Section 6

Pregnancy and Nursing

Directions: Choose the best answer

1497. Synthesis of milk by the mammary gland specifically requires
A. Oxytocin
B. Vasopressin
C. Prolactin
D. Placental lactogen
E. Neurohumoral reflexes

1498. All of the following are accurate statements with managing opioid-dependent pregnant patients experiencing withdrawal symptoms when the drug is discontinued, EXCEPT:
A. Methadone frequently is used to treat acute withdrawal from opioids
B. Current federal regulations restrict the use of methadone for the treatment of opioid addiction to specially registered clinics
C. Methadone may be used by a physician in a private practice for temporary maintenance or detoxification when an addicted patient is admitted to the hospital for an illness other than opioid addiction
D. Methadone may never be used by a private practitioner in an outpatient setting when administered daily.
E. Methadone may be used by a private practitioner in an outpatient setting when administered daily for a maximum of three days

1499. In general, medicines that are safe for lactation are:
A. Highly protein bound
B. Lipid soluble
C. Long acting
D. Low molecular weight
E. Un-ionized state

1500. What is the most critical period for fetal exposure to a drug?
A. 1st week of pregnancy
B. 5th week of pregnancy
C. 13th week of pregnancy
D. 24th week of pregnancy
E. 32nd week of pregnancy

1501. A patient presents in her fifth pregnancy with a history of numbness and tingling in her right thumb and index finger during each of her previous four pregnancies. Currently, the same symptoms are constant, although generally worse in the early morning. Symptoms could be somewhat relieved by vigorous shaking of the wrist. Neurologic examination revealed atrophy and weakness of the abductor pollicis brevis, the opponens pollicis, and the first two lumbrical muscles. Sensation was decreased over the lateral palm and the volar aspect of the first three digits. Numbness and tingling were markedly increased over the first three digits and the lateral palm when the wrist was held in flexion for 30 s. The symptoms suggest damage to
A. The radial artery
B. The median nerve
C. The ulnar nerve
D. Proper digital nerves
E. The radial nerve

1502. Of those infants born with a congenital malformation, what percentage will have a clear environmental link?
A. <1%
B. 2-3 %
C. 1-15%
D. 20-30%
E. 40-50%

1503. The fetal hydantoin syndrome is characterized by all except:
A. Microcephaly
B. Mental deficiency
C. Short stature
D. Craniofacial deformities
E. Variable dimorphic features
A. There are no appropriate prophylactic medicines for nursing mothers and she should switch to bottle.
B. Beta blockers have been used in nursing mothers with minimal neonatal effect.
C. The amitriptyline she used before she was pregnant was fine to resume.
D. Topiramate has no effects on the baby and she will lose weight faster.
E. Ergotamine should be used at the onset of a headache.

1504. Onset of spontaneous ventilation at birth causes all the following EXCEPT
A. A decrease in pulmonary vascular resistance
B. An increase in systemic vascular resistance
C. An increase in left atrial pressure with a functional closure of the foramen ovale
D. Anatomic closure of the foramen ovale 1 month after birth
E. Functional closure of the ductus arteriosus 10 to 15h after birth

1505. The use of epidural steroid during a limited trial during pregnancy probably poses
A. Severe fetal risk
B. Moderate fetal risk
C. Minimal fetal risk
D. No fetal risk
E. Severe maternal risk

1506. A 28 African American male presents to the emergency room agitated and complaining of severe knee pain and swelling. Urine toxicity screen reveals cocaine. His mother demands to speak to you and volunteers that he has sickle cell anemia. Which of the following is most appropriate for pain management?
A. Ketorolac 60 mg q6 hours
B. Acetaminophen 650 mg q2-3hours
C. Meperidine 50mg q2hours
D. Codeine 30mg q6 hours
E. Hydromorphone 0.2mg-0.4mg q6-10minutes in a patient controlled analgesia form

1507. Following childbirth, a woman experienced urinary incontinence, particularly when coughing. This was most likely caused by tearing of the
A. Puborectalis muscle
B. Obturator internus muscle
C. Pubococcygeus muscle
D. Superficial transverse perineus muscle
E. Piriformis muscle

1508. The most common cause of pain in buttocks pain in pregnancy is:
A. Sacroiliac pathology
B. Lumbar radiculopathy
C. Urinary tract infections
D. Ilioinguinal entrapment
E. Lumbar facet arthropathy

1509. In general, medicines that are safe for lactating mothers are:
A. Highly protein bound
B. Fat soluble
C. Long acting
D. Low molecular weight
E. Unionized state

1510. A nursing mother with a history of severe migraines prior to her pregnancy, presents to your clinic to discuss headache prophylaxis. You tell her:

1511. A 43-year-old woman is brought to a hospital emergency room by her brother. Visiting the halfway house in which she lived, he had found her to be lethargic, with slurred speech. The patient had a long history of treatment for psychiatric problems, and the brother feared that she might have overdosed on one or more of the several drugs that had been prescribed for her. Physical examination revealed tachycardia with irregular heart rate, shallow respirations, decreased bowel sounds, dilated pupils, and hyperthermia. An ECG revealed a widened QRS complex with diffuse T wave changes. If this patient had taken a drug overdose the most likely causative agent was
A. Clozapine
B. Fluoxetine
C. Lithium
D. Thioridazine
E. Zolpidem

1512. In treatment for acute withdrawal from sedative-hypnotics in a pregnant women, the following drugs are used, EXCEPT:
A. Phenobarbital
B. Diazepam
C. Chlordiazepoxide
D. Lorazepam
E. Morphine

1513. A patient is 36-weeks pregnant and complains of bilateral carpal tunnel syndrome. The most appropriate course of action is
A. Surgical release under local anesthesia
B. Nonsteroidal antiinflammatory drugs
C. Physical therapy with cockup splint
D. Steroid injections
E. Amitriptyline

1514. Which of the following is a characteristic of the male (compared with the female) pelvis?
A. An oval-shaped (as opposed to a heart-shaped) pelvic inlet
B. A relatively shallow (as opposed to deep) false pelvis with ilia that are flared
C. A pelvic outlet of larger diameter
D. A narrow subpubic angle between the pubic rami
E. None of the above
1515. Neural tube defects may occur with which of the following antiseizure drugs?
A. Ethosuximide  
B. Vigabartin  
C. Phenobarbital  
D. Valproic acid  
E. Primidone

1516. A newly delivered mother wants to breast-feed her healthy infant, but that her obstetrician was concerned about one of the medicines she was taking. Which of the woman's medicines, listed below, is clearly contraindicated in breast-feeding?
A. Ibuprofen as needed for pain or fever  
B. Labetolol for her chronic hypertension  
C. Lithium for her bipolar disorder  
D. Carbamazepine for her seizure disorder  
E. Acyclovir for her HSV outbreak

1517. During pregnancy, treatment of migraine may include:
A. Ergot/caffeine  
B. DHE/Reglan  
C. Cafergot  
D. Amitriptyline  
E. Usually not necessary as migraine frequency and severity is reduced, and the above-listed drugs are contraindicated.

1518. Which of the following poses the greatest risk of fetal harm?
A. Multivitamins  
B. Acetaminophen  
C. Prednisone  
D. Metoprolol  
E. Ergotamine

1519. A pregnant patient in the 2nd trimester complains of diabetic peripheral neuropathy. The medication with least risk of terotogenicity
A. Gabapentin  
B. Mexiletine  
C. Ibuprofen  
D. Oxycodone  
E. Amitriptyline

1520. Which of the following drugs is most compatible with breast feeding?
A. Amitriptyline, FDA category D  
B. Imipramine, FDA category D  
C. Ergotamine, FDA category X  
D. Diazepam, FDA category D  
E. Valproic acid, FDA category D

1521. Studies show that methadone maintenance in the mother, compared to untreated opioid abusers is associated with
A. Shorter gestation and increased birth weight  
B. Longer gestation and increased birth weight  
C. Shorter gestation and decreased birth weight  
D. Longer gestation and decreased birth weight  
E. All of the above

1522. Local anesthetic would produce the lowest concentration in the fetus relative to the maternal serum concentration during a continuous lumbar epidural
A. Mepivacaine  
B. Etidocaine  
C. Bupivacaine  
D. Chloroprocaine  
E. Lidocaine

1523. A 32-year-old woman who had epidural analgesia (bupivacaine and morphine) for vaginal delivery of a 9-lb, 6-oz baby boy complains of numbness and footdrop 24h after delivery. The most likely cause is
A. Transient neurologic deficit due to compression of the nerves by the baby during delivery  
B. Permanent neuropathy from pelvic neural compression  
C. Herniated intervertebral disk  
D. Ischemia of the conus medullaris  
E. Myelopathy due to epidural analgesia

1524. True statements about addiction during pregnancy is:
A. The prevalence of substance abuse during pregnancy is significant  
B. Women addicted to drugs always have regular menstrual cycles  
C. Women addicted to drugs are unable to conceive  
D. A pregnant woman generally finds out that she is pregnant within a few weeks  
E. Less than 2% of pregnant women use illegal substances during pregnancy

1525. Elevated estrogen levels during the menstrual cycle
A. Decreased LH levels  
B. Downregulate FSH receptors on granulosa cells  
C. Increase FSH cells  
D. Increase the ciliation of the epithelial cells of the oviduct  
E. Decrease synthesis and storage of glycogen in the vaginal epithelium

1526. The most frequent psychiatric disorder of postpartum women is:
A. An episode of mild schizophrenia  
B. An episode of mania  
C. Postpartum “baby blues”  
D. Major depression  
E. Postpartum psychosis

1527. A full-term male infant displays projectile vomiting 1 h after suckling. There is failure to gain weight during the first two weeks. The vomitus is not bile-stained and no respiratory difficulty is evident. Examination reveals an abdomen neither tense nor bloated. The most probable explanation is
A. Congenital hypertrophic pyloric stenosis  
B. Duodenal atresia  
C. Patent ileal diverticulum  
D. Imperforate anus  
E. Tracheoesophageal fistula
1528. In which stage of pregnancy do major pharmacokinetic changes of lithium metabolism occur?
A. Postpartum and during breast-feeding
B. At delivery
C. Third trimester
D. Second trimester
E. First trimester

1529. An infant born at 35 weeks’ gestation to a mother with no prenatal care is noted to be jittery and irritable, and is having difficulty feeding. Child had coarse tremors on examination. The nurses report a high-pitched cry and note several episodes of diarrhea and emesis. It is suspected that the infant is withdrawing from
A. Alcohol
B. Marijuana
C. Heroin
D. Cocaine
E. Tobacco

1530. Which of the following is known about aspirin therapy?
A. Aspirin poses a significant teratogenic risk if administered during the first trimester
B. High dose aspirin therapy may result in a protracted labor
C. Neonatal platelet function cannot be inhibited in mothers consuming aspirin
D. Aspirin is not associated with an increased risk of intracranial hemorrhage in premature infants
E. Low dose aspirin therapy has been associated with a high rate of epidural hematomas

1531. Anti Inflammatory medicines are not recommended in:
A. During the process of labor
B. In nursing mothers
C. During pregnancy
D. Those with a history of ulcerative disease
E. All of the Above

1532. Use of which the following opioids by breast-feeding mothers via PCA depresses the behavior of the infant more than the equianalgesic dose of morphine
A. Fentanyl
B. Meperidine
C. Nalbuphine
D. Buprenorphine
E. Tramadol

Directions: Each question below contains four suggested responses of which one or more is correct. Select

A if 1, 2 and 3 are correct
B if 1 and 3 are correct
C if 2 and 4 are correct
D if 4 is correct
E if All (1, 2, 3 and 4) are correct

1533. For a woman with a radiculopathy in early pregnancy, which of the following are appropriate treatments?
1. Carbamazepine
2. Epidural steroids
3. Amitryptiline
4. Ibuprofen

1534. Disease states associated with airway abnormalities include
1. Pierre Robin syndrome
2. Preeclampsia
3. Treacher Collins syndromes
4. Gastroschisis

1535. Signs leading to the diagnosis of preeclampsia include
1. Proteinuria
2. Hypertension
3. Generalized edema
4. Hyperglycemia

1536. In the newborn
1. Albumen levels are higher than in the adult
2. Local anesthetics are more protein bound
3. Drugs have increased affinity for fetal hemoglobin
4. Drug free fractions are increased

1537. Opioid neonatal withdrawal syndrome is characterized by the following:
1. It occurs in 60% to 80% of infants with intrauterine exposure to heroin or methadone
2. Neonatal opioid withdrawal syndrome is treated with a substitute opioid, such as tincture of opium, paregoric, or methadone
3. Neonatal opioid withdrawal syndrome is treated with a CNS depressant such as phenobarbital
4. Neonatal opioid withdrawal syndrome occurs in less than 20% of infants with intrauterine exposure to heroin or methadone

1538. Pregnant patients should avoid:
1. Tricyclic antidepressants
2. Ergotamines
3. Benzodiazepines
4. Phenytoin

1539. A pregnant woman, 34 weeks gestation, fractures her pelvis in a motor vehicle accident. Appropriate treatment options for pain management include:
1. Meperidine PC
2. Epidural infusion of bupivacaine
3. Ketoralac parenterally
4. Transdermal fentanyl
1540. True statements of treatment for acute withdrawal from sedative-hypnotics in pregnant women including the following:
1. This is accomplished in an outpatient setting, which allows family to interact and provide support
2. This should be accomplished in an inpatient setting, which allows for medical supervision in collaboration with an obstetrician
3. Treatment is different for withdrawal for each sedative-hypnotic, such as barbiturates, benzodiazepines, and alcohol
4. Uncontrolled withdrawal symptoms may be life-threatening to both mother and fetus

1541. Which of the following is true
1. The neonatal dose of medications in breast milk is only 1-2% of that of the maternal dose
2. Neonatal drug allergy may play a role in adverse reactions to medications in breast milk
3. Slower neonatal drug metabolism plays an important role in toxicity to drugs in breast milk
4. Early breast feeding in the first few post-partum days poses a large risk of adverse drug complications to the fetus from maternal drug consumptions

1542. True statements about neonatal withdrawal syndrome from methadone are as follows:
1. Neonatal withdrawal syndromes are characterized by hyperactivity, irritability, hypertonia, difficulty sucking or excessive sucking, and high pitched cries.
2. Neonates with intrauterine drug exposure should be followed in the hospital for 3 to 4 days after the delivery to monitor for signs of an abstinence syndrome.
3. Timing of withdrawal onset depends on the time of the last drug exposure, and metabolism and excretion of the drug.
4. If more than 7 days have elapsed between the last maternal use and delivery, the incidence of neonatal withdrawal is high.

1543. Which of the following conditions is associated with decreased clearance of ester-type local anesthetics?
1. Cirrhotic liver disease
2. Pregnancy
3. Renal insufficiency
4. Severe chronic obstructive pulmonary disease

1544. Which of the following measures would reduce the risk of maternal secretion of drug into the breast milk?
1. Reducing the drugs lipid solubility
2. Increasing the drug’s molecular weight
3. Increasing drug polarity
4. Reducing protein binding

1545. Which of the following are pain conditions that can occur during pregnancy?
1. Sacro-iliac joint pain
2. Iliohypogastric neuralgia
3. Transient osteoporosis of the hip
4. Migraine

1546. Neurologic effects of magnesium sulfate (MgSO4) include
1. Decreased irritability of the central nervous system
2. Decreased release of acetylcholine at the motor end plate
3. Reduced sensitivity to acetylcholine at the motor end plate
4. Relaxant effect on uterine and vascular smooth muscle

1547. Diabetes mellitus and its effects on the fetus include a greater incidence of
1. Pregnancy-induced hypertension
2. Respiratory distress of the newborn
3. Malpresentations
4. Small size for gestational age

1548. Which of the following is true of acute pancreatitis?
1. Auto-digestion of the pancreas by premature release of proteolytic enzymes is thought to be the pathophysiology
2. The pain is severe, poorly localized in the epigastrium or left upper quadrant, dull in quality, constant, and may linger for 3-7 days
3. The most common etiology is alcohol abuse and gallstones
4. Treatment is primarily medical and supportive

1549. A nursing mother with a history of migraines presents with her typical migraine headache. Appropriate medications include:
1. Sumatriptan
2. Ibuprofen
3. Hydrocodone
4. Ergotamines

1550. In patients with preeclampsia
1. Therapeutic magnesium levels are between 10 and 15meq/L
2. Decreased levels of thromboxane are thought to be a possible etiologic factor
3. The central nervous system shows decreased excitability
4. Hypotonia in a neonate born to a preeclamptic patient may be due to high magnesium levels.
1551. In a neonate
   1. The percentage of total body water is greater than in an adult
   2. The volume of distribution of water-soluble drugs is greater than in an adult
   3. Renal function is diminished, impairing the ability to handle free water and solutes
   4. Drugs redistributed to the fat will have a longer clinical effect

1552. You are treating a pregnant heroin addict who wants to be sure that her baby is not harmed. Your best management would be:
   1. Maintain the patient on high-dose methadone
   2. Withdraw the patient from opioids using clonidine
   3. Withdraw the patient from heroin using methadone
   4. Maintain the patient on low-dose methadone

1553. Cardiovascular changes that occur in obstetric patients include
   1. An increase in cardiac output
   2. An increase in heart rate and stroke volume
   3. A decrease in systemic vascular resistance
   4. A decrease in intravascular fluid volume

1554. Compared to children and adults, drug clearance in neonates may be delayed because of
   1. Immature hepatic enzymes
   2. Decreased renal blood flow
   3. Reduced glomerular filtration
   4. Increased protein binding

1555. True statements about methadone maintenance in a pregnant woman include the following:
   1. Methadone maintenance is the treatment of choice.
   2. It is not unusual for the methadone dose requirements to increase during the third trimester of pregnancy
   3. Women can breastfeed while on methadone maintenance as long as they are not abusing any drugs
   4. Methadone maintenance patients may require higher doses of additional opioids due to the development of tolerance.

1556. True statement about physical examination findings in pregnant women with drug abuse are as follows:
   1. Posterior cervical lymphadenopathy is an early sign of HIV infection.
   2. Finding a new murmur on examination of the heart may indicate endocarditis
   3. A cough productive of black sputum indicates crack smoking
   4. Poor dentition may indicate ongoing drug use, with little concern for dental hygiene
The mammary gland enlarges during pregnancy in response to several hormones, including prolactin synthesized by the anterior pituitary, estrogen and progesterone synthesized by the corpus luteum, and placental lactogen. The alveoli at the end of the duct system respond to these hormones by cell proliferation, which increases the size of the mammary glands. Growth continues throughout pregnancy; however, secretion is most notable late in pregnancy. Milk is synthesized in the alveoli and is stored in their lumina before passage through the lactiferous ducts to the nipples. Secretion of milk lipids occurs by an apocrine mechanism whereby some apical cytoplasm is included with the secretory product. In comparison, milk proteins, such as the caseins, are secreted by exocytosis. Oxytocin is required for the release of milk from the mammary gland through the action of the myoepithelial cells that surround the alveoli and proximal (closer to the alveolus) portions of the duct system. Oxytocin is not required for milk synthesis. Neurohumoral reflexes are involved in the suckling-milk ejection response.

Approximately 3% of newborns have a significant congenital malformation. Of those born with a malformation, 25% have a known genetic cause. Of those infants born with a malformation, only 2-3% will have a clear environmental link. One of the major limitations in evaluating a medication's potential for causing harm to a developing fetus is the degree of species specificity for congenital defects. One example is the drug thalidomide. This drug did not demonstrate any problems in non-primates, but was a significant teratogen to human offspring. This drug did not demonstrate any problems in non-offspring, but was a significant teratogen to human offspring.

Source: Shah RV

The hydanantion syndrome (phenytoin) is associated with microcephaly, mental deficiency, craniofacial deformities, and variable dysmorphic features, but not short stature.

Source: Boswell MV, Board Review 2005

With the onset of spontaneous ventilation at birth, several events occur to convert fetal circulation to adult circulation. Pulmonary vascular resistance decreases because of increased FIO2 and exhalation of lung water. Systemic vascular resistance increases after separation from the low vascular resistance of the placenta. As a result, there is an increase in pulmonary blood flow with a functional end to right-to-left shunting through both the ductus arteriosus and the foramen ovale. The higher left atrial pressures and resistances also diminish right-to-left shunting and aid in the increase in pulmonary blood flow. Functional closure of the ductus arteriosus occurs 10 to 15 h after birth; anatomic closure occurs in 4 to 6 weeks. The foramen ovale closes anatomically between 3 months and 1 year, although 20 to 30 percent of patients have probe-patent foramen ovales.

Source: Curry S.

The puborectalis, pubococcygeus, and iliococcygeus comprise the levator ani, the main muscular component of the pelvic floor. The pubococcygeus is the part of the levator ani most frequently damaged during parturition. Because the pubococcygeus surrounds and supports the neck of the bladder and the proximal urethra, urinary leakage is a common result, particularly during increased abdominopelvic pressure, e.g., during coughing. Damage to the puborectalis would result in fecal incontinence under similar situations. Both the obturator internus muscle and the piriformis are parts of the lateral wall of the pelvis and assist in lateral rotation of the thigh.

1510. **Answer: B**  
Explanation:  
Although many of the standard prophylaxis medicines are contraindicated, beta blockers has been used without apparent problems. TCAs are not suggested, ergotamines have been associated with neonatal convulsions, and topiramate has moderate breast milk excretion. Depakote, though, might be a reasonable choice.  
Source: Boswell MV, Board Review 2005

1511. **Answer: D**

1512. **Answer: E**  
Explanation:  
In acute withdrawal from sedative-hypnotics in pregnant women, any medication with cross-dependence can be used.

An initial dose is given, usually 15 to 90 mg of phenobarbital or an equivalent dose of another sedative-hypnotic such as diazepam or chlordiazepoxide, and the patient is monitored for at least 6 to 8 hours. The treatment medication is repeated at 1 or 2 hour intervals, as indicated by the signs of withdrawal the patient exhibits.  
After 8 hours, an approximation can be made of the total dose the patient will require for a 24-hour period. It is better to arrow on the side of slightly over- rather than under-medicating. Reducing the dose by 10% of the total each day provides a comfortable taper. The taper can be accomplished more rapidly over 5 days by reducing the dose by 20% per day if there are no medical or obstetric complications.

Advanced sedative-hypnotic withdrawal with markedly abnormal vital signs or delirium should be treated rapidly and with sufficiently large doses of medication to suppress with withdrawal period. Medications with a rapid onset of action should be used and may be given intravenously for immediate effect. Lorazepam and diazepam have a rapid onset of action when given intravenously, although they have a shorter duration of action than when given orally, since first past liver metabolism is bypassed. For example, one may start with Lorazepam, 1 to 4 mg intravenously every 10 to 30 minutes until the patient’s agitation or delirium improves, so that the patient is calm but awake and the heart rate decreases to around 100 per minute.

After stabilization with rapid acting medications, the patient can be switched to equivalent dose of a long-acting medication such as phenobarbital, oral diazepam, clonazepam, or chlordiazepoxide.

Benzodiazepines and barbiturates can adversely affect the fetus when given during pregnancy, so this should be taken into account when beginning treatment for acute withdrawal symptoms.

The risk to both mother and fetus from untreated sedative-hypnotic withdrawal usually is greater than the potential risk to the fetus from exposure to these medications in a controlled setting.

1513. **Answer: C**

1514. **Answer: D**  
Explanation:  
(April, 3/e, P 410. Moore, Anatomy, 4/e, p 337.)

The male pelvis is generally heavier than the female pelvis, with stronger bone structure and more definitive muscle markings, which reflect the larger male musculature and generally heavier male build. The generally wider and shallower pelvis tends to be shallower with flared ilia, the pelvic inlet more oval, and the pelvic outlet larger than in the male. Also, the subpubic angle between inferior pubic rami is significantly greater in the female than in the male and is perhaps the best identifying feature of the female pelvis.  

1515. **Answer: D**  
Explanation:  
Reference: Katzung, pp 411, 1029.

An increased incidence of spina bifida may occur with the use of valproic acid during pregnancy. Cardiovascular, orofacial, and digital abnormalities may also occur.

The main issue with the use of Phenobarbital or primidone (metabolite is Phenobarbital) for the fetus is neonatal dependence on barbiturates.  
Source: Stern - 2004

1516. **Answer: C**  
Explanation:  

Most medications are secreted to some extent in breast milk. Some lipid-soluble medications may be concentrated in breast milk. Although the list of contraindicated medications is short, caution should always be exercised when giving a medication to a breast-feeding woman. Medications that are clearly contraindicated include lithium, cyclosporin, antineoplastic agents, illicit drugs including cocaine and heroin, ergotamines, and bromocriptine (which suppresses lactation). Although some suggest that oral contraceptives may have a negative impact on milk production, the association has not been proven conclusively. In general, antibiotics are safe, with only a few exceptions. While sedatives and narcotic pain medications are probably safe, the infant must be observed carefully for sedation. All of the medications listed in the question are considered safe, except for lithium.  
Source: Yetman and Hormann

1517. **Answer: E**  
Explanation:  
Acetaminophen and meperidine can be recommended for
use during pregnancy; however, any drug presents potential risk during pregnancy. Aspirin may prolong labor, cause blood loss during pregnancy, and increase risk of stillbirth. Ergot may cause placental damage due to vasoconstrictive effect. Fortunately, migraine tends to remit during pregnancy. New-onset headache during pregnancy should be evaluated carefully for potential vascular or structural lesion.

Source: Neurology for the Psychiatry specialty Board Review By Leon A. Weisberg, MD

1518. Answer: E  
Explanation:  

The FDA categories do not necessarily stratify risk, but actually discuss a risk/benefit analysis. Note that Category A and B are probably safe. However, category C and D drugs may be just as dangerous as category X.  

Ergotamines are category X.  
Multivitamins are category A.  
Acetaminophen, butorphanol, nalbuphine, caffeine, fentanyl, hydrocodone, methadone, meperidine, morphine, oxycodone, oxymorphone, ibuprofen, naproxen, indomethacin, metoprolol, proxetine, fluoxetine, prednisolone, prednisone are category B  
Aspirin, ketorolac, codeine, propoxyphene, gabapentin, lidocaine, mexiletine, nifedipine, propanolol, sumatriptan are category C  
Amitriptyline, imipramine, diazepam, phenobarbital, phenytoin, valproic acid are category D  
Source: Shah RV

1519. Answer: D  
Explanation:  
Oxycodone is category B and is considered safe. Amitriptyline, although generally indicate for diabetic neuropathy, is category D. The others are category C.

1520. Answer: E  
Explanation:  
(Rathmell, JP. Mgmt of Non-obstetric Pain during Pregnancy and Lactation. Anesth and Analg 1997; 85: 1074-87)  
The FDA categories are concerned with risk of fetal harm. The American Academy of Pediatrics has categorized medications in relation to their safety to the infant following ingestion by the mother.

Refer to this article:

http://aappolicy.aappublications.org/cgi/content/full/pediatrics;108/3/776/T5  
Source: Shah RV

1521. Answer: B  
Source: Raj, Pain Review 2nd Edition

1522. Answer: D  
Explanation:  
Because of the rapid hydrolysis of ester local anesthetics (Chloroprocaine), very little drug is available to cross the placenta. Plasma cholinesterase activity can be reduced up to 40% in pregnant patients, yet the elimination half-life of chloroprocaine is little affected (ranging from 1.5 to 6 minutes).  
Source: Hall and Chantigan.

1523. Answer: A  
Explanation:  
(Bonica) Maternal obstetric neuropathy after vaginal delivery is reported to occur in 1 in 2500 deliveries. The obturator, sciatic, or pudendal plexus can be injured by continuous pressure of the presenting part during labor or by forceps. The deficit is usually unilateral, but may be bilateral. One to two days after delivery, the patient may complain of burning, aching pain in the distribution of the injured nerve. There may be some motor impairment. The neuropathy is usually transient, and complete recovery often occurs after several weeks.  
Source: Kahn and Desio

1524. Answer: A  
Explanation:  
1. The prevalence of substance use during pregnancy is significant. In a study of women in a city hospital, 59% admitted to consumption of alcohol during pregnancy.  
2. Women addicted to alcohol or other drugs may have irregular menstrual cycles, but still be able to conceive.  
3. A study found that 11% of pregnant women were using illegal substances, with cocaine as the drug of choice in 75%.  
4. It may be several months before an addicted woman realizes that she is pregnant.  
5. Women of low socioeconomic status are perceived to be at increased risk of perinatal substance abuse and addiction, but there is little difference in the prevalence of drug and alcohol use among women enrolling in prenatal care in public clinics 16% and private offices 13%.  
Further, rates for black and white women are virtually identical (14% and 15%).
1525. Answer: D
Explanation:
(Junqueira, 9/e, pp 425-430. McKenzie and Klein, pp 344-347. Guyton, 10/e, pp 930-933.)

Estrogen levels increase during the maturation of ovarian follicles, which results in a concomitant increase in ciliation and height of the oviductal lining cells. Increases in the number of cilia serve to facilitate movement of the ovum. Increased estrogen levels also decrease FSH levels and cause an LH surge. Elevated estrogen levels result in increased secretion of lytic enzymes, prostaglandins, plasminogen activator, and collagenase to facilitate the rupture of the ovarian wall and the release of the ovum and the attached corona radiata. Following ovulation, during the luteral phase of the cycle, the theca and granulosa cells are transformed into the corpus luteum under the influence of LH. Ovulation occurs near the middle of the menstrual cycle and is associated with an increase in basal body temperature that appears to be indirectly regulated by elevated estrogen levels, with IL-1 functioning as the endogenous pyrogen. Estrogen also upregulates FSH receptors on granulosa cell membranes and enhances synthesis and storage of glycogen in the vaginal epithelium.


1526. Answer: C
Explanation:
(Sierles, pp 125-126. Kaplan, pp 27-28, 500-501.)

The most frequent (about 50%) postpartum disorder is a self-limited condition known as postpartum blues, with rapid swings of mood and irritability, decreased concentration, and tearing. Next is postpartum major depression (occasionally mania) in about 10% of postpartum women, but most severe is postpartum psychosis (about 1 to 2 per 1000) beginning about 2 to 3 weeks after childbirth. It is still not clear whether postpartum psychosis is a discrete condition or an affective or schizophrenia-like condition precipitated by postpartum stress or endocrine changes. Postpartum psychiatric disorders respond favorably to treatment and have a good prognosis, but in all women who experience a postpartum depression, there is a suicide rate of 5%, an infanticide rate of 4%, and a recurrence rate of 25% for postpartum psychosis and depression after subsequent pregnancies.

Source: Ebert 2004

1527. Answer: A
Explanation:
(Moore, Developing Human, 6/e, p 276.)

Blockage of the foregut in the newborn produces projectile vomiting. Congenital hypertrophic pyloric stenosis, occurring in 0.5 to 1.0% of males and rarely in females, involves hypertrophy of the circular layer of muscle at the pylorus. This usually does not regress and must be treated surgically. During the fifth and sixth weeks of development, the lumen of the duodenum is occluded by muscle proliferation but normally recanalizes during the eighth week. Failure of recanalization results in duodenal atresia. Because this occurs distal to the hepatopancreatic ampulla, the vomitus will occasionally be stained with bile. Annular pancreas, rare in itself, seldom completely blocks the duodenum. Imperforate anus results in intestinal distention with bloating.


1528. Answer: B
Explanation:
The maternal lithium level must be monitored closely during pregnancy and especially after delivery because of the significant change in renal function with massive fluid shift that occurs over that time period. Lithium should be discontinued shortly before delivery, and the drug should be restarted after an assessment of the usually high risk of postpartum mood disorder and the mother's desire to breast-feed her infant.

Source: Laxmaiah Manchikanti, MD

1529. Answer: C
Explanation:
Reference: Behrman, 16/e, p 530. Rudolph, 21/e, p 2196. Infants born to narcotic addicts are more likely than other children to exhibit a variety of problems, including perinatal complications, prematurity, and low birth weight. The onset of withdrawal commonly occurs during an infant's first 2 days of life and is characterized by hyperirritability and coarse tremors, along with vomiting, diarrhea, fever, high-pitched cry, and hyperventilation; seizures and respiratory depression are less common. The production of surfactant can be accelerated in the infant of heroin-addicted mother.

Source: Yetman and Hormann

1530. Answer: B
Explanation:

Aspirin is the most thoroughly studied medication of the class of NSAIDs in pregnancy. The Collaborative Perinatal Project suggests that first trimester exposure to aspirin does not pose a significant teratogenic risk. Nonetheless, aspirin is a Category C drug.

Since prostaglandins trigger labor, aspirin inhibition of these prostaglandins may result in a protracted gestation and labor.
Aspirin inhibits platelets irreversibly and may theoretically increase the risk of peripartum hemorrhage. Neonatal platelet function may be inhibited for up to 5 days after delivery.

High dose aspirin therapy is associated with an increased risk of intracranial hemorrhage in infant born before 35 weeks.

Low dose aspirin therapy or the use of other NSAIDS does not increase the risk of epidural hematoma. Source: Shah RV

1531. **Answer: E**
   Source: Hansen HC, Board Review 2004

1532. **Answer: B**
   Source: Raj, Pain Review 2nd Edition

1533. **Answer: C (2 & 4)**
   **Explanation:**
   Anticonvulsants and tricyclics are contraindicated in early pregnancy. Epidural steroids are safe, and NSAIDs in early pregnancy are probably OK.
   Source: Andrea M. Trescot, MD

1534. **Answer: A (1, 2, & 3)**
   **Explanation:**
   Perre Robin syndrome is characterized by micrognathia (small mouth) and glossoptosis (protruding tongue). The primary reason for airway difficulty in patients with preeclampsia is laryngeal and oropharyngeal edema. Mucosal fragility is another feature that may make airway management difficult. Children with Treacher Collins syndrome have micrognathia and often a cleft palate. Gastroschisis is rarely associated with other abnormalities. Omphalocele, by contrast, has a high association of other abnormalities, including macroglossia.
   Source: Stoelting, Anesthesia and Co-Existing Disease, 3/e, pp 564, 575, 596, 605.)

1535. **Answer: A (1, 2, & 3)**
   **Explanation:**
   Preeclampsia is a syndrome that occurs after the 20th week of pregnancy. Diagnosis is made when the parturient has the following three signs and symptoms: blood pressure greater than 140/90, proteinuria with urine protein greater than 2 g/day, and generalized edema. Hyperglycemia is not one of the diagnostic signs.
   Source: Stoelting, Anesthesia and Co-Existing Disease, 3/e.

1536. **Answer: D (4 Only)**
   Source: Boswell MV, Board Review 2004

1537. **Answer: A (1, 2, & 3)**
   **Explanation:**
   Neonatal withdrawal syndrome occurs in 60% to 80% of infants with intrauterine exposure to heroine or methadone.
   The most comprehensive assessment is the scoring system proposed by Finnagen and Kaltenbach. This scale assesses 21 symptoms with weighted scores, which are evaluated at 2 hours after birth and then every 4 hours. Scoring is quantitative; so all symptoms observed during the intervals should be counted. If the severity score is greater than 8, the infant should be scored every 2 hours until the severity score decreases, then scoring should resume every 4 hours.
   Pharmacotherapy should be initiated when the total score is greater than 8 for three consecutive evaluations.
   Neonatal opioid withdrawal syndrome is treated with a substitute opioid, such as tincture of opium, paregoric, or methadone, or with a CNS depressant such as phenobarbital.

1538. **Answer: E (All)**
   **Explanation:**
   Tricyclics are all Class C or D. Ergotamines can cause miscarriage. Benzodiazepines are associated with cleft lip and cleft palate and congenital hernias with 1st trimester exposure. Phenytoin doubles the risk of congenital abnormalities, and is associated with a "phenytoin syndrome".
   Source: Andrea M. Trescot, MD

1539. **Answer: E (All)**
   **Explanation:**
   Meperidine may be associated with fetal and maternal accumulation of normeperidine; although not the best choice, the drug is not contraindicated. NSAIDs should be avoided after 32 weeks. Local anesthetics and fentanyl have been safely used during late pregnancy.
   Source: Boswell MV, Board Review 2005

1540. **Answer: C (2 & 4)**
   **Explanation:**
   * Treatment for acute withdrawal from sedative-hypnotics in a pregnant woman should be accomplished in an inpatient setting, which allows for medical supervision in collaboration with an obstetrician.

   * Uncontrolled withdrawal symptoms may be life-threatening to both mother and fetus

   * Treatment is identical for withdrawal from all sedative-hypnotics, including barbiturates, benzodiazepines, and alcohol, because all drugs in this class exhibit cross-dependence.

1541. **Answer: A (1, 2, & 3)**
   **Explanation:**
   (Rathmell, JP. Mgmt of Non-obstetric Pain during Pregnancy and Lactation. Anesth and Analg 1997; 85: 1074-87)
The neonatal dose of most medication obtained through breast feeding is 1-2% of the maternal dose. Even with such low dose exposures, neonatal drug allergies and slower drug metabolism must be taken into consideration. Breast milk in the first few days post-partum is usually a small amount of colostrums, thus the infant is posed no significant risk of exposure to drugs used during the delivery period.

Source: Shah RV

**1542. Answer: A (1, 2, & 3)**

Explanation:
If more than 7 days have elapsed between the last maternal use and delivery, the incidence of neonatal withdrawal is low.

**1543. Answer: A (1, 2, & 3)**

Explanation:
* Pregnancy is associated with decreased pseudocholinesterase activity; however, this reduction in activity is minimal such that the rate of hydrolysis of ester-type anesthetics is sufficient to limit significant placental transfer to the fetus.

* Severe liver disease is associated with a decreased concentration of pseudocholinesterase. Likewise, uremic patients have decreased serum levels of pseudocholinesterase, which may interfere with the metabolism of ester local anesthetics.

* Pulmonary disease does not affect the clearance of local anesthetics, provided blood flow to the liver is not lowered by hypoxia.

**1544. Answer: A (1, 2, & 3)**

Explanation:
(Rathmell, JP. Mgmt of Non-obstetric Pain during Pregnancy and Lactation. Anesth and Analg 1997; 85: 1074-87)

Increasing lipid solubility, reducing molecular weight, reducing protein binding, and reducing drug ionization (or making a drug unionized) would facilitate drug secretion into breast milk. Hence, only choices 1,2,3 would reduce the risk of maternal secretion, but choice 4, would facilitate maternal secretion into breast milk.

Source: Shah RV

**1545. Answer: E (All)**

Explanation:
(Rathmell, JP. Mgmt of Non-obstetric Pain during Pregnancy and Lactation. Anesth and Analg 1997; 85: 1074-87)

The incidence of iliohypogastric neuralgia in pregnancy is approximately 1 in 3-5 thousand. Patients are typically affected in their 2nd or 3rd trimester. Progressive uterine enlargement may place traction on the iliohypogastric nerve; this nerve may become entrapped as it traverses the anterolateral abdominal musculature. Iliohypogastric neuralgia typically presents as severe pain in the ipsilateral lower abdominal quadrant, flank, inguinal region, and superolateral hip area. The physical exam may demonstrate hyper- or hypoesthesia in the distribution of the nerve. The symptoms of iliohypogastric neuralgia may be confused with visceral pain: renal colic, diverticulitis, ovarian cysts, or appendiceal perforation. If the pain is mistakenly thought of as a surgical abdomen, unnecessary surgery may be performed. Premature labor may be induced and both mother and infant could be harmed.

Bone marrow edema syndrome is another condition that is important to recognize. Like iliohypogastric neuralgia, pregnant women in their 2nd or 3rd trimester are affected; the pain decreases upon delivery. Pain is referred along the ipsilateral hip and worsens with weight bearing. The etiology is still unknown, but chemical mediators, humoral factors, intermittent compression of the obturator nerve by the infant's head, and pelvic venous stasis have all been implicated. Diagnosis can be made with magnetic resonance imaging. The pain typically responds to conservative care: restricted weight bearing, analgesics, and physical therapy. Regional blocks are not indicated and rarely, core decompression of the femoral head is required. Sacroiliac joint pain (due to hormonally induced ligamentous laxity (relaxin)) and migraines, both have a high prevalence during pregnancy.

Source: Shah RV

**1546. Answer: E (All)**

Explanation:
Magnesium sulfate is a CNS depressant and has all the listed effects in a toxemic parturient. Relaxation of the uterus may help improve uterine blood flow.

Source: Stoelting, Anesthesia and Co-Existing Disease, 3/e. pp 562-563.

**1547. Answer: A (1, 2, & 3)**

Explanation:
Parturients who are suffering from diabetes mellitus often have babies who are large for gestational age. This may lead to malpresentations or other difficulties during vaginal deliveries. There is also a greater incidence of uteroplacental insufficiency. For these and other reasons, these patients often undergo elective and emergency cesarean sections.

Source: Stoelting, Anesthesia and Co-Existing Disease, 3/e. pp 564-565

**1548. Answer: E (All)**

Explanation:
Acute pancreatitis has several etiologies (Table 5-3) but cholelithiasis and alcohol abuse are the most common. The pain is severe. It peaks in 15-60 minutes and lasts 3-7
days. The pain is poorly localized to the epigastrium or left upper quadrant, steady, dull or drilling. Radiation may occur to the back. Pain may be relieved with forward flexion.

Diagnosis is clinical and supported by elevated serum amylase and/or lipase levels. The pathophysiology is that the pancreas prematurely releases proteolytic enzyme that induce auto digestion. Therapy is mainly supportive and medical.

Source: Shah RV, Board Review 2006

1549. Answer: A (1, 2, & 3)
Explanation:
Sumatriptan has no known harmful effects. NSAIDs are category 3. Opioids do transfer to breast milk but have minimal effect. Ergotamines are contraindicated because of GI effects and possible seizures.
Source: Boswell MV, Board Review 2005

1550. Answer: D (4 Only)
Explanation:
The therapeutic magnesium level in treating preeclampsia is 4 to 6 meq/L. Levels above 10 meq/L are associated with loss of deep tendon reflexes. High thromboxane levels are thought to be a possible cause of preeclampsia, and substances, such as aspirin, which decrease thromboxane levels also decreases the incidence of preeclampsia. The central nervous system is hyperexcitable in preeclampsia. High levels of magnesium in a neonate may cause hypotonia as well as respiratory depression and apnea.
Source: Miller, 4/e. pp 2061-2063

1551. Answer: E (All)
Explanation:
(Miller, 4/e. pp 2100-2102)
All the above are correct.
Source: Curry S.

1552. Answer: D (4 Only)
Explanation:
Heroin addicts who are pregnant should be maintained on low-dose methadone (10-40 mg a day) to prevent withdrawal and uncontrolled use of narcotics and possible miscarriage and fetal death.
Source: Psychiatry specialty Board Review By William M. Easson, MD and Nicholas L. Rock, MD

1553. Answer: A (1, 2, & 3)
Explanation:
Cardiac output increases in obstetric patients by about 40 percent during the first trimester, and this is maintained throughout pregnancy. The factors that increase cardiac output include increases in heart rate, contractility, and stroke volume and a decrease in systemic vascular resistance. These changes probably are mediated by ovarian and placental hormones. Intravascular fluid volume increases by approximately 35 percent, plasma volume more so than erythrocyte volume, which leads to the anemia of pregnancy.
Source: Stoelting, Anesthesia and Co-Existing Disease, 3/e. pp 539 – 540

1554. Answer: A (1, 2, & 3)
Explanation:
Protein binding is decreased in the newborn compared to the adult.
Source: Boswell MV, Board Review 2004

1555. Answer: E (All)
Explanation:
* Studies have shown that a daily methadone dose over 60 mg is most effective.
* It is not unusual for the methadone dose requirements to increase during the third trimester of pregnancy. This is due to large plasma volume, decreased plasma protein binding, increased tissue binding, increased methadone metabolism, and increased methadone clearance in the mother. As a result, the half-life of methadone is shortened late in pregnancy and the woman may experience mild withdrawal symptoms unless her methadone dose is adjusted. Splitting the total daily methadone requirement into 2 doses, given in the morning and evening, is preferred if possible as it provides a more even blood level throughout the day.
* Breastfeeding should be encouraged to promote mother-infant bonding and to provide optimal nutrition in passive immunization to the child. The patients may require higher doses of additional opioids due to the development of tolerance.
* The medication should be adjusted according to the patient’s reported level of pain, as assessed through the use of a pain rating scale.

1556. Answer: E (All)