epidermis; the most common form is plaque psoriasis.

Plaque psoriasis appears as red, sharply defined plaques (primary lesions) covered with silvery scales (secondary lesions) predominately found on the scalp, elbows, knees, palms and soles, and nails; these scales are loosely attached to the primary plaque lesions and cause small bleeding points when scraped.

91.

Which of the following **best** describes incontinence that is caused by involuntary loss of urine soon after a strong desire to void?

Urge incontinence

Stress incontinence

Functional incontinence

Reflex incontinence

Correct answer: Urge incontinence

Urge incontinence describes incontinence that occurs soon after the urge to urinate. Stress incontinence is incontinence caused by a sudden strain. Reflex incontinence occurs when the bladder fills to a certain extent. Functional incontinence is unpredictable incontinence caused by factors outside the lower urinary tract.

92.

You are caring for a patient who complains of joint problems who is experiencing decreased range of motion, bilateral joint deformity that is symmetrical, and inflammation, warmth, and pain in the affected joints. The patient has no other symptoms. Which of the following conditions should be considered first?

Rheumatoid arthritis

Systemic lupus erythematosus (SLE)

Osteoarthritis

Bone neoplasms

Correct answer: Rheumatoid arthritis

Rheumatoid arthritis is an inflammatory joint condition that is caused by autoimmune dysfunction.

SLE may cause these symptoms but, because there are no other symptoms beyond exclusively, the joint-related inflammation, SLE should not be considered first. Osteoarthritis is not symmetrical and is not associated with inflammation in the joints. Bone neoplasms do not primarily affect the joints.

93.

An elderly patient is being evaluated for cognitive impairment. During the assessment, the nurse asks the patient to draw a clock showing the time "10 past 11." What specific cognitive ability does this test assess?

Visual-spatial skills

Executive function

Abstract thinking

Language skills

Correct answer: Visual-spatial skills

Visual-spatial skills are assessed when the patient is asked to draw a clock, as it involves understanding spatial relationships and the ability to visually represent time accurately.

Executive function involves planning, decision-making, and problem-solving, which are broader than the specific visual-spatial task of drawing a clock. Abstract thinking involves understanding complex concepts and ideas, not the specific visual and spatial task of drawing. Language skills involve comprehension and use of language, which is not the focus of drawing a clock.

94.

Which of the following cells produce antibodies?

B cells

T cells

Leukocytes

Macrophages

Correct answer: B cells

Leukocytes are simply white blood cells (WBCs). B cells are a type of WBC, known as B lymphocytes, that produce antibodies. While B cells are technically a type of leukocyte, not all leukocytes produce antibodies.

T cells (T lymphocytes) attack antigens directly or indirectly stimulate antibody production by B cells. Macrophages (another type of WBC) engulf and digest cellular debris, foreign substances, microbes, cancer cells, and anything else that does not have the types of proteins specific for healthy body cells on its surface.

95.

You are caring for a patient who experienced a spinal injury and is now paraplegic. You understand that the highest vertebra in which a fracture affecting the spinal column can occur while still only causing paraplegia instead of quadriplegia is which of the following?

T1

T3

T8

C5

Correct answer: T1

Spinal fractures that occur at C7 or above can cause quadriplegia (paralysis of all four limbs). Fractures at T1 or below will cause only paraplegia (paralysis of only the lower two limbs).

The other answers are incorrect. Not all vertebral fractures will lead to paralysis, only vertebral fractures affecting the spinal cord.

96.

When a patient has an elevated blood urea nitrogen (BUN), the nurse understands which of the following factors does not directly elevate this level?

Diabetes mellitus

Poor renal perfusion

GI bleeding

Dehydration

Correct answer: Diabetes mellitus

BUN is the end product of protein metabolism and is influenced by fluid volume, dietary protein intake, and catabolism. Alone, it is not a good indicator of renal disease, as it will also increase with GI bleeds, dehydration, infection, stress, and corticosteroid use. Elevated BUN levels may indicate poor renal perfusion, therefore, any changes in BUN must be correlated with creatinine to determine renal failure.

Diabetes mellitus does not directly contribute to an elevated BUN, but can indirectly contribute by causing renal disease.

97.

Which of the following is NOT a risk factor for developing a spontaneous pneumothorax?

Combat in the armed forces

Being a young male who is tall and slender

High-altitude flying

Smoking

Correct answer: Combat in the armed forces

Combat in the armed forces increases the risk of traumatic pneumothorax, not spontaneous pneumothorax.

Young males who are tall and slender are more likely to develop a spontaneous pneumothorax. The decreased air pressure associated with high-altitude flight increases the chance of spontaneous pneumothorax. Smoking causes damage to the lungs that makes spontaneous pneumothorax more likely.

98.

A patient is being admitted with shortness of breath, malaise, a new murmur, and fever. The patient has not had any recent medical procedures or visits except for a minor dental procedure four days previously. Which of the following is **most important** for this patient?

An echocardiogram

A chest X-ray

A venous doppler study

A head CT scan

Correct answer: An echocardiogram

Shortness of breath, malaise, cardiac murmur, and fever are all potential symptoms of endocarditis. Endocarditis is also commonly caused by dental procedures. An echocardiogram will be the best method of detecting endocarditis of the answers provided, as it will provide visualization of the cardiac structures. A venous doppler study or a head CT scan will not provide any information about potential endocarditis.

99.

The largest internal organ is the:

Liver

Brain

Skin

Colon

Correct answer: Liver

The liver is the largest internal organ, located in the right upper quadrant (the skin is the largest organ, but is external).

The liver is made up of millions of functional units called lobules and can function near to normal with considerable damage. The liver's high vascularity allows for quick regeneration of damaged tissue.

100.

The presence of the Philadelphia chromosome is definitive for the diagnosis of which of the following leukemias?

Chronic myelogenous leukemia (CML)

Chronic lymphocytic leukemia (CLL)

Acute myelogenous leukemia (AML)

Acute lymphocytic leukemia (ALL)

Correct response: Chronic myelogenous leukemia (CML)

Leukemia is defined as a malignant disorder of WBCs in the bone marrow, and results from an overproduction of leukocytes (WBCs). Leukemia cells multiply, crowd bone marrow, and spill into peripheral blood; these cells do not function normally and may infiltrate other organs and tissues.

CML has a slow, insidious onset; the presence of the Philadelphia chromosome is definitive for diagnosing CML and is present in over 90% of patients, and over 50% of patients present with white blood cell counts greater than 100,000 uL. Symptoms may include marked lymphadenopathy, splenomegaly, and/or hepatomegaly, LUQ pain, abdominal fullness, fatigue, anorexia, and weight loss. The Philadelphia chromosome is a hallmark of CML and would rule out CLL, AML, and ALL.