M_PTQ_NPNeonatal (200+ Questions) - Quiz Questions with Answers

1.

A neonate receiving mechanical ventilation has a $PaCO_2$ level of 33 mmHg with pH of 7.5 from a blood sample obtained from the umbilical artery. These values indicate

metabolic acidosis from decreased tissue perfusion

respiratory acidosis from hypoventilation

respiratory alkalosis from hyperventilation

Explanation:

These values indicate respiratory alkalosis from hyperventilation associated with excessive mechanical ventilation, which decreases the level of carbon dioxide in the blood. Respiratory alkalosis occurs with $PaCO_2$ <35 mmHg and pH >7.45. Normal $PaCO_2$ is 35-45 mmHg and normal pH 7.35-7.45. Arterial blood gas (ABG) is the most informative measurement of blood gas status. Venous blood gas (VBG) is easier to obtain if an arterial catheter is not in place. To compare the values in the VBG with an ABG, add 0.05 to the pH of the VBG. Subtract 5-10 mmHg from the PCO_2 of the VBG. Capillary blood gas (CBG) can be obtained with a heel stick, but the values obtained are the least accurate and rarely useful.

2.

A 6-day-old newborn develops signs of congestive heart failure with tachypnea, heart rate 175 at rest, fine pulmonary rales, and difficulty feeding. The most likely underlying cause is

hypoplastic left heart syndrome

coarctation of the aorta

patent ductus arteriosus

Explanation:

Onset of symptoms varies with different structural defects, and symptoms of congestive heart failure within the first week may be caused by patent ductus arteriosus as well as transposition of the great vessels and total anomalous pulmonary return with pulmonary venous obstruction. Hypoplastic left heart syndrome is evident at birth. Coarctation of the aorta and pulmonary stenosis are usually evident between one and four weeks after birth.

3.

Which of the following medications is NOT indicated for use in the infant in respiratory distress?

formoterol (Perforomist)

albuterol (Proventil)

dexamethasone (Decadron)

Explanation:

Perforomist, a formoterol inhalation treatment, is not indicated for use in children. It is indicated for treatment of COPD symptoms in adults. Albuterol is a beta-2 agonist that works to relieve respiratory symptoms by dilating the airway. Dexamethasone is a steroid that can decrease inflammation within the airway.

4.

A pediatric patient in the NICU is receiving an infusion of dopamine. Once it is completed, the effects from the medication should be gone

within 10 minutes

within 30 minutes

within 1 hour

Explanation:

The half-life of dopamine is less than 2 minutes, so the total time in which the effects from the medication are seen is around 10 minutes. Dopamine is used to improve heart function, increase blood pressure, and increase renal perfusion.

5.

The mechanism of action of surfactant is to

strengthen the diaphragm to make breathing easier for the premature infant

prevent the alveoli in the lungs from collapsing so that they can expand and contract normally during breathing

dilate the pulmonary artery to allow the passage of more oxygen-rich blood into the heart for circulation

Explanation:

The inside of the alveoli in the lungs are wet and can easily stick together when air is exhaled. Surfactant decreases the surface tension within the alveoli so they can easily expand when a breath is taken, making it easier to breath. The human body produces surfactant on its own, but

not until after 36 weeks gestation. Sometimes it is necessary to administer surfactant directly into the lungs through the endotracheal tube.

6.

The four heart defects seen with Tetralogy of Fallot are

a large ventricular septal defect, pulmonary stenosis, right ventricular hypertrophy, and an overriding aorta

a patent ductus arteriosus, pulmonary hypertension, cor pulmonale, and aortic stenosis

a thoracic aortic aneurysm, aortic stenosis, pulmonary stenosis, and a ventricular septal defect

Explanation:

Tetralogy of Fallot is a very serious congenital heart defect that includes a large ventricular septal defect, pulmonary stenosis, right ventricular hypertrophy, and an overriding aorta. Though this is a serious condition, it is treated surgically during infancy and most children with this condition will go on to live into adulthood.

7.

Transposition of the great vessels can involve the superior and inferior vena cavas, the pulmonary artery and pulmonary veins, or the

femoral artery and femoral vein

tricuspid valve

aorta

Explanation:

Transposition of the great vessels can involve any of the great vessels of the body: the superior or inferior vena cava, the pulmonary artery or pulmonary veins, or the aorta. It usually involves a "swap" between the locations of the vessels and can result in poorly oxygenated blood or poor delivery of blood to the body. If the pulmonary artery and aorta are involved, the condition is called a transposition of the great arteries.

8.

What is a patent ductus arteriosus?

A widening of the mitral valve resulting in mitral regurgitation

An opening in the septal wall between the left and right ventricles

An opening between the pulmonary and aortic arteries

Explanation:

PDA is an opening between the pulmonary and aortic arteries. Before a baby is born, its blood is oxygenated by the mother through the placenta. A vessel is formed connecting the pulmonary and aortic arteries, the ductus arteriosus. Shortly after birth, this vessel closes off so that the infant's blood can then receive oxygen from its own lungs. With a PDA, the ductus arteriosus remains open and oxygen-rich blood from the aorta mixes with the blood lacking oxygen from the pulmonary artery. If the rest of the heart is functioning normal, the baby is monitored and the PDA is allowed to repair itself. If this does not happen, the defect can be surgically corrected.

9.

If left untreated, coarctation of the aorta can lead to

congestive heart failure

patent ductus arteriosus

Tetralogy of Fallot

Explanation:

Coarctation of the aorta can cause congestive heart failure. It occurs when there is narrowing in the aorta. It is a congenital condition that may not cause any symptoms in the newborn and may not be known to be present until adulthood. If symptomatic, the common symptoms are pallor, difficulty breathing, and poor feeding due to difficulty breathing. If it is left untreated, it can lead to congestive heart failure or even death.

10.

Which of the following heart conditions will cause weak peripheral pulses and cool extremities?

Patent ductus arteriosus

Hypoplastic left heart syndrome

Pulmonary stenosis

Explanation:

Hypoplastic left heart syndrome can cause decreased peripheral pulses due to left ventricular dysfunction. It is a congenital heart defect that results in the left side of the heart being smaller than normal. This decreases the amount of oxygenated blood that can be delivered through the body. Peripheral cyanosis will also occur due to the decreased in oxygen being sent to the

extremities. Patent ductus arteriosus and pulmonary stenosis do not result in peripheral cyanosis.

11.

What is the most common cause of a cardiac tamponade in the newborn?

Incorrect location of a central venous catheter tip

Chest wall trauma during passage through the birth canal

Chest compressions in the event of cardiac arrest

Explanation:

Cardiac tamponade occurs when fluid accumulates with the pericardial sac, causing pressure on the outside of the heart. It is treated by inserting a needle through the chest wall, into the pericardium, and withdrawing the fluid. Though cardiac tamponade in neonates is rare, it can occur in this population when a central venous catheter is in an incorrect position, applying pressure at the juncture of the inferior vena cava and the right atrium. Ensuring correct placement of the catheter is imperative to prevent this life-threatening complication.

12.

What is the most common cause of respiratory distress syndrome in the newborn?

Forceps-assisted delivery

Transient tachypnea of the newborn

High birth weight

Explanation:

Transient tachypnea of the newborn is the most common cause of respiratory distress in the newborn. It is triggered by excessive fluid in the lungs and usually resolves on its own. It occurs shortly after delivery. Supportive care with oxygen or CPAP may be necessary until the symptoms resolve. It is most common in babies born via Cesarean section.

13.

A full-term neonate fails to pass meconium in the first 48 hours of life. The infant exhibits abdominal distension, poor feeding, and bilious vomiting. An x-ray of the abdomen shows dilated loops of bowel. The diagnostic procedure used both to confirm a diagnosis of meconium plug syndrome and to direct treatment is

MRI

colonoscopy

contrast enema

Explanation:

A contrast enema is used to confirm a diagnosis of meconium plug syndrome and helps differentiate that from other causes of intestinal obstruction. The contrast enema also is often therapeutic and helps the plug to pass. Meconium plug syndrome usually occurs in full-term infants, infants of diabetic mothers, or infants with hypermagnesemia. A small percentage of infants initially identified as having meconium plug syndrome (5-10%) have Hirschsprung disease. The cause of meconium plug syndrome is thought to be immaturity of the ganglion cells of the colon.

14.

The NP is evaluating a newborn. The infant is having retractions with respirations and a low grunting sound can be heard with his rapid breathing. The most likely diagnosis is

neonatal sepsis

meconium aspiration syndrome

cyanotic congestive heart failure

Explanation:

Meconium aspiration syndrome occurs when the infant inhales meconium during the labor and delivery process. It presents as labored or rapid breathing with retractions and grunting sounds with each breath. The infant may begin to appear cyanotic as this progresses. To treat this condition, surfactant may be given which has proven to be helpful. A laryngoscope may be inserted to perform suction below the level of the vocal cords. Mortality rates are higher for these infants than others and there may be some residual respiratory problems for the first 5-10 years of life.

15.

An infant with a known congenital diaphragmatic hernia is born at 38 weeks gestation. He requires resuscitation shortly after delivery due to the weakening of the diaphragm from the hernia. Generally speaking, survival rate for this infant is

lower than another infant requiring resuscitation without a diaphragmatic hernia

higher than another infant requiring resuscitation without a diaphragmatic hernia

equal to that of another infant requiring resuscitation without a diaphragmatic hernia

Explanation:

With a diaphragmatic hernia, the diaphragm becomes weakened and this can result in the stomach and other abdominal contents expending into the chest cavity. This, along with the weakened diaphragm, can result in a decreased ability to breathe. If detected in the prenatal period, assistance can standby during delivery to begin resuscitative measures promptly and improve the chances for survival.

16.

The NP is assessing a newborn diagnosed with tracheomalacia. An exam finding that may be seen is

expiratory stridor

a webbed neck

inspiratory wheezing

Explanation:

Tracheomalacia can cause expiratory stridor. It is a softening of the cartilage in the trachea that results in partial or total collapse of the airway during expiration. Depending upon the severity of the condition, mechanical ventilation, CPAP, or BiPAP therapy may be necessary. In severe cases, surgical correction may be necessary to reinforce the airway so that it can remain open.

17.

What is the ideal timeframe in which surfactant should be given to the newborn with respiratory distress?

Within 1 hour of birth

At 12 hours of birth

At least 24 hours after birth

Explanation:

Surfactant should be given as soon as the diagnosis of respiratory distress syndrome is made, preferably within 1 hour of birth. A repeat dose is then given 4-12 hours after birth as long as the infant is still intubated and requiring 30-40% oxygen. Surfactant is administered through the endotracheal tube over the course of a few minutes.

18.

A newborn has an NG tube in place due to an intestinal obstruction. In order to prevent aspiration of saliva, it is very important to

perform continuous oral suction

the aspirate should drain into a drainage bag and the stomach contents should be aspirated at least every 30 minutes

the aspirate should drain into a drainage bag without any manual aspiration

Explanation:

There is an increased risk of death by aspiration in newborns that have an NG tube. This is due to aspiration of saliva. Because of this, a drainage bag should be attached to accept the aspirate. The stomach contents should also be aspirated at least every 30 minutes to decrease this risk.

19.

During pregnancy, a suspicious finding on ultrasound that may indicate an esophageal atresia is

large for gestational age fetus

polyhydramnios

oligohydramnios

Explanation:

Polyhydramnios is an abnormal finding on ultrasound that may indicate the presence of esophageal atresia. During normal development, the esophagus and trachea form side by side. An abnormality in development in utero may result in the esophagus not fully developing all the way to the stomach. This results in a closed-ended esophagus. The fetus drinks amniotic fluid while in the womb, so if they are not able to do this, polyhydramnios, or an increased volume of amniotic fluid, can occur. Occasionally, a fistula may form between the esophagus and the trachea, resulting in any intake of liquids being bypassed directly into the trachea and lungs.

20.

The NP is caring for an infant in the NICU. The newborn has not had a bowel movement in the first 48 hours of his life and has vomited whenever oral feedings are attempted. What is one of the problems that may be present?

Short gut syndrome

Colitis

Hirschsprung's disease

Explanation:

Hirschsprung's disease is a congenital condition in which nerve cells are absent from the lower part of the GI tract. This prevents the normal peristaltic movement to occur in the intestines, which pushes waste material through, resulting in a BM. The infant will usually have a distended

abdomen and vomiting with this disease. It is treated with surgery to remove the affected part of the colon.

21.

An intestinal disorder that can occur as a result of malrotation is

ulcerative colitis

meconium ileus

volvulus

Explanation:

A volvulus can occur as a result of malrotation. Around the 10^{th} week of gestation, the intestines are forming and settle within the abdominal cavity. As the large intestine begins to further develop, it repositions itself above and on either side of the small intestine, which is centrally located in the abdomen. With malrotation, the large intestine remains positioned on the left side of the abdomen and the small intestine remains on the right. This can result in a twisting of the intestine, or a volvulus, which can cause ischemia of the area affected and even result in death if not treated. Surgical intervention is often necessary to correct this condition.

22.

What is the difference between an omphalocele and a gastroschisis?

An omphalocele is a fluid collection in the abdomen, while a gastroschisis is a decrease in fluid in the abdomen

An omphalocele occurs when the abdominal contents protrude through the umbilicus, but a gastroschisis occurs when there is no membrane covering the abdominal organs

An omphalocele occurs when the brain ventricles are dilated, while a gastroschisis occurs when loops of bowel are dilated

Explanation:

Omphalocele is a condition in which there is an opening at the umbilicus through which the abdominal organs can protrude. A gastroschisis occurs when all of the abdominal organs are exposed because the outer membrane does not form over the abdomen to cover them. Both of these are congenital defects that occur early in development. The abdominal organs usually form outside the abdomen, but then return to the abdomen during development. There is no definitive known cause for either condition.

23.

A congenital diaphragmatic eventration is as associated finding with

Horner's syndrome

meconium ileus

polycystic kidney disease

Explanation:

Congenital diaphragmatic eventration is associated with Horner's syndrome. It occurs as a result of a congenital thinning of the diaphragm or because of underdevelopment of the phrenic nerve. This results in an abnormally high portion of the diaphragm and causes dyspnea, cyanosis, and tachypnea. Surgical correction is usually necessary.

24.

When evaluating cord blood values 30 minutes after birth, the following arterial PO_2 is within normal limits

28-32 mmHg

16-20 mmHg

40-50 mmHg

Explanation:

Umbilical cord blood gas testing, preferably arterial, should be done ≤60 minutes after birth for infants who are at risk or depressed to determine pH and acid-base balance. Testing is most applicable to infants with low APGAR scores (0-3) persisting for ≥5 minutes. Normal values:

	Venous	*Arterial*
pH	*7.25-7.35*	*7.28*
PO_2	*28-32 mmHg*	*16-20 mmHg*
PCO_2	*40-50 mmHg*	*40-50 mmHg*
Base excess	*0-5 mEq/L*	*0-10 mEq/L*

25.

Which of the following infants is most likely to develop necrotizing enterocolitis?

A premature infant being fed human milk expressed by his mother

A premature infant being formula fed

A full-term infant being formula fed

Explanation:

Necrotizing enterocolitis is most common in premature infants who are being formula fed rather than breastfed. With lung prematurity in the premature infant, there is an increased risk of decreased oxygenation to the lining of the intestines. Formula fed infants are not receiving any of the immune mediators that are helpful in fighting infection and which help to build up the normal protective microorganisms in the intestines. This can result in a necrotizing infection in the intestines that can lead to intestinal rupture and even death. This condition affects 10% of premature infants, but is rare in full-term infants.

26.

Clinical symptoms of neonatal renal vein thrombosis include

leukocytosis

Bence-Jones protein in the urine

thrombocytopenia

Explanation:

Clinical symptoms of renal vein thrombosis in the newborn include thrombocytopenia, hypertension, hematuria, proteinuria, and renal insufficiency. This condition is rare, but can occur in infants born to mothers with a history of diabetes mellitus. This is not an infectious condition, so you would not expect to see leukocytosis. Bence-Jones proteins in the urine are specific to multiple myeloma.

27.

The NP is assessing an infant with renal disease. Over the past 4 hours, he has had 100 mL of urine output. He weighs 6 lbs., or 2.73 kg. The initial interpretation of this would be

severe polyuria

severe oliguria

normal urine output for weight of the infant

Explanation:

A urine output >8 mL/kg/hr is categorized as severe polyuria. If not already present, a urinary catheter is usually inserted at this point to obtain a more accurate reading of urinary output. If this is a new change in urine output for the infant, the neonatologist on call should be contacted.

28.

The NP is caring for a child with end stage renal disease. A sign that he may be in fluid overload is

a decrease in blood pressure

an increase in blood pressure

bradycardia

Explanation:

Some of the signs of fluid overload include increased blood pressure, swelling in the extremities and face, abdominal bloating, shortness of breath, and tachycardia. The NP will monitor the patient regularly for any of these symptoms. If the patient will be discharged home, the parents and/or caregivers will also need to be educated on these symptoms.

29.

A newborn has been diagnosed with neonatal testicular torsion that has left one testicle unsalvageable. The other testicle is not affected. The parents are asking if their son will have fertility problems when he is older because of this. The most appropriate answer is

there is a very low chance of this causing any fertility issues long-term

he will need to see an endocrinologist for hormone testing to determine the long-term effects on fertility

there is an approximately 50% chance that he will be infertile

Explanation:

Unilateral neonatal testicular torsion generally has little, if any, effect on future futility. Bilateral torsion can result in bilateral testicular dysfunction, which can involve deficiencies in sex steroid hormones. Those patients should be seen by an endocrinologist to determine what sex steroid hormone replacement therapy will be necessary for normal development.

30.

How is hypospadias diagnosed?

Testicular ultrasound

Pelvic MRI without contrast

Physical exam

Explanation:

Hypospadias is a congenital condition in which the urethral opening is on the underside of the penis. It is diagnosed by physical exam and no diagnostic testing is necessary. This condition results in the urine being sprayed during urination and the penis may curve down slightly. Surgical correction may be necessary if the condition is bothersome.

31.

The most common cause of ambiguous genitalia in a genetic female newborn is

insufficient maternal folic acid during pregnancy

congenital adrenal hyperplasia

developmental anomaly of having only one ovary

Explanation:

In newborns that are genetically female, the most common cause of ambiguous genitalia is congenital adrenal hyperplasia. Ambiguous genitalia result in genital characteristics that are not wholly female or wholly male. There can be features of both, externally and internally. Congenital adrenal hyperplasia results in the overproduction of male hormones, which causes the genitalia to take on both male and female features during development. This condition can result in a great deal of stress for the parents. Genetic testing is usually done to determine if the infant is genetically a male or female.

32.

The parents of a newborn are asking the NP what PKU is and if it is really necessary to have this tested as part of the newborn screening process. The best response is

the PKU screen is not a necessary test and can be eliminated from the tests to be performed

PKU can be a fatal illness and it is highly recommended that this be performed

the test can be postponed until the newborn is a few months old

Explanation:

PKU, or phenylketonuria, is a metabolic disorder in which the body is not able to break down some of the amino acids in proteins. This leads to poor brain development and intellectual disabilities. It is highly recommended that this test be performed on all newborns so that treatment can be started and the devastating effects of this illness can be avoided.

33.

An infant has been identified as having galactosemia. The mother wants to know if she can still breastfeed him. The best response is

she should pump until the infant is well enough to begin breastfeeding again

he will not be able to breastfeed because of the risk related to sugar in the milk

he will not be able to breastfeed, but he can drink regular cow's milk without difficulty

Explanation:

Infants with galactosemia are not able to be breastfed at all and must be bottle-fed with a galactose-free formula. Galactosemia is a hereditary condition in which the infant is deficient in the enzyme that breaks down galactose, the sugar found in milk. Those infants affected will begin with vomiting and diarrhea shortly after ingesting any milk containing this sugar. It can go on to affect the brain, eyes, liver, and kidneys.

34.

All of the following may be symptoms of hypopituitarism in the newborn EXCEPT

jaundice

hypoglycemia

increased thirst

Explanation:

Of the choices listed, excessive thirst would be seen in an older child with hypopituitarism rather than an infant. The infant with an underfunctioning pituitary gland will exhibit jaundice, hypoglycemia, excessive amounts of urine, sluggishness, and a small penis in male newborns. Older children diagnosed with hypopituitarism will exhibit excessive urination, short stature with weight gain disproportionate to growth, delayed or absent puberty, and delayed tooth eruption.

35.

Placing a neonate on a cold scale may decrease body temperature through

conduction

convection

evaporation

Explanation:

Conduction is the transfer of heat between solid objects of different temperatures in contact with each other. Heat is transferred from the body of the infant to a cold surface it may come into contact with, such as a scale. Convection is the transfer of heat through air currents to the air moving around and across an infant's body. Evaporation is the loss of heat occurring when moisture evaporates from the surface of the skin. Radiation is when heat is transferred between

two objects not in contact with each other. This is the transfer of heat through emission of infrared rays, such as with radiant warming beds.

36.

The syndrome affecting almost half of the infants of diabetic mothers is

cleft lip and palate

hydrocephalus

fetal macrosomia

Explanation:

Fetal macrosomia occurs in up to 45% of infants of diabetic mothers. They are large babies that weigh more than 4000 g at term birth. These infants are puffy, fat, ruddy, and often hypotonic. These infants are also more likely to have periods of hypoglycemia shortly after birth and during the first few days of life.

37.

What injection do newborns receive at birth to decrease the risk of hemorrhage?

Vitamin K

Vitamin A

Erythromycin

Explanation:

At birth, newborns are given an injection of vitamin K to prevent hemorrhage. Infants are borne with a deficient amount of vitamin K, which can cause a condition known as vitamin K deficiency bleeding, or VKDB. Internal bleeding can be difficult in the newborn until serious complications are developing, so a routine injection of vitamin K is given at birth to decrease the risk of bleeding. Erythromycin ointment is applied to the eyes of the newborn to prevent neonatal gonococcal ophthalmia.

38.

A life-threatening condition that causes simultaneous hemorrhage and thrombosis is

Rh disease

disseminated intravascular coagulation

ABO incompatibility

Explanation:

Disseminated intravascular coagulation (DIC) is characterized by hemorrhage and thrombosis. It most often occurs in the newborn due to sepsis, respiratory distress syndrome, birth trauma, birth asphyxia, or necrotizing enterocolitis. Newborns are more susceptible to this condition because the clotting factors are at low levels at birth, which increases the risk of hemorrhage. The trauma of the underlying condition results in endothelial tissue damage, which causes hemorrhage. Fibrin and other clotting factors deposit in the microvasculature to stop bleeding, which results in microvascular thrombosis. Treatment of the condition is focused on treating the underlying cause.

39.

What condition can occur in the newborn as a result of Rh incompatibility?

Hydrops fetalis

Sick sinus syndrome

Sickle cell anemia

Explanation:

Hydrops fetalis occurs as a result of Rh incompatibility between the newborn and the mother. The Rh incompatibility results in a large number of red blood cells in the infant to be destroyed. This causes severe edema. Approximately half of newborns with hydrops fetalis will not survive. This can be prevented if prenatal testing is done on the mother to determine her Rh status. If she is Rh negative, an injection can be given during the first trimester of her pregnancy to prevent this reaction from occurring.

40.

When administering blood or blood products

a patient with A- blood can receive blood from a donor who is O- or O+

a patient with A+ blood can receive blood from a donor who is AB+

a patient with AB+ blood can receive blood from a donor of any blood type

Explanation:

A person with AB+ blood is considered a universal recipient because they can receive blood or blood products of any type. A universal donor would be a person with type O- blood. The most restricted recipient blood type is O- because those patients can only receive O- blood or blood products.

41.

The NP is administering blood to a premature infant who is anemic. A possible transfusion reaction may be occurring if the patient develops

dysuria

the hiccups

tenderness at the IV site

Explanation:

One of the first signs that an acute intravascular hemolytic reaction is occurring is pain at the IV site. Other early signs include fever, chills, elevated heart rate, nausea, and dyspnea. This potentially life-threatening reaction usually occurs within 10 minutes of the beginning of the infusion of blood or blood products.

42.

What is the difference between measuring a total bilirubin and a direct bilirubin?

Total bilirubin is the amount of direct and indirect bilirubin while direct bilirubin is the unbound amount of bilirubin that normally passes from the liver to the small intestine

Total bilirubin is the amount of bilirubin bound to albumin while direct bilirubin is the total amount of bound and unbound bilirubin

Total bilirubin is a measure of the bilirubin excreted through the urine while direct bilirubin is amount of protein-bound bilirubin stored in the liver

Explanation:

Bilirubin is measured as direct, indirect, or total. Direct bilirubin is the amount of bilirubin that is not bound to protein that passes from the liver to the small intestines. A small amount passes through the urine to give it a yellow color. The indirect bilirubin is bilirubin that is bound to albumin. The total bilirubin is the measure of both direct and indirect bilirubin combined.

43.

What is the most common cause of direct hyperbilirubinemia in the newborn?

Jaundice

Liver immaturity

Congenital kidney disease

Explanation:

Direct hyperbilirubinemia (also known as jaundice, but not caused by jaundice) is the yellow discoloration of the skin and sclera. The most common cause in newborns is due to the liver being immature and not being able to breakdown bilirubin. It is fairly common and most often responds to phototherapy for a few days.

44.

When do symptoms of biliary atresia develop in the newborn?

Immediately after birth

Within 3-5 days after birth

2-8 weeks after birth

Explanation:

Symptoms of biliary atresia appear in the newborn approximately two to eight weeks after birth. This condition occurs when the biliary system in the liver is not fully developed, resulting in obstruction of the flow of bile from the liver to the gallbladder for storage. It causes damage to the liver as the bile builds up, causing cirrhosis and eventually liver failure. It can be treated surgically.

45.

Early onset group B strep infection in the newborn is most likely to cause

meningitis

malabsorption syndromes

sepsis

Explanation:

Early onset group B strep infection in the newborn is most likely to cause sepsis. It can also cause pneumonia. Meningitis can occur with early onset group B strep, but it is not as common as sepsis. Meningitis is more likely to occur with late onset of the infection. Group B strep infection is passed from the mother to the fetus. Screening pregnant women for group B strep is routine so that it can be treated with antibiotics to prevent transmission during pregnancy and birth.

46.

A neonate at 37 weeks gestation is born to a mother who has abused cocaine throughout pregnancy. The neonate exhibits persistent hypertonia, startles easily, and shows signs of distress at any disturbance. The most appropriate treatment is

anticonvulsant

sedative

swaddling and reduction in external stimuli

Explanation:

Swaddling a neonate exposed to cocaine and eliminating as much environmental noise and excessive light as possible can reduce stimulation and relieve symptoms. Medications are rarely required to control symptoms. Hypertonia may last ≤2 years. Head circumference may be smaller for the first 2 years as well although the infant usually attains normal weight and height by the end of the first year.

47.

Which of the following infections is the most common in the newborn?

Polio virus

Varicella virus

Enterovirus

Explanation:

Enterovirus is a very common cause of infections. It often creates no symptoms in the infant, but can be very serious if it occurs in the first 2 weeks of life. Enterovirus infections are usually transmitted from the mother to the infant. They can cause cold symptoms, or be so severe that sepsis, meningitis, or respiratory failure develop. Enterovirus infections are most common in the summer and fall.

48.

Which of the following is used to test for congenital cytomegalovirus infection?

Saliva

Feces

Nasal swab

Explanation:

A congenital cytomegalovirus (CMV) infection can be diagnosed using saliva, urine, or blood specimens. Testing must be done within the first 2-3 weeks following birth. A mother who has CMV can pass this infection to the fetus through the placenta. Most infants will never develop any symptoms from the virus, but approximately 20% can develop hearing loss, vision loss, intellectual disabilities, seizures, or muscle weakness.

49.

The feces of house cats can cause a parasitic infection called

toxoplasmosis

shigella

giardia

Explanation:

Cat feces can contain a parasite called toxoplasmosis. A pregnant woman may contract this parasite and then pass it onto the fetus through the placenta. For this reason, pregnant women should avoid contact with cat feces, such as when cleaning a litter box. Most pregnant women

who become infected will not be aware of the infection. It can cause prematurity in about half of those infants who contract the parasite in utero. The infection can cause damage to the eyes, ears, nervous system, and skin in infants.

50.

A child with late congenital syphilis will generally show symptoms

within the first month life

within the first year of life

after the second year of life

Explanation:

Late congenital syphilis will reveal symptoms after a child is at least 2-years-old. This is transmitted to the newborn by a mother with syphilis. Early onset of the disease (less than 2 years of age), may cause a chronic runny nose, enlarged liver or spleen, skeletal abnormalities, or a bullous skin condition. Late onset can cause eye and ear problems, and skeletal abnormalities.

51.

At which point in a pregnancy is the fetus most likely to suffer birth defects due to a Varicella infection in the mother?

First trimester

Second trimester

Third trimester

Explanation:

The risk of birth defects due to Varicella infection is greatest in the second trimester. The risk at that point is approximately 2%, up from 0.5-1% in the first trimester. If the fetus contracts Varicella late in the pregnancy, there is a chance they will develop chicken pox rather than birth defects. Varicella infection can be severe in utero and may lead to small head size and intellectual disabilities.

52.

The most common type of short-limbed dwarfism is

ichthyosis

achondroplasia

Trisomy 13

Explanation:

The most common type of short-limbed dwarfism is achondroplasia. This condition follows an autosomal dominant pattern, meaning that only one parent needs to pass on the gene for this condition to occur. It results in an average-sized trunk with short arms and legs, a large head with a high forehead, and short fingers. The middle finger and ring finger may diverge which gives the hand a trident appearance. There are no common learning disabilities associated with achondroplasia.

53.

The most common craniosynostosis syndrome is

Crouzon syndrome

Apert syndrome

Pickwickian syndrome

Explanation:

Crouzon syndrome is the most common type of craniosynostosis syndrome. It causes fusion of the skull bones prematurely, which results in decreased space where the brain can expand and grow. The fusion of the skull bones also causes wide set, bulging eyes with vision problems due to shallow eye sockets. The nose is beaked and the jaw is under developed in those suffering from this condition. It is an autosomal dominant disease.

54.

A new mother is visiting her infant in the NICU. She expresses concern over the tiny white bumps on her child's nose and chin. The NP explains to her that

the bumps can usually be removed by applying some pressure and pinching the bumps

a referral to dermatology can be ordered for further evaluation of this

this is due to plugged pores in the skin and it will go away on its own

Explanation:

Milia are very common and occur when flakes of skin become trapped within pores. It is most common in newborns and occurs most often on the nose and chin. It is important to not pick or pinch these lesions because this could damage the tissue or lead to a skin infection. The lesions usually resolve on their own within a few weeks.

55.

Two days after birth, a newborn infant has developed an erythematous papular rash scattered all over. The best explanation to give the parents is

this is a common condition that causes slight discomfort that can be treated with acetaminophen and will clear within a few days

dermatology referral will be necessary to accurately diagnose this condition

this is a benign rash that should resolve within the first 2 weeks of life

Explanation:

Erythema toxicum is a benign rash that develops 2-5 days after birth in approximately half of all full-term infants. It appears as red blotches on the skin with white or yellow papules or pustules. It does not appear to cause any discomfort to the baby and there is no treatment as it resolves on its own within a couple of weeks. Sensitivity to the new environment early in life is thought to be the cause.

56.

A nevus flammeus is commonly known as

a port wine stain

a wart

a benign mole

Explanation:

A nevus flammeus, or port wine stain, is a birth mark that results from a malformation of capillaries. Though they appear pink at birth, they will become a darker reddish or purplish color in adulthood. Port wine stains are not inherited genetically and they have no known cause. Laser treatments may help to lighten these birth marks, especially if they are done while the child is young and the lesion is lighter in color.

57.

Onset of drug withdrawal symptoms for a neonate whose mother used heroin during pregnancy is

3-12 hours postnatal

≥48 hours (up to 1 month) postnatal

4-7 days (up to 14 days) postnatal

Explanation:

The onset of withdrawal symptoms in a neonate varies depending on the mother's type of drug use, but the onset of symptoms of narcotics, such as heroin or methadone, is longer than for other drugs, ranging from 48-72 hours for most but can be up to one month, so many of these neonates may be discharged prior to onset of symptoms. Mothers should be carefully screened to try to identify infants at risk.

58.

An example of an autosomal recessive disease is

Down's syndrome

Edward's syndrome

cystic fibrosis

Explanation:

An autosomal recessive disease is one that requires 2 copies of the gene in order for the disease or trait to occur. For example, both the mother and father of an infant would need to pass on a copy of the gene for cystic fibrosis in order for their child to develop the disease. Down's syndrome and Edward's syndrome are both genetic mutations that occur during fetal development and are not genetically inherited conditions.

59.

What does it mean if a disease is autosomal dominant?

Both parents need to pass on the gene for the disease to occur

One parent needs to pass on the gene for the disease to occur

Neither parent passes on the gene for the disease to occur; it is a genetic mutation that occurs during fetal development

Explanation:

An autosomal dominant disorder only requires one parent to pass on the gene for a disease to occur. Examples of autosomal dominant conditions including Huntington's disease, polycystic kidney disease, and neurofibromatosis. Often, one of the parents will have the disease and can pass it onto their children.

60.

With which genetic condition is the NP likely to see an atrioventricular septal defect, or a ventricular septal defect in less severe cases?

Congestive heart failure

Down syndrome

Cystic fibrosis

Explanation:

Approximately one-half of all children born with Down syndrome have a heart defect. The most common type of heart defect in these children is an atrioventricular septal defect, or a ventricular septal defect in less severe cases. This occurs when the septum between either the atria and ventricles, or just the ventricles, is not fully formed. This allows oxygenated blood and deoxygenated blood to mix, which can cause the heart to work harder to transport oxygenated blood throughout the body.

61.

The new parents of a child with Down syndrome tell the NP that they want to have more child in the future, but they are concerned about the risk of having another child with this condition. The most appropriate response is

there is no chance to have this happen again because it is not hereditary

the chance of that happening is very low, about 1 out of 100 pregnancies

there is a 50% chance they will have another child with Down's syndrome

Explanation:

The risk of having a child with Down's syndrome is approximately 1 in 100 pregnancies. Advanced maternal age is more of a risk factor for having the genetic mutation that causes this

condition. Having one child with this condition does not increase the chances that any future children will also have Down's syndrome.

62.

Which condition results in birth defects that are usually fatal before birth or within the first year of life?

Edwards syndrome

Beckwith syndrome

Hydrocephalus

Explanation:

Edwards syndrome, or trisomy 18, is a condition that occurs when there is an extra 18^{th} chromosome. This is usually diagnosed prenatally with blood screening and ultrasounds. Infants with this condition are smaller than normal and have a small, misshapen head. Over one-third of these infants do not live past the first year of live. Approximately 10% may live up to 10 years of life, though, but with very complex medical problems due to birth defects affecting the organs.

63.

Do more males or females develop Turner's syndrome?

It affects both genders equally

It affects males only

It affects females only

Explanation:

Turner's syndrome affects females only. It occurs as a result of a genetic mutation in which the female receives only one X chromosome. This results in females who are short in stature, have delayed puberty, often suffer from infertility problems, and may have learning disabilities. In some cases, it may cause heart defects. Women who want to become pregnant will need to take hormone treatments, but are often unsuccessful at conceiving.

64.

A defect in chromosome 22 is also called

DiGeorge syndrome

Down's syndrome

Turner's syndrome

Explanation:

DiGeorge syndrome occurs when there is a mutation to chromosome 22 during fetal development. It results in an immunodeficiency disorder that affects the thymus gland and the production of T-lymphocyte cells. This results in frequent infections, congenital heart defects, and hypocalcemia. This syndrome also causes characteristic facial features with an underdeveloped chin, heavy eye lids, ears that are rotated back, and small upper ear lobes.

65.

The genetic condition that results in a bluish tinge to the sclera of the eyes and multiple bone fractures is

osteoporosis

osteogenesis imperfecta

congenital hyperparathyroidism

Explanation:

Osteogenesis imperfecta is a genetic disorder that causes bones to be weak and fracture easily. It can also cause a bluish tone to the sclera of the eyes, scoliosis, short stature, and hearing loss. The condition occurs due to a genetic defect that results in problems with the body producing collagen, which strengthens bones. There is no cure for osteogenesis imperfecta, but bone strengthening medications and splinting/casting may help to protect the strength of the bones.

66.

Which of the following conditions results from oligohydramnios?

Galactosemia

Amniotic band syndrome

Potter syndrome

Explanation:

Potter syndrome occurs due to oligohydramnios, or a reduced amount of amniotic fluid in utero. Any condition during development that results in decreased urine production by the fetus can result in a reduced amount of amniotic fluid being present. If the mother has prolonged rupture of the membranes, the amniotic fluid will be absent which could result in this condition.

Amniotic fluid is essential for alveolar development in the lungs while in utero. If this is reduced or absent, the infant will suffer respiratory distress at birth.

67.

In which group is hypoxic ischemic encephalopathy more common?

All infants, regardless of age, are at equal risk

Premature infants

Full-term infants

Explanation:

Hypoxic ischemic encephalopathy is more common in full-term infants than premature infants. This condition results in damage or death to brain tissue due to lack of oxygen to the brain. It can occur when there is any condition, maternal or fetal, that results in a disruption in oxygenation of brain tissue. This can include a prolapsed cord, placental abruption, maternal hypotension, and others. This is the leading cause of impairment in newborns, though severity of the impairment may not be determined until 3 or 4 years of age.

68.

A female neonate is found to have an imperforate anus with no external opening or dimple on initial physical exam. The abdomen is slightly distended, but the neonate passes some meconium at 24 hours. The type of anomaly this suggests is a

low anomaly with rectourethral fistula

intermediate anomaly with a perineal fistula

high anomaly with rectovaginal fistula

Explanation:

In a high anomaly, the rectum ends above the puborectalis muscles, and internal sphincter is absent. Frequently, there is a rectourethral fistula in males or a rectovaginal fistula in females, allowing passage of some meconium. There may be fistulas to the bladder or perineum. Low anomalies have no external opening, but rectum is otherwise in normal position through the puborectalis muscle, with normal function, and no connection to the genitourinary tract. Intermediate anomalies have rectum at or below the level of puborectalis muscle and an anal dimple. The external sphincter is in normal position.

69.

The mildest form of an intraventricular hemorrhage of the brain in a newborn is also called

normal pressure hydrocephalus

a germinal matrix hemorrhage

elevated pressure hydrocephalus

Explanation:

An intraventricular hemorrhage in a newborn is classified into grades, depending upon the severity of the bleeding. Grade I, the mildest form, is also called a germinal matrix hemorrhage. Those infants most at risk for developing an intraventricular hemorrhage are those who are premature, at least 10 weeks preterm. This occurs because the blood vessels in the brain are very weak in the premature infant and can easily rupture, causing a brain bleed. Less than half of infants with a mild bleed will have long-term effects from it. Up to one-third of those with severe bleeds may die.

70.

A medical emergency that can lead to hypovolemic shock in the newborn is

cephalohematoma

subgaleal hemorrhage

caput succedaneum

Explanation:

A subgaleal hemorrhage can be massive and may lead to hypovolemic shock. This condition occurs when there is bleeding in the loose connective tissue of the subgaleal space. The subgaleal space is composed of loose connective tissue that allows the scalp to slide easily on the cranium. There is an increased risk of a subgaleal hemorrhage with vacuum and forceps use during delivery. The trauma to the scalp results in rupture of the blood vessels in this space. This usually develops over several hours to several days with the first clinical sign being an increase in head circumference.

71.

The NP is caring for a newborn with spina bifida. The mother expresses concerns that a fall she had 2 weeks before delivery could have caused the birth defect. The best response is

spina bifida occurs during the last month of pregnancy due to a congenital condition, not due to her fall

there is a chance that trauma during pregnancy may have caused the abnormality

spina bifida occurs during the first month of pregnancy and her fall did not cause this

Explanation:

Spina bifida is classified as a neural tube defect and it develops during the first month of pregnancy, when development of the spinal column occurs. Other neural tube defects include anencephaly and development of a Chiari malformation. With spina bifida, the spinal column does not completely close, resulting in at least some paralysis of the lower extremities. There is no cure for this condition and any nerve damage present at birth is permanent.

72.

Periventricular leukomalacia is often the cause of which chronic condition?

Acute lymphocytic leukemia

Cerebral palsy

Systolic ejection murmurs

Explanation:

Periventricular leukomalacia often causes cerebral palsy in the affected child. It has also been associated with an increased chance of epilepsy. Periventricular leukomalacia occurs when there is necrosis of the white matter in the brain near the lateral ventricles. Premature infants are at greatest risk for developing this condition due to the risk of neonatal encephalopathy.

73.

Which of the following electrolytes can help to reduce the incidence of neurological deficits in premature infants?

Magnesium

Calcium

Phosphorous

Explanation:

Studies have shown that maintaining a higher serum magnesium level can help to reduce the incidence of neurological developmental delay. It has been found to be helpful with advancing brain development in premature infants, and to some degree, in term infants who have suffered from asphyxia during labor and delivery. It is thought that magnesium can serve a neuroprotective role in early brain development.

74.

If a pregnant woman contracts measles during pregnancy, the baby is at risk for developing

congenital cataracts

rubella (German measles)

hearing loss

Explanation:

Rubella, or German measles, in the mother can result in congenital cataracts in the newborn. Other infections that can contribute to cataracts developing in the newborn are toxoplasmosis, cytomegalovirus, or chickenpox. Genetic defects can also cause congenital cataracts. These can be severe enough to require surgical removal and lens replacement.

75.

In the 1940s and 1950s, the leading cause of blindness in children in the United States was retinopathy of prematurity caused by

lack of eye coverage during phototherapy

high flow rates of oxygen via face mask

excessive oxygenation in incubators

Explanation:

Retinopathy of prematurity was a leading cause of blindness in children in the 1940s and 1950s due to high levels of oxygen given to premature infants in incubators. This condition occurs in premature infants, usually those at less than 31 weeks gestation. The eye, optic nerve, and blood vessels begin to develop around the 16^{th} week of pregnancy. The last 12 weeks of pregnancy sees a rapid development in the blood vessels. Children before that gestation time often do not fully develop the blood vessels to the retina, causing retinopathy and possibly blindness.

76.

The parents of a newborn with strabismus express concern about how this is going to be treated. The most appropriate response is

the surgery is usually tolerated very well by children

usually patching and eye glasses to strengthen the eye muscles are affective at resolving this condition

there is no treatment and the condition will resolve on its own in a few months

Explanation:

Strabismus is a misalignment of the eyes, usually from a weak or defective eye muscle. As the child becomes older, patching and eyeglasses can help with strengthening the weak muscle to help align the gaze of the eyes. If left untreated or in the rare cases that patching and

eyeglasses are not affective, strabismus can become severe and result in a full cross-eyed appearance. Occasionally surgery will need to be performed to correct the misalignment.

77.

A condition that prevents a newborn from being able to pass air to breathe after birth is

pneumonia

meconium aspiration

bilateral choanal atresia

Explanation:

Bilateral choanal atresia occurs when the back of the nasal passages are blocked, preventing a newborn from being able to breathe. This occurs due to a bony or soft tissue abnormality during development in utero. The back of the nasal passages fail to open, resulting in the inability to pass air. Infants are obligatory nasal breathers and immediate airway assistance is usually necessary at birth. This condition can be surgically corrected, but may require additional surgeries to widen the opening as the child matures. Neither meconium aspiration nor pneumonia affect the neonate's ability to pass air through the lungs, though both can also lead to respiratory distress.

78.

The NP is talking to new parents whose child was born with a cleft lip and palate due to amniotic band syndrome. They are concerned that this may happen to any more children they have in the future. The best response to this is

there is no known genetic cause of amniotic band syndrome and it is very rare this will happen again in future pregnancies

this is an autosomal dominant genetic trait and there is a 50% chance this could happen in future pregnancies

once one child is born with this condition, all future children will also inherit it

Explanation:

There is no known genetic risk for developing amniotic band syndrome. There are also no known behaviors during pregnancy that increase the risk for this condition. It occurs when thick, fibrous bands within the amniotic fluid wrap around the limb or face of the fetus in utero. It can cut off the blood supply to the affected area and result in amputation or deformity of the affected limb. If the bands wrap around the face, it can result in cleft lip and palate. There is a greater than 30% chance that amniotic band syndrome will cause a club foot deformity.

79.

A neonate is 40 weeks gestation and nursing well but has onset of jaundice at 36 hours. Total serum bilirubin is 12 mg/dL. At this time, treatment should include

continued observation and jaundice assessment

phototherapy

exchange transfusion

Explanation:

While the neonate's bilirubin is elevated (normal range 3.4-11.5 mg/dL at 1-2 days), only continued observation and jaundice assessment is indicated at this time. Physiologic hyperbilirubinemia is common in newborns and usually benign, resulting from immature hepatic function and increased RBC hemolysis. Infants have larger red blood cells with a shorter life than adults, leading to more RBC destruction and resulting in an increased load of serum bilirubin, which the liver of the newborn cannot handle. Onset is usually within 24-48 hours, peaking in 72 hours for full term or 5 days for preterm infants and declining within a week.

Phototherapy is the indicated treatment for total serum bilirubin ≥18 mg/dL for those at medium risk.

80.

An infant with fetal alcohol syndrome may also have a facial deformity known as

macrognathia

macrocephaly

micrognathia

Explanation:

Micrognathia, or an underdeveloped jaw, may occur with fetal alcohol syndrome. It can also be seen with trisomy 13 and progeria. The underdeveloped jaw will often resolve on its own as the child grows. In severe cases, it can cause breathing and feeding problems. Microcephaly, not macrocephaly, is also typically seen with fetal alcohol syndrome.

81.

The most immediate concern for fetuses of mothers who have used cocaine during their pregnancy is

cleft lip or palate

patent ductus arteriosus

premature delivery

Explanation:

The immediate concerns for babies born to mothers who use cocaine is premature delivery with associated low birth weight. The majority of the problems these children develop are evident later in childhood with cognitive development, behavior problems, and learning disabilities.

82.

Signs and symptoms of acute alcohol withdrawal in the newborn with neonatal abstinence syndrome should appear

<3 hours after birth

3-12 hours after birth

24-36 hours after birth

Explanation:

Symptoms of alcohol withdrawal in a newborn who was exposed to alcohol regularly during pregnancy generally occur 3-12 hours after birth. Withdrawal symptoms from opiates generally occur 24-36 hours after birth, but may be longer depending on the medication. For example, newborns that were exposed to methadone regularly while in utero may not show withdrawal symptoms until a week or longer after birth due to the long half-life of the drug.

83.

Which of the following routes is NOT recommended when administering naloxone (Narcan) to infants?

Intravenous

Intramuscular

Endotracheal

Explanation:

When given, the preferred route for administering Narcan in the infant is IV or IM. It should not be given via endotracheal administration. Narcan is not used as a first line drug in the infant with respiratory depression. Normal color and pulse must first be present before it is considered. It may cause seizures if given to the infant of an opioid-addicted mother.

84.

The NP accidentally administers the wrong dosage of medication to an infant in the NICU, resulting in a poor outcome. This is an example of

medical negligence

medical malpractice

slander

Explanation:

Medical negligence is any action that results in a bad outcome for a patient as a result of carelessness or medical error. This is not an intentional act, but occurs as a result of the actions of the healthcare provider. On the other hand, medical malpractice occurs when the standard norms or accepted standards of practice are not followed, resulting in an injury or bad outcome for the patient.

85.

The purpose of quality improvement is to

improve employee satisfaction

monitor the leadership skills of the administration of a healthcare facility

implement specific changes, which have a measurable improvement for a group of patients

Explanation:

Quality improvement is instrumental in improving the way healthcare services are provided, while continually measuring the effect those changes have on the health status of the patients served. This is often measured through patient satisfaction information.

86.

When conducting research, the type of bias that occurs when there is an error in classification is

selection bias

information bias

indication bias

Explanation:

Information bias occurs with errors in classification, so an estimate of association is incorrect. Non-differential misclassification occurs when there is similar misclassification of disease or exposure among both those who are diseased/exposed and those who are not. Differential misclassification occurs when there is a differing misclassification of disease or exposure among both those who are diseased/exposed and those who are not. Selection bias occurs when the method of selecting subjects results in a cohort that is not representative of the target

population because of inherent error in design. Indication bias occurs when factors prevent differentiating between cause and effect.

87.

During the initial physical examination, the neonate's chest circumference is 34 cm. The expected head circumference is

32 cm

34 cm

36 cm

Explanation:

The head circumference is usually about 2 cm greater than the chest circumference, so the head circumference should be about 36 cm. Normal characteristics of a newborn include the following:

Head	*Disproportionately large for body.*
Body	*Long with prominent abdomen and narrow hips.*
Extremities	*Short and in flexed position. (Feet usually dorsiflexed after breech birth.) Hands clenched.*
Neck	*Short and chin resting on chest.*
Weight	*2500-4000 g (average about 3400). Physiologic weight loss is 5-10% for full term and 15% for preterm.*
Length	*45-55 cm (average 50 cm).*

Head circumference	*32-38 cm (usually 2 cm greater than chest circumference).*
Chest circumference	*Chest rounded and 30-36 cm.*

88.

A neonate suffered perinatal asphyxia and developed moderate hypoxic ischemic encephalopathy (HIE) with neurological dysfunction. The treatment that is LEAST likely to be utilized to treat this condition is

phenobarbital

fluid resuscitation

therapeutic hypothermia

Explanation:

With advancing implementation of therapeutic hypothermia, this method of treatment has become the first line approach in treating moderate to severe HIE with the target temperature dependent upon the severity of the encephalopathy. Additional treatments include phenobarbital for seizures treatment and/or prevention. Fluid resuscitation is not indicated in HIE; in fact it is common to apply a fluid restriction to a neonate with HIE to control additional swelling. HIE results when oxygen supply to the brain is impaired. HIE is classified as mild, moderate, or severe, depending on the degree of ischemia and symptoms. Mild HIE usually resolves in 3-4 days and moderate HIE in 1-2 weeks, but permanent brain damage can occur with severe HIE.

89.

If a mother suffers from pregnancy-induced hypertension (preeclampsia) during pregnancy, the primary detrimental effect on the fetus is

intrauterine growth restriction (IUGR)

placental abruption

spontaneous abortion

Explanation:

Preeclampsia *is a disorder that develops in approximately 5% of all pregnancies. Its main feature is new onset elevated blood pressure that develops around 20 weeks of gestation. Proteinuria is no longer a diagnostic requirement, but is a common feature accompanying the hypertension. The main detrimental effect on the fetus occurs because of longstanding hypertension that leads to utero-placental vascular insufficiency, which impairs the transfer of nutrients and oxygen to the fetus, resulting in intra-uterine growth restriction (IUGR). The IUGR is usually asymmetric (fetal head size is normal for gestational age). Placental abruption occurrence is also more common in fetuses exposed to longstanding hypertension, but not as common as IUGR.*

90.

A neonate born to an HIV-infected mother should receive the first dose of antiretroviral medication within

6-12 hours after birth

6-12 weeks after birth

1 year after birth

Explanation:

Antiretroviral medications should be given to the neonate for the first 6 weeks of life with the first dose given within the first 6-12 hours after delivery. The perinatal transmission rate is 30%

in untreated HIV positive mothers, usually acquired during delivery; however, optimal treatment reduces perinatal transmission rate to as low as 1-2%. Preventive treatment includes:

- *Antiviral therapy during pregnancy: A reduced viral load in the mother lessens the likelihood of prenatal transmission.*
- *Elective Caesarean before the amniotic membranes rupture.*
- *Avoidance of breastfeeding: The risk of HIV transmission with breastfeeding is 0.7% per month of breastfeeding.*

91.

To ingest 120 calories/kg/day, an infant breastfeeding or receiving unfortified formula needs to ingest

3 ounces/kg/day

6 ounces/kg/day

8 ounces/kg/day

Explanation:

Unfortified formulas (and most human milk) supply 20 calories per ounce. To ingest 120 cal/kg/day, an infant needs to ingest 6 ounces/kg/day of unfortified formula or human milk. The general requirements for adequate growth include:

- *Full-term infants: 100-120 cal/kg/day*
- *Premature infants: 110-160 cal/kg/day*
- *Infants who are recovering from surgery or have a chronic illness, such as bronchopulmonary dysplasia (BPD): ≤180 cal/kg/day*

The caloric needs of a neonate (preterm or term) depend on postnatal age, activity, current weight, growth rate, thermal environment, and route of nutritional intake. Cold stress increases caloric requirements.

92.

When a neonate is diagnosed with a terminal disease, the mother cries inconsolably, but the father appears detached and calm. The father's reaction is probably an indication of

anticipatory grief

delayed grief

incongruent grief

Explanation:

Incongruent grief occurs when the mother and the father are "out of sync" in their grieving process. It may be due to the differences in how men and women grieve, or it may be because the woman typically bonds with the infant during the pregnancy, while the father bonds after the child is born. Anticipatory grief occurs when a child is diagnosed with a terminal illness. The parent begins to mourn over the loss of the child before he or she expires. Delayed grief occurs when the grieving process is postponed months to years after the loss of a child.

93.

Evidence that an infant is feeding appropriately for discharge includes

weight gain of 15-30 grams per day

feeds accomplished with minimal respiratory difficulty

primary caregiver feeding the infant correctly at least 90% of the time

Explanation:

Current discharge requirements are based on physiological and functional readiness. Requirements generally include:

- *The infant is feeding appropriately, as evidenced by:*

    - *Primary caregiver feeding the infant with the prescribed method (gavage, gastrostomy, or special positioning) consistently.*
    - *Weight gain of 15-30 grams per day over several days.*
    - *Feeds accomplished without any respiratory difficulty.*
- *All medical or surgical problems that require hospitalization are resolved.*
- *Temperature stability is maintained in an open crib.*
- *Parents are trained appropriately concerning administration of medications, CPR, and proper use of car seat.*
- *Infant has passed all pre-discharge tests.*
- *Age appropriate immunizations have been administered.*

94.

When placing a temperature probe on a supine neonate to monitor thermoregulation, a good location for the probe is over the

mid-scapular region of the back

liver

mediastinum

Explanation:

A common probe placement for a supine infant is over the liver. The probe should not be placed over a bony area or an area with abundant brown adipose tissue, such as around the neck, the mid-scapular region of the back, the mediastinum, and organs in the thoracic cavity, kidneys, and adrenal glands. If the probe makes poor skin contact, it will indicate that the infant is cold, and the warmer will deliver increased amounts of heat, possibly causing hyperthermia. If the probe is underneath the infant, it may indicate an artificially warm temperature and decrease heat to the infant, causing hypothermia.

95.

To promote family integration, the best time for siblings to visit the mother and neonate is

as soon after delivery as possible

just prior to discharge from hospital

after discharge from hospital

Explanation:

Children should visit the mother and infant as soon after delivery as possible. Preparation of siblings prior to the birth can decrease anxiety and sibling rivalry by helping the children feel as though they are participants and are valued. Children should be prepared for physical changes in the mother, changing family dynamics, and infant care. A parent/teacher may use dolls to demonstrate childcare and allow the children to practice holding and caring for the baby. When possible, children should have contact with an infant, such as that of a friend or family member.

96.

When treating a neonate for hypothermia, the air temperature should be increased by approximately

1 °C every hour until infant stabilizes

2 °C every hour until infant stabilizes

3 °C every hour until infant stabilizes

Explanation:

Steps in treatment of hypothermia:

- *Increase the air temperature by approximately 1°C every hour until the infant's temperature is normal and stable.*
- *Determine if the cause of hypothermia is from an abnormal physiological process in the infant or from environmental conditions.*

- *Avoid rewarming the infant too rapidly because rapid rewarming may result in apnea or hypotension. Maintain the ambient temperature at 1-1.5°C higher than the infant's temperature.*
- *Warm IV fluids with a blood-warming device prior to infusion.*
- *Closely monitor the infant's blood glucose levels, vital signs, and urinary output.*

97.

The following drug(s) should always be included with infant resuscitation equipment

prostaglandin and epinephrine

epinephrine and naloxone

surfactant and naloxone

Explanation:

Medications that should always be included as part of the minimum neonatal resuscitation equipment include epinephrine and naloxone. Epinephrine is the AHA recommended pharmacologic intervention in the case of ineffective CPR in neonatal resuscitation. Naloxone is indicated in the case of respiratory distress in infants with opioid withdraw after the administrations of opioids as pain control in the labor process. Surfactant (indicated in respiratory distress, particularly in preterm neonates) and prostaglandins (indicated for cyanotic congenital heart defects) are useful in specific cases, but are not part of the minimum resuscitation equipment.

98.

The relationship between the total loading dose of an administered drug and the serum concentration refers to the

absorption

distribution

clearance

Explanation:

Distribution: The volume of distribution is the relationship between the total loading dose of drug administered and the serum concentration (volume of body fluid required to dissolve the amount of drug found in the serum). Absorption: This relates to the rate at which a drug enters the bloodstream and the amount of drug. Clearance: Elimination pathways (liver, kidney) can become saturated if dose of medications is too high or administration is too frequent. Ideally, a drug concentration should be maintained at a steady state (average).

99.

A neonate has had frequent blood draws to monitor electrolyte and glucose levels. This phlebotomy has caused anemia of prematurity (AOP) although the infant is not acutely hypoxemic. The initial treatment is

recombinant human erythropoietin (rHuEPO)

fresh frozen platelets (FFP)

platelets

Explanation:

rHuEPO is indicated to stimulate erythropoiesis in phlebotomy-related AOP. Infants with signs of hypoxemia (poor feeding, tachypnea, tachycardia, pallor) may require transfusions. AOP represents a pathologic exaggeration of the normal decrease in hematocrit that occurs in every newborn. Other causes include:

- *Decreased RBC production because the premature neonate's response to erythropoietin (EPO), the main stimulus for RBC production, has not matured. Lowest Hgb levels are usually at 2-3 months of age.*

- *Premature RBCs have a shortened lifespan when compared to the full term neonate's because of decreased levels of intracellular ATP and enzyme activity.*

100.

The electrolytes that are of primary concern in the neonate are

calcium, sodium, and potassium

calcium, chloride, and magnesium

sodium, phosphorous, and potassium

Explanation:

Electrolyte	*Normal value*	*Discussion*
Calcium	*Cord: 8.2-11.2 mg/dL* *0-10 days: 17.6-10.4 mg/dL* *11 days-2 years: 9.0-11.0 mg/dL*	*Hypocalcemia: <7 mg/dL is common with infants that are critically ill, IDM, suffered from asphyxia, or are preterm with very low birth weight.*
Sodium	*Neonate: 133-146 mEq/L*	*Hypernatremia: >150 mEq/L usually relates to dehydration, use of Na containing solutions, congenital or acquired reduction in ADH, cerebral palsy, and intracranial hemorrhage.* *Hyponatremia: <130 mEq/L usually relates to overhydration, renal excretion from diuresis, or SIADH.*

Potassium	*Neonate: 2.7-5.9 mEq/L*	*Hyperkalemia: >7 mEq/L may relate to renal failure, acidosis, or adrenal insufficiency.* *Hypokalemia: <3.5 mEq/L usually relates to excessive GI or renal fluid losses.*

101.

The major route in a full-term neonate for rapidly increasing body temperature in response to cold stress is

shivering

non-shivering thermogenesis

vasoconstriction

Explanation:

Non-shivering thermogenesis (NST) is the major route of rapid increase of body temperature in response to cold stress in the term neonate. NST is the oxidation of brown fat to create heat. Brown adipose tissue contains a high concentration of stored triglycerides, a rich capillary network, and is controlled by the sympathetic nervous system. When brown fat is metabolized, heat is created. When a cold body temperature is detected, the posterior hypothalamus responds by triggering the adrenal glands to release norepinephrine and the pituitary gland to release thyroxine. Both stimulate NST.

102.

On the APGAR scale, a good score is

≥5

≥7

≥10

Explanation:

A total score of ≥7 is a sign of good health with a perfect score being 10. APGAR is a quick evaluation of a newborn's physical condition to determine if emergency medical care is needed and is administered 1 minute and 5 minutes after birth.

Sign	*0*	*1*	*2*
Appearance (Skin Color)	*Cyanosis or pallor over entire body*	*Normal, except for the extremities*	*Entire body normal*
Pulse (Heart Rate)	*Absent*	*<100 bpm*	*>100 bpm*
Grimace (Reflex Irritability)	*Unresponsive*	*Grimace*	*Infant sneezes, coughs, and recoils*
Activity (Muscle Tone)	*Absent*	*Flexed limbs*	*Infant moves freely*
Respiration (Breathing Rate and Effort)	*Absent*	*Bradypnea, dyspnea*	*Good breathing and crying*

103.

The initial treatment for patent ductus arteriosus (PDA) for a preterm neonate is usually

prostaglandin

surgical ligation

indomethacin or ibuprofen lysine

Explanation:

Patent ductus arteriosus (PDA) is failure of the ductus arteriosus that connects the pulmonary artery and aorta to close after birth, resulting in left to right shunting of blood from the aorta back to the pulmonary artery. This increases the blood flow to the lung and causes an increase in pulmonary hypertension that can result in damage to the lung tissue. Treatment for PDA:

- *Indomethacin (Indocin®) or ibuprofen lysine given within 10 days of birth is successful in closing about 80% of defects.*
- *Surgical repair with ligation of the patent vessel if conservative treatment is unsuccessful.*

104.

Insensible water loss in neonates includes

urination

evaporated fluids

stool

Explanation:

Insensible water losses (IWL) occur as water evaporates from the skin (2/3) or the respiratory tract (1/3). IWL cannot be directly measured. Premature neonates have thin skin that allows for increased amounts of evaporative water loss. As the skin matures and the stratum corneum develops (around 31 weeks of gestation) less water is lost through the skin. A full-term neonate will have an IWL of 12/ml/kg/24 hours at 50% humidity. Factors that increase IWL include prematurity, radiant warmers, phototherapy, fever, low humidity, and tachypnea. Sensible water losses occur via urination, stool, and gastric drainage and can be accurately measured.

105.

A neonate, 2 days after birth, develops a generalized rash with erythematous papules, vesicles, and some pustules everywhere but on the palms and soles of feet. The most likely diagnosis is

erythema toxicum

neonatal pustular melanosis

cutis marmorata

Explanation:

Erythema toxicum is a skin eruption of erythematous papules, vesicles, and sometimes pustules. Erythema toxicum is essentially benign and occurs in ≥50% of newborns. It is a generalized rash everywhere except the palms and soles of the feet, usually occurring 2-3 days after birth. Neonatal pustular melanosis is a benign rash (vesicles and macules) but not associated with erythema. Cutis marmorata is a disorder in which the infant's skin mottles or marbles when exposed to cold, because the superficial blood vessels dilate and contract at the same time.

106.

A mother delivers a child with sickle cell disease, an autosomal recessive disorder. The recurrence risk for subsequent children being born with the disorder is

25% for each pregnancy and 50% chance the child will become a carrier

50% for each pregnancy and 25% chance the child will become a carrier

50% for each pregnancy and no carrier state

Explanation:

Autosomal recessive: Recurrence is 25% for each pregnancy and 50% risk of the child becoming a carrier. Autosomal dominant: Recurrence risk is 50%, but there is no carrier state. X-linked recessive: Recurrence risk is 50% for affected sons and 50% risk of daughters becoming carriers. Affected sons do not pass the disorder to sons, but all daughters become carriers. X-linked dominant: Father passes the disorder to 100% of daughters but no sons. Mother passes the trait to 50% of sons and 50% of daughters, but daughters are usually unaffected.

107.

A neonate born with the genetic disorder cystic fibrosis must be monitored carefully for

apnea

hypoglycemia

meconium ileus

Explanation:

Cystic fibrosis is a congenital disease associated with thick collection of mucous in the lungs and intestines. Up to a fifth of children born with cystic fibrosis have meconium ileus. Meconium ileus is obstruction of the ileum with inspissated (thick) mucilaginous meconium that clings to the side of the narrowed lumen of the intestine and forms hard pellets (usually the first clinical sign of cystic fibrosis). The mucus interferes with absorption of fat, protein, carbohydrates, and other nutrients, leading to malabsorption syndromes.

108.

The neural tube defect in which there is failure of the vertebral column to close, but no herniation through the opening is

spina bifida cystica

spina bifida occulta

myelomeningocele

Explanation:

Spina bifida occulta is the failure of the vertebral column to close, but no herniation through the opening so the defect may not be obvious. Spina bifida is a defect in which the vertebral column is not closed with varying degrees of herniation through the opening. Spina bifida cystica is a defect in closure with external sac-like protrusion with varying degrees of nerve involvement. Meningocele is spina bifida cystica with meningeal sac filled with spinal fluid. Myelomeningocele is spina bifida cystica with meningeal sac containing spinal fluid and part of the spinal cord and nerves.

109.

A neonate develops tremors of the chin and extremities with the following observations:

- Lack of ocular deviations or other abnormalities.
- Gentle restraint halts tremors.
- Stimulation elicits tremors.
- Clonic jerking has both fast and slow elements.
- Autonomic changes involving the heart rate, respirations, and blood pressure are not present.
- EEG is normal.

The most likely cause is

jitteriness

seizures

shivering

Explanation:

Jitteriness is distinct from shuddering, a 10-15 second period of fast tremors that may recur ≤100 times daily. Both jitteriness and shuddering are benign findings. Seizures indicate that there is an abnormality of the central nervous system and are differentiated by their associated abnormal movements:

- *Subtle: Feet pedaling, chewing, apnea, eye movements, or blank stare.*
- *Tonic: Tonic flexion or extension of the limbs, focal (one limb) or generalized.*
- *Clonic: Slow, clonic movements (1-3 per second), often in one extremity or one side of the body.*
- *Myoclonic: Focal, multi-focal, or generalized, with rapid jerking movements of the extremities.*

110.

Early-onset sepsis (≤72 hours) in the neonate most often presents as

bacteremia

meningitis

pneumonia

Explanation:

Early onset sepsis most often presents as pneumonia and late onset as bacteremia and/or meningitis. Neonatal sepsis is a particular risk for preterm infants <1000 g and may be associated with a wide range of pathogens, both bacterial and viral. Early onset (≤72 hours) is usually related to maternal transmission and late onset (4-90 days) to invasive devices. Septic pneumonia usually presents with tachypnea, sternal retraction, grunting respirations, cyanosis, and apneic periods.

111.

An infant with ABO incompatibility with the mother develops hyperbilirubinemia after birth. The neonate should be monitored for a few weeks after birth for

congestive heart failure

kernicterus

anemia

Explanation:

Anemia may develop in the weeks after delivery because of increased rate of RBC breakdown, so the neonate should be monitored with blood counts. About 20-25% of pregnancies involve ABO incompatibility, usually with the mother type O and the fetus A or B. There are rarely serious complications for the fetus although the neonate may develop hyperbilirubinemia, so the child should be observed carefully. Only in severe cases of hemolysis (rare), does the child require exchange transfusions.

112.

Transient neonatal strabismus usually clears by the age of

4 days

4 weeks

4 months

Explanation:

Because oculomotor control is poor in the neonate, transient neonatal strabismus involving intermittent exotropia or esotropia is common and usually clears by about 4 months without treatment. Strabismus occurs when the muscles of the eyes are not coordinated so that one eye deviates from the axis of the other. Deviations include:

- *Tropia, which is consistent or intermittent deviation in which the child is unable to maintain alignment of the eyes.*
- *Esotropia, in which both eyes turning inwards (cross eyes) and exotropia is both eyes turning outward (wall eyes).*

113.

A neonate exhibits the following:

- **Long narrow torso with short arms and legs.**
- **Proximal segment of the limbs (upper arms and thighs) disproportionately short.**
- **Head large with frontal bossing and midface hypoplasia.**

These characteristics are consistent with

Down syndrome

achondroplasia

fragile X

Explanation:

Achondroplasia is the most common cause of dwarfism. Bone growth is inhibited as the result of an abnormal gene on chromosome 4. Achondroplasia can be inherited in an autosomal dominant fashion, but the majority of cases (75-80%) occur with spontaneous mutations. Clinical features apparent at birth include a long narrow torso with short arms and legs. The proximal segment of the limbs (upper arms and thighs) is disproportionately short. The head is large, with frontal bossing and midface hypoplasia. A small hump (gibbus) may be present in the mid-to-lower back. Mild, generalized hypotonia may be present.

114.

A neonate delivered by Caesarean to a mother who smokes exhibits dyspnea, mild sternal retraction, expiratory grunt, nasal flaring, and poor feeding. ABGs show mild hypoxemia. The most likely cause is

transient tachypnea of newborn (TTN)

birth asphyxia

meconium aspiration syndrome (MAS)

Explanation:

Transient tachypnea of newborn (TTN) occurs when fluid in the lungs is not adequately absorbed after birth. The neonate usually exhibits symptoms within 36 hours of birth and the condition typically resolves within 3 days. TTN is most common in infants delivered by Caesarean section, but premature birth and mothers who smoke or have diabetes increase risk to infant. Symptoms include:

- *Dyspnea (>60/min).*
- *Sternal retraction (mild).*
- *Expiratory grunt.*
- *Nasal flaring.*
- *Poor feeding (because of increased respiratory rate).*

115.

On examining the neonate, the NP notes 9 café au lait spots with a diameter greater than 5 mm and freckles on the axilla and inguinal area. The infant should be tested for

neurofibromatosis type 1

Sturge-Weber syndrome

Addison's disease

Explanation:

Café au lait spots (CAL) are flat skin lesions with increased melanin content and regular or irregular borders. If the CAL spots are faint, one can use a Wood lamp to make them easier to see. Fewer than 3 café au lait spots have no clinical significance. However, 6 or more café au lait spots with a diameter larger than 5 mm occur in 95% of patients with neurofibromatosis type 1 (NF1), a disorder of chromosome 17. Lisch nodules on the child's iris and Crowe's sign (freckles on the axilla and inguinal area) corroborate the diagnosis of NF1.

116.

Identifying and treating congenital hypothyroidism within the first month of life is especially critical to prevent

respiratory abnormalities

thyroid cancer

intellectual disability

Explanation:

Untreated congenital hypothyroidism can result in profound intellectual disability, so diagnosing the disorder and beginning thyroxine treatment within the first month of life is essential. Newborn screening tests in most states mandate checking for hypothyroidism. Infants whose mothers received radioactive iodine treatment for thyroid cancer during pregnancy are especially at risk. Signs of congenital hypothyroidism include hypotonia, growth restriction, poor feeding, wide hands with stunted fingers, short extremities, edematous face, and thick protruding tongue.

117.

A neonate exhibits signs of hypoglycemia after birth and is treated only with a bolus of glucose. This treatment puts the infant at risk for

bolus-associated hyperglycemia

bolus-associated hypoglycemia

hyperinsulinism

Explanation:

A glucose bolus-associated occurrence of acute hypoglycemia can arise if a glucose bolus is given and not followed up with a continuous infusion because the body will produce more insulin to cover the bolus which will then start to use glucose stores as soon as the bolus stops. To prevent this, a steady infusion should be continued for a time period that is sufficient for the infant's insulin production to stabilize. Bedside tests for hypoglycemia with reagent sticks may overestimate hypoglycemia and should be confirmed with a serum level.

118.

A premature infant with apnea of prematurity (AOP) exhibits periods of apnea lasting >20 seconds in which the child has no airflow or effort to breathe. This type of apnea is classified as

central apnea

normal neonatal breathing pattern

obstructive apnea

Explanation:

Premature infants (especially those <34 weeks) often exhibit apnea of prematurity (AOP). AOP begins at birth and is believed caused by immaturity of the nervous system, improving as the brain matures. It may persist for 4-8 weeks. There are 3 types of apnea:

- *Central: no airflow or effort to breathe.*
- *Obstructive: no airflow, but effort to breathe.*
- *Mixed: both central and obstructive elements (75% of AOP).*

AOP symptoms include swallowing during apneic periods, apnea >20 seconds, apnea <20 seconds with bradycardia 30 beats below normal, oxygen saturation <85% persisting ≥5 seconds, and cyanosis.

119.

A neonate develops early-onset bacterial meningitis. Typical early symptoms include

bulging fontanels, seizures, nuchal rigidity

hyperthermia, lethargy, nuchal rigidity

temperature instability, lethargy, poor feeding, and hypotension

Explanation:

Meningitis is often difficult to diagnose in the neonate because it has early nonspecific clinical findings of irritability, lethargy, poor feeding, temperature instability, and hypotension. The more specific neurological symptoms of seizures or bulging fontanels are seen in late onset infection. Nuchal rigidity does not usually occur with neonates. Bacterial infections usually arise from spread of distant infections but can enter the CNS from surgical wounds, invasive devices, or nasal colonization. CSF findings suggestive of bacterial meningitis include:

- *Decreased glucose.*
- *Elevated protein.*
- *White blood cell values in CSF greater than 100 WBC/dL.*

120.

A neonate who was exposed to maternal herpes virus should be treated with

IV gentamicin

IV acyclovir

topical acyclovir

Explanation:

Intravenous acyclovir is given to infants exposed to herpes virus. Most vertical transmissions occur when the neonate travels through a colonized birth canal. The transmission rate from women with a primary HSV infection is approximately 50%, while the transmission rate is 1-2% if the infection is a recurrence of HSV. Signs of a neonatal infection with HSV include:

- *Skin, eye, and mucous membrane blistering at 10-12 days of life.*
- *Disseminated disease may spread to multiple organs, leading to pneumonitis, hepatitis, and intravascular coagulation.*
- *Encephalitis may be the only presentation, with signs of lethargy, irritability, poor feeding, and seizures.*

121.

A mother brings her term infant (and first child) for an exam at 2 weeks after birth. The baby has not regained birth weight, appears listless, face drawn, and skin turgor is poor. The mother is breastfeeding. The most appropriate first action is

question mother about nursing technique and frequency, and observe the infant nursing

report the mother to child protective services for neglect

advise the mother to stop breastfeeding and switch to formula

Explanation:

The mother should be questioned about her nursing technique and frequency and observed while nursing the child. Since this is her first child, she may need further assistance in nursing properly to ensure the infant receives adequate nutrition. While further tests may be indicated, these signs are indicative of dehydration and poor nutrition, so that should be dealt with first. As

there are no other indications of neglect, referral to child protective services is not appropriate at this time. Switching from human milk to formula is rarely necessary if mothers receive adequate support and instruction.

122.

The type of hearing loss associated with *in utero* rubella infection is

conductive

central

sensorineural

Explanation:

Sensorineural hearing loss occurs when the cochlea is impaired or damaged by a genetic syndrome, in utero infections like rubella, postnatal meningitis, or ototoxic medication (such as aminoglycoside antibiotics or the diuretic furosemide). Conductive hearing loss occurs from an abnormality in the sound conduction system in the outer and middle ears (external ear canal, tympanic membrane, and auditory ossicles). Central hearing loss is rare and occurs when defects or damage of the auditory nervous pathway or auditory brain centers are present in infants with kernicterus, episodes of hypoxia, or intraventricular hemorrhage.

123.

The lab abnormalities seen with HELLP syndrome are

no hemolysis, lower than normal liver enzymes, and elevated platelets

hemolysis, elevated liver enzymes, and low platelets

elevated white blood cell count, lower than normal liver enzymes, and low platelets

Explanation:

HELLP syndrome is a serious liver disorder that can occur in the last trimester in pregnancy. It is characterized by hemolysis, elevated liver enzymes, and low platelets. Most women who develop HELLP syndrome also have preeclampsia, which is the greatest risk factor for developing this condition. The mother will have very high blood pressure, nausea, abdominal pain, and swelling. Treatment begins with delivery of the baby, even if it is premature. Symptomatic treatment with IV fluids, anti-hypertensives, and vasodilators are given to the mother. It can be fatal if it is not treated.

124.

A woman who is known to have hepatitis B is delivering her first baby. Treatment of the infant should include

hepatitis B immunoglobulin within 6 hours of birth and the hepatitis B vaccine at 5 years of age

hepatitis B vaccine given within the first year of life

hepatitis B vaccine and hepatitis B immunoglobulin given within 12 hours of birth

Explanation:

It is imperative to administer the hepatitis B vaccine and hepatitis B immunoglobulin to these infants within 12 hours of birth. Hepatitis B is transmitted from the mother to the fetus during pregnancy. Approximately 40% of infants of hepatitis B positive women will develop the disease, and up to 25% of those will die from chronic liver disease. Routine vaccination of all infants is usually given within 24 hours of birth.

125.

What substance helps to keep the amniotic sac intact within the uterus?

Fetal fibronectin

Amniotic bands

Surfactant

Explanation:

Fetal fibronectin is a protein that helps to keep the amniotic sac adhered to the wall of the uterus. This substance begins to break down towards the end of the pregnancy. If there is suspicion that preterm labor may be imminent, a swab may be done of the secretions on the cervix. If fetal fibronectin is present, it can be a sign that there is an increased risk for preterm labor.

126.

What is measured with the quad screen test?

Amniotic fluid levels, maternal fasting blood sugar, fetal DNA, and maternal HIV status

Fetal DNA, fetal glucose level, estriol, and alpha-fetoprotein levels

Alpha-fetoprotein, human chorionic gonadotropin, estriol, and inhibin-A

Explanation:

The quad screen is performed at 15-20 weeks of pregnancy via a blood test. It measures alpha-fetoprotein, human chorionic gonadotropin, estriol, and inhibin-A. Alpha-fetoprotein is made in the liver of the fetus and elevated levels may indicate a neural tube defect such as spina bifida. Human chorionic gonadotropin is made by the placenta and levels vary during pregnancy. Estriol is a form of estrogen made by the placenta and levels increase during pregnancy. Inhibin-

A is a hormone produced by the fetus and the placenta and abnormal levels may indicate the presence of Down syndrome.

127.

When monitoring the fetal heart rate during labor, which of the following is most likely to be most dangerous to the fetus?

Early decelerations during the late stages of labor

Late decelerations without accelerations

Occasional, brief, variable decelerations followed by accelerations

Explanation:

Late decelerations present as smooth decreases in heart rate that begin at the peak of a contraction. When late decelerations occur along with tachycardia and without an acceleration, or a return to normal heart rate range, it can be a sign that the fetus is not getting enough oxygen. Early decelerations begin before the contraction peaks and usually occur as the fetus passes through the birth canal and the skull is compressed. They are generally not harmful. Variable decelerations occur when the umbilical cord is temporarily compressed and are very common during labor. They are usually not harmful when they occur later in labor and are followed by an acceleration. When variable decelerations occur early in labor, and if they are severe, emergent delivery of the baby may be necessary.

128.

Which of the following medications may be given to slow down preterm labor contractions?

Cytotec

Terbutaline

Pitocin

Explanation:

Tocolytics are drugs that are given to slow down or stop preterm labor. They are generally not used before 23-24 weeks of pregnancy and may be used as late as 36 weeks of pregnancy. Terbutaline is in a class of drugs called beta-mimetics. It is used to decrease uterine contractions by relaxing the uterine musculature. It can cause nervousness, tremors, headache, and tachycardia. Cytotec is given as a pill or vaginal suppository to help soften the cervix to induce labor. Pitocin is used to increase uterine contractions and cervical dilation to induce labor.

129.

Which breech presentation at birth presents with the buttocks only passing through the birth canal first?

Frank breech

Footling breech

Complete breech

Explanation:

A complete breech presentation is one in which the legs of the fetus are extended upward so that the feet are near the head. This results in the buttocks passing through the birth canal first. A frank breech occurs when the knees of the fetus are bent so that the feet are near the buttocks. A footling breech occurs when the fetus is foot down and one or both feet present first through the birth canal.

130.

Which of the following potential side effects can occur as a result of forceps being used during delivery?

Sudden infant death

Facial palsy

Cerebral palsy

Explanation:

There is a risk of facial palsy (usually temporary) and minor facial or external eye injury with forceps use. Forceps may be used during delivery to assist the neonate's passage through the birth canal, especially if the mother or infant are in distress. Rarely, a skull fracture or bleeding within the brain can occur.

131.

What is a major risk factor for chorioamnionitis?

Premature rupture of the membranes

Maternal tobacco use during pregnancy

There are no known risk factors for chorioamnionitis

Explanation:

Chorioamnionitis is an acute infection and inflammation of the membranes and is commonly caused by a premature rupture of the membranes. This eliminates the protective barrier surrounding the fetus and increases the risk for pathogens to ascend into the uterus. Less

commonly, chorioamnionitis can occur in the absence of membrane rupture. Long-term effects of this condition to the neonate include stillbirth, premature birth, sepsis, chronic lung disease, and brain injury or cerebral palsy. The mother can develop postpartum infections and sepsis.

132.

If a patient's membranes rupture and meconium-stained amniotic fluid is noted, the next step should be

fetal scalp blood sampling

Caesarean

increased fetal monitoring

Explanation:

Meconium-stained amniotic fluid is an indication for immediate Caesarean to decrease the risk of meconium aspiration. Immediately following birth:

- *If the infant is crying and showing no signs of distress, the mouth, nose, and throat should be suctioned.*
- *If the infant shows signs of respiratory distress in the presence of meconium-stained fluid, the infant should be immediately intubated with an endotracheal tube for the purpose of suctioning the trachea.*
- *Once the airway has been adequately suctioned and cleared, the stomach may need to be suctioned as well in order to prevent the regurgitation of the swallowed meconium.*

133.

What is the purpose for CCHD screening in newborns?

To identify infants with severe congenital heart disease

To identify infants born with a cleft lip or palate

To identify infants born with chromosomal abnormalities

Explanation:

The CCHD screening identifies those infants who may have a critical congenital heart defect that requires early surgical intervention. This screening is performed using pulse oximetry in the newborn nursery to measure the oxygen saturation in the blood of infants. This screening decreases the risk of overlooking a critical congenital heart defect that may require early intervention.

134.

While assessing a newborn in the NICU, the NP notices that he has pitting edema on the right side of his scalp. The next step should be to

immediately contact the neonatologist on call and let them know of these findings

continue to monitor for any change in the symptoms

stop all IV fluids and monitor closely to see if the swelling decreases

Explanation:

Pitting edema in the soft tissues of the scalp is not uncommon after birth, due to trauma on the baby's scalp while moving through the birth canal. This condition is called caput succedaneum and is most evident immediately after birth. It usually resolves rather quickly over the first 24-48 hours following birth and just needs to be monitored for any changes.

135.

The parents of a newborn ask the NP about the white bumps they have noticed along their baby's upper gum line. The best response is that

he is starting to develop teeth at a very young age

these are small cysts that will go away on their own within 1-2 weeks

these are skin lesions on his gums that need to be evaluated by a dentist

Explanation:

Whitish bumps, or cysts, along the gum or roof of the mouth are called Epstein's pearls. They are very common and occur in about 80% of newborns. These will resolve on their own within the first couple of weeks of life and do not require any treatment.

136.

When the NP is assessing a newborn's respiratory status, which would indicate the newborn is developing respiratory distress?

Nasal flaring

Pink skin color

Respiratory rate of 40 breaths per minute

Explanation:

Nasal flaring is seen in newborns as an attempt to widen the nares and take in more oxygen. Other signs of respiratory distress include retractions, tachypnea, grunting, and abnormal breath

sounds. Pink skin color is reflective of a health newborn with good perfusion. A respiratory rate of 40 breaths per minute is within the normal range for a newborn.

137.

The NP is assessing a newborn and notices faint perioral cyanosis. The first response should be to

start oxygen via a mask

activate the Code Blue protocol for your facility

assess the rest of their body to see if there is any cyanosis present in the extremities or if the infant is exhibiting any retractions or other signs of respiratory distress

Explanation:

The first step should be to assess the rest of the infant to see if this is truly cyanosis. It is not uncommon for the face to undergo some trauma while passing through the birth canal, which can cause areas of bruising. It can be differentiated from cyanosis by assessing whether it is present in the distal extremities or if the infant is showing any signs of respiratory distress. Facial bruising may take several days to gradually fade.

138.

The NP is checking the blood pressure of a newborn. It is 64/40. What should the next step be?

Begin monitoring it very closely, at least once every 10 minutes, to assess for changes

Activate the Code Blue protocol for the facility

Record the blood pressure as a normal reading and continue the assessment of the newborn

Explanation:

A normal newborn blood pressure is 64/41. This usually rises to 95/58 around the first month of age. Premature infants will have even lower blood pressures unless their medical condition results in an elevation in blood pressure. In this situation, the NP should record the reading and continue with the newborn assessment.

139.

When the NP is assessing a newborn, the reflex that results in abduction and extension of the infant's arms as the hands open is the

grasp reflex

Moro reflex

asymmetrical tonic reflex

Explanation:

The Moro reflex is checked by quickly lowering the infant's head relative to the trunk and is present as early as 32 weeks gestation. Positive signs of this reflex include the abduction and extension of the infant's arms as the hands open. It is no longer present by the time the infant is 6-months-old. The grasp reflex is the reflexive action of bending the fingers around an object placed in the palm. The asymmetrical tonic reflex is also called the "fencing" reflex. When the infants head is turned to one side, the arm and leg of the side at which the face is turned extend and the arm and leg on the opposite side flex.

140.

An elevated serum lactate level in an infant in the Neonatal Intensive Care Unit is associated with

rapid lung maturation

increased risk of death

poor GI absorption of nutrients

Explanation:

Lactic acid is increased in situations of tissue hypoxia, which can lead to severe metabolic acidosis. This can occur with sepsis, heart failure, shock, and multisystem organ failure. Studies have shown that elevations in serum lactate in the first week of life correlate with an increase in mortality rates. This risk is higher in infants born less than 1000 g.

141.

In what order should resuscitative efforts in the premature infant with hydrops fetalis and bilateral pleural effusions be performed?

Cutting of the umbilical cord, resuscitative measures, then emergency thoracentesis

Cutting of the umbilical cord, emergency thoracentesis, then resuscitative measures

Emergency thoracentesis, cutting of the umbilical cord, then resuscitative measures

Explanation:

Hydrops fetalis is a potentially life-threatening condition in which accumulating fluid is present in at least two body cavities (abdomen, pleura, or pericardium). Traditionally, this has been treated through removal of the fluid after the umbilical cord has been cut and resuscitative measures started. It has recently been found that the prognosis is improved if the neonate remains attached to the placenta via the umbilical cord so they continue to receive oxygenated

blood from the mother. The fluid can be drawn off and then the cord can be clamped before resuscitative measures are started.

142.

The NP has received a lab report on the CSF of a newborn who underwent a lumbar puncture. The lab report shows the glucose level in the sample is 100 mg/dL. This value is interpreted to mean

the newborn is most likely diabetic

the newborn likely has meningitis

the newborn has a normal CSF glucose level

Explanation:

The normal glucose level in cerebrospinal fluid in a newborn is 35-120 mg/dL. A value of 100 would be normal for this infant. Diabetes mellitus may cause CSF glucose levels to be elevated. Meningitis can cause CSF glucose to be normal with viral meningitis, low with bacterial meningitis, and normal to low in fungal meningitis.

143.

A term neonate is diagnosed at birth with osteogenesis imperfecta (OI) type 1. The information that the parents should receive before taking the infant home includes

correct methods of handling, bathing, and placing their child in the crib

close monitoring for breathing problems common to this defect

correct methods for feeding to prevent aspiration

Explanation:

The parents of an infant with OI type 1 should receive information about methods of handling, bathing, and placing their child in the crib to minimize trauma and avoid fractures. OI is a genetic disorder of collagen synthesis that results in brittle, easily fractured bones. Common features of OI include brittle bones, bowing of long bones, shortened limbs, blue sclera, skeletal deformities (including scoliosis), respiratory difficulties, and weak muscles. Type 1 is non-lethal and the mildest of 4 types of OI. OI type 2 causes severe breathing problems that often prevent the neonate's survival. OI infants do not generally require feeding tubes or have aspiration risks. OI is usually inherited in a dominant fashion, but a new mutation may cause the disorder in approximately 25% of cases.

144.

Parents of a newborn in the NICU are concerned about their baby having an IV placed in their scalp. To reassure them, the NP explains that

there are no mature nerve endings in the scalp and it is not painful for the infant to have the IV in that location

the peripheral veins are not yet mature enough to handle IV therapy

the IV needs to be in an area with less fat so the vein can be clearly visualized

Explanation:

Though not the first choice for an IV site, the scalp is used once other sites in the hands and feet have already been used. The scalp is a good site because there is very little fat under the skin so the veins are easily visible.

145.

Parents of a newborn have opted to not have their son circumcised. When providing them with care instructions, they will need to know

the child should receive an annual exam by a urologist to evaluate the uncircumcised penis

the foreskin should be completely retracted for cleaning and the area should be dried well

though the circumcision was not done in the hospital, they will need to follow-up with their pediatrician so it can be done before age 2

Explanation:

Full retraction of the foreskin with cleaning, and keeping the area complete dry after washing, helps to prevent any infections. Bacteria, fungus, and moisture can be trapped within the foreskin, which can lead to a painful infection. Infections can become severe enough to cause significant swelling of the foreskin, which can prevent it from being able to be retracted down over the penis.

146.

Which of the following is a potential risk when using an extracorporeal membrane oxygenation (ECMO) device?

Blood clots

Electrolyte abnormalities

Blindness

Explanation:

An extracorporeal membrane oxygenation (ECMO) device is used in infants who are not able to breath or pump blood on their own. It is a type of heart-lung bypass machine that circulates

blood from the infant, through an artificial lung to oxygenate the blood, and then back into the infant to circulate through the body. Some of the potential risks include the formation of blood clots, bleeding, or infection. Blindness (specifically, retinopathy of prematurity) was a common complication of excessive supplemental oxygen in the 1940's prior to advances and research in oxygen administration. Generally, electrolyte levels are not impacted by ECMO.

147.

What change in arterial blood gas values would be expected in a patient with compensated respiratory acidosis?

$PaCO_2$ is elevated and blood pH is decreased

$PaCO_2$ is decreased and blood pH is normal

$PaCO_2$ is elevated, blood pH is normal, and serum bicarbonate (HCO_3) is elevated

Explanation:

Respiratory acidosis occurs when a person is not being adequately oxygenated. This results in an elevated $PaCO_2$ level and a decreased blood pH level. When the body attempts to compensate for this abnormality, the serum bicarbonate (HCO_3) level is elevated to offset the acidic level of the blood pH. This results in a continued $PaCO_2$, a normal blood pH level, and an elevated HCO_3 level.

148.

The grief theory that identifies that grief is not a linear process, but rather, a more fluid and ever-changing process was outlined in

Freud's Model of Bereavement

Kubler-Ross Grief Cycle

Bowlby's Attachment Theory

Explanation:

Kubler-Ross identified 5 phases that a person will go through during the grieving process. These are denial, anger, bargaining, depression, and acceptance. A person does not pass through these phases during the grieving process on a step-by-step basis. They may drift in and out of one phase and into another very fluidly. They may also go back to phases they experienced and go through them again.

149.

A 64-year-old female has been told that her husband has terminal, metastatic cancer and life expectancy is most likely less than 6 months. She is feeling very anxious, depressed, and moody since he received this diagnosis. These emotions are part of

delayed grief

exaggerated grief

anticipatory grief

Explanation:

Anticipatory grief is the period that some people go through when it is learned that a loved one's death is eminent. Not everyone experiences this, but it can help a person to accept the impending death of their family member or friend. During this time, people often feel depressed or anxious, they may begin plans for the changes that will come when the person has passed, or they may take that time to share feelings and emotions with the loved one they are preparing to lose. If a person experiences anticipatory grief, it may help them to adjust to the changes that will occur once the person has died.

150.

The newborn with hypothermia has an increased risk of developing

hypoglycemia

metabolic alkalosis

respiratory acidosis

Explanation:

Persistent hyperthermia can lead to hypoglycemia. There may be a period of transient hyperglycemia when glycogen stores are used to increase glucose levels, but this is followed by hypoglycemia as energy demands exceed glucose supply. This can lead to metabolic acidosis, not alkalosis.

151.

Five minutes after birth, a newborn infant is actively moving, crying, skin is pink all over, and heart rate is 132. Based on this information, you know this infant's Apgar score is

8

9

10

Explanation:

The Apgar score is assessed one minute and again five minutes after birth. The initial reading is to assess how the newborn did through the birthing process. The second is done to assess how the newborn is doing outside the womb. The infant's activity level, heart rate, breathing pattern,

skin color, and grimacing response are assessed and 0-2 points are assigned based on their condition. This infant is showing all signs of a healthy newborn, scoring 2 points in each section for a total of a perfect 10.

152.

According to the American Heart Association, when should chest compressions be started in the pediatric patient?

If there is no detectable pulse

If the pulse is less than 60 beats per minute or there are signs of poor perfusion

If there is a normal pulse but signs of respiratory distress

Explanation:

According to the American Heart Association, chest compressions should be started on the pediatric patient if the pulse is less than 60 beats per minute or if there are signs of poor perfusion. If one person is performing CPR, the rate is 30 compressions followed by 2 breaths. If 2-person CPR is being performed, the cycle should be 15 compressions followed by 2 breaths.

153.

During the first few months of life, the newborn is only able to digest those proteins found in

cow's milk or human milk

formula or human milk

formula, human milk, or cow's milk

Explanation:

The digestive system of the newborn begins maturing soon after birth. For the first few months, however, the only proteins it is able to digest are those found in formula or human milk. That is why it is advised that cow's milk not be begin to babies within the first year of life. The GI tract has also not fully matured with the necessary microorganisms that aide in digestion. Development and maturation of the GI tract continues for the first 2 years of life.

154.

The parents of a neonate are considering genetic testing for their son because the father was recently diagnosed with Huntington's disease. They ask the NP's opinion. The most appropriate response is

"Testing the infant now may help relieve your anxiety, but will not change the outcome."

"Testing is available for individuals older than ten years of age."

"The information can't be used for health purposes now, and your child may want to make this decision himself when he is older."

Explanation:

The information derived from testing for Huntington's disease cannot be used for health promotion or disease prevention, so the parents should be counseled to wait until the child is at the age to make an informed decision about whether to have testing. This type of information can be devastating to young people who are not provided adequate support and counseling prior to testing. Some people with adult-onset diseases choose not to be tested, and childhood testing robs them of this choice.

155.

What method should be used to feed the preterm infant with a weak sucking reflex?

Gavage feeding

PEG tube

Thickened liquids given orally

Explanation:

Gavage feeding is used to provide nutrition to the infant with a poor sucking reflex, tachypnea, respiratory distress, impaired swallowing, or apneic spells. A nasogastric tube is placed and formula or human milk is slowly fed through the tube with a syringe. Often, the baby will be soothed or gently touched during the feeding to promote positive reinforcement with sucking. The feeding should be stopped if the baby exhibits signs of gasping or choking.

156.

How many calories does a preterm infant require per day?

50-100 kcal/kg/day

100-150 kcal/kg/day

150-200 kcal/kg/day

Explanation:

The preterm infant needs 100-150 kcal/kg/day in order to complete development and gain weight. A term infant generally needs 100-120 kcal/kg/day for normal growth and development.

Adequate nutrition to meet the nutritional needs of the preterm infant can help to prevent poor outcomes and help to improve adequate nervous system development.

157.

A preterm infant in the NICU is receiving tube feedings until he is able to attempt oral feedings. What activity can help him with the transition from tube to oral feedings?

Playing soft music during tube feedings

Give him a pacifier to suck on during the tube feedings

Gently rub his stomach during tube feedings

Explanation:

Non-nutritive sucking, such as that with a pacifier, is having an infant suck on something that does not give them milk. For infants who are tube fed, it can trigger an association with them between having a full stomach and sucking, which can help when transitioning to oral feedings. The sucking activity is also helpful in strengthening the oral muscles needed to suck, as well as being soothing and calming for the infant.

158.

Which of the following is an indication for parenteral nutrition in the premature infant?

Oxygen saturation less than 90%

Very low birth weight infants (less than 1500 g)

Difficulty latching on for breastfeeding

Explanation:

Parenteral nutrition is given via intravenous route. It is used when enteral feeding via a tube directly in the GI tract is not possible. This is most often due to a very low birth weight, less than 1500 g. Enteral feedings are delayed in these infants due to immature lung function requiring intubation, hypotension, hypothermia, and infection risk. Also, the GI tract in these infants may not tolerate feedings that require digestion by normal means.

159.

How does the protein content in colostrum compare to the protein content in mature human milk?

The protein content is lower in colostrum than mature human milk

The protein content is equal in both

The protein content is higher in colostrum than mature human milk

Explanation:

The first form of human milk that can be expressed is called colostrum. This is produced for the first few days, up to a week, following delivery. It has a higher protein content than mature human milk. Colostrum can contain up to 17% protein, while mature human milk contains only about 1% protein.

160.

Which vitamin should be given to infants at risk for bronchopulmonary dysplasia?

Vitamin A

Vitamin B

Vitamin C

Explanation:

Very low birth weight infants are at risk for developing bronchopulmonary dysplasia. Nutritional support can possibly help to decrease the development of this condition. Vitamin A helps with lung maturity, and supplementation with this vitamin may help to prevent this condition. Parenteral nutrition also helps with lung development to ensure the infant is receiving the proteins and lipids needed to help with lung maturity.

161.

A premature infant in the NICU has a G-tube and the NP is starting his scheduled feeding. The formula is backing up in the tube and not flowing smoothly. The next intervention would be to

flush with an air bolus then aspirate to confirm placement

flush the tube with 20 cc of a carbonated soft drink

flush the tube with 5-10 cc warm water and try aspirating and flushing if there is resistance

Explanation:

A G-tube should be flushed with warm water before and after all feedings to ensure patency and remove any build-up of formula within the tube itself. Neither air nor carbonated soft drink should be flushed into the tube.

162.

Which of the following will have the greatest amount of insensible water loss?

Normal size and full-term

Small size and decreased gestational age

Small size and full-term

Explanation:

Insensible water loss is that water that passes through the skin and evaporates and the water that evaporates through the respiratory tract. Newborns have a relatively large surface area through which there can be increased amounts of insensible water loss. This loss will be at its greatest in the early gestational age infant that is smaller.

163.

A premature infant in the NICU has a nasogastric drain. The results of her arterial blood gases are as follows:

- **pH – 7.5**
- **HCO_3 – 29**
- **pCO_2 – 37**

Based on these values, which acid-base disorder has this infant developed?

Respiratory alkalosis

Metabolic acidosis

Metabolic alkalosis

Explanation: