Chapter 24 Outline

- Pregnancy and breast feeding
  - General principles
    - Two main concerns
    - History
  - Pregnancy
    - Pregnancy trimesters
    - Teratogenicity
    - U.S. Food and Drug Administration pregnancy categories
  - Breast feeding

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Chapter 24 Outline

- Dental drugs
  - Local anesthetic agents
  - Epinephrine
  - Analgesics
  - Antiinfective agents
  - Antianxiety agents

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Pregnancy and Breast Feeding

- Haveles (pp. 299-300) (Box 24-1)
- Pregnant women often need additional dental treatment during their pregnancies
  - Many questions arise about drug therapy for the pregnant or breast-feeding woman
  - The literature does not provide all the answers
  - The risk to the fetus must be weighed against the benefit to the woman if a drug is to be administered

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General Principles

- Haveles (pp. 299-300)
- Two main concerns
  - The first concern is that the drug may be teratogenic
  - The second concern is that the drug can affect the near-term fetus

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General Principles

- History
  - A relationship between getting German measles during pregnancy and blindness, deafness, and death of the offspring was noted in 1941
  - Exogenous agents could affect the unborn fetus, producing congenital abnormalities
  - In 1961 a harmless sedative, thalidomide, was taken by pregnant women in Europe
  - An increase in phocomelia occurred shortly thereafter
  - Thalidomide was implicated in these birth defects
Pregnancy

- Haveles (p. 300)
- Pregnancy trimesters
  - The organs of the fetus are forming during the first trimester
    - This trimester is considered the most critical time for teratogenicity
    - Spontaneous abortion is the usual outcome if abnormalities occur very early in development
  - The second trimester is an excellent time for the patient to receive oral health instructions and another dental prophylaxis, if needed
    - The patient is most comfortable during this trimester
- The third trimester is closest to delivery
  - If dental treatment is needed, the patient may feel more comfortable with the right hip elevated
  - Drugs that may affect the newborn child should not be given during this trimester

Teratogenicity

- Haveles (p. 300) (Box 24-2)
- Drugs that are known teratogens include
  - Thalidomide, certain vitamin A analogs, antineoplastic agents, oral anticoagulants, lithium, methimazole, penicillamine, some antiepileptic agents, the tetracyclines, certain steroids, and ethyl alcohol

U.S. Food and Drug Administration Pregnancy Categories

- Haveles (pp. 300, 302)
- The U.S. Food and Drug Administration (FDA) has developed pregnancy categories A, B, C, D, and X
  - The availability of animal or human studies is a criterion
  - Category A is the safest, and category X should not be used in pregnant women
  - Categories B, C, and D fall in between these two criteria

Breast Feeding

- Haveles (p. 300) (Table 24-3)
  - The risk-to-benefit ratio should be carefully considered before drugs are given to the nursing mother
    - Almost all drugs given to the mother can pass into the breast milk in varying concentrations
    - Nursing is clearly contraindicated for a few drugs
    - If these drugs must be administered, breast feeding should be discontinued or the milk expressed and discarded until the mother stops taking the contraindicated drug

Dental Drugs

- Haveles (pp. 300-307)
  - Local anesthetic agents
  - Epinephrine
  - Analgesics
  - Antiinfective agents
  - Antianxiety agents
  - Alcohol
Dental Drugs

- Haveles (p. 300)
  - In general, a drug should be used in a pregnant woman only if the benefits to the pregnant woman outweigh the risks to the fetus and a definite indication exists.

Local Anesthetic Agents

- Haveles (p. 301)
  - Local anesthetic agents have been reported to produce fetal bradycardia and neonatal depression when given in very large doses near to term.
    - Lidocaine, prilocaine, and etidocaine have been tested in animals without teratogenic effects (category B).
    - Bupivacaine has been shown to be teratogenic in rats and rabbits (category C).
    - Mepivacaine has not been tested (category C).
  - Small doses given by careful, slow injection have not been associated with any problems in the fetus.

Local Anesthetic Agents

- Lidocaine is the local anesthetic of choice for the pregnant woman because it is a category B drug.
  - Not associated with methemoglobinemia (as is prilocaine).
  - Not highly lipid soluble (as is etidocaine), prolonging its effect.

Epinephrine

- Haveles (pp. 301-302)
  - Small doses of epinephrine, administered with appropriate care, are similar to those produced endogenously.
  - Large doses could produce adverse effects in the fetus, including anoxia from vasoconstriction.
  - Local anesthetics without vasoconstrictor are preferred if procedures are to be short.

Analgesics

- Haveles (pp. 302-304)
  - Analgesics should be given in the lowest possible dose and for the shortest duration possible to control pain.
  - Adjunctive therapy (incision, drainage, and curettage) should be used first.

Aspirin

- Haveles (p. 302)
  - Studies in animals have shown that aspirin can cause a variety of birth defects.
    - Controlled studies in humans have not been able to demonstrate that aspirin use during pregnancy increases the incidence of birth defects.
  - During the third trimester, aspirin can prolong gestation, complicate delivery, decrease placental function, or increase the risk of maternal or fetal hemorrhage.
Nonsteroidal Antiinflammatory Drugs (NSAIDs)

- Haveles (p. 302)
  - NSAIDs produce effects similar to aspirin
    - They can delay delivery and make it more difficult and can constrict the ductus arteriosus
    - NSAIDs also potentiate vasoconstriction if hypoxia exists
    - All NSAIDs carry a warning to avoid use during pregnancy
      - Ibuprofen is the NSAID of choice for the nursing mother

Acetaminophen

- Haveles (p. 302)
  - Acetaminophen is generally considered to be safe in pregnancy, although no controlled studies have been conducted in humans
  - In large doses, may be associated with fetal renal changes similar to those that occur in adults

Opioids

- Haveles (p. 302) (Fig. 24-1)
  - Retrospective studies have associated the use of codeine during the first trimester with fetal abnormalities involving the respiratory, gastrointestinal, cardiac, and circulatory systems and with inguinal hernia and cleft lip and palate
  - Near-term administration can produce respiratory depression in the infant
  - If the mother is addicted, the infant will experience withdrawal symptoms after birth

- The use of codeine in limited quantities for a limited duration of time is common in clinical practice
  - Although opioids appear in breast milk when analgesic doses are administered, the small amounts appear to be insignificant
  - The infant should be observed for signs of sedation and constipation

Antiinfective Agents

- Haveles (p. 305)
  - Antiinfective agents should only be used when a definite indication for their use exists
    - Prophylactic use, use when no indication exists, and use when an infection can be locally treated are inappropriate

Amoxicillin

- Haveles (p. 305)
  - Amoxicillin is the most commonly used antiinfective agent in dentistry
    - The consensus is that amoxicillin is safe to use during pregnancy
    - Amoxicillin appears in breast milk; infants should be observed for signs of diarrhea, candidiasis, and allergic reactions
Erythromycin

- Haveles (p. 305)
  - Erythromycins, other than the estolate form, appear to be safe for use during pregnancy
    - The estolate form has been associated with reversible hepatic toxicity in the mother
    - Erythromycin is concentrated in breast milk but has not been documented to produce problems

Cephalosporins

- Haveles (p. 305)
  - The first- and second-generation cephalosporins have not been associated with teratogenicity
    - These cephalosporins should be used in dentistry only if a specific indication exists

Tetracyclines

- Haveles (p. 305)
  - Tetracyclines are contraindicated during pregnancy because of their potential for adversely affecting the fetus
    - They cross the placenta and are deposited in fetal teeth and bones
  - Hepatotoxicity can occur in the pregnant woman treated with large doses of tetracycline
    - Whether the amount excreted in milk can produce problems in the nursing infant is not known

Clindamycin

- Haveles (p. 305)
  - Clindamycin should be used for dental infections during pregnancy for susceptible anaerobic infections not sensitive to penicillin
    - No adverse fetal problems have been reported
    - The infant should be monitored for diarrhea if clindamycin is given to nursing mothers because it is excreted in breast milk

Metronidazole

- Haveles (p. 305)
  - Metronidazole should be used carefully during the first trimester
    - Encountering a dental situation in which the risk to the fetus would not be greater than the benefit to the mother would be difficult
    - Animal studies have shown metronidazole to be carcinogenic
    - The nursing mother should only be given metronidazole if the breast milk is expresssed and discarded during treatment and for 48 hours after the last dose

Nystatin

- Haveles (p. 305)
  - Nystatin is safe to use during pregnancy to treat Candida infections
    - Not absorbed into the systemic circulation when applied topically or taken orally
    - May also be used by either the pregnant woman or the nursing infant to treat thrush
Clotrimazole

- Haveles (p. 305)
- Small amounts of clotrimazole are absorbed from topical administration
- No occurrences of abnormality have been reported, but nystatin is safer

Ketoconazole

- Haveles (p. 305)
- Ketoconazole is classified by the FDA as a category C drug
- Has been shown to be teratogenic in rats, producing an abnormal number of digits
- Dystocia during delivery has been demonstrated in animals
- Ketoconazole appears in breast milk and may increase the chance that kernicterus may occur in the nursing infant
- Breast milk must be expressed and discarded during therapy and for 72 hours after cessation of therapy

Antianxiety Agents

- Haveles (pp. 305-306)
- Nitrous oxide-oxygen mixture
- Operating room personnel exposed to trace amounts of nitrous oxide (N₂O) have a significantly higher incidence of spontaneous abortion and birth defects in children
- Pregnant dental health care workers should have knowledge of the levels of N₂O that are present in the dental offices in which they practice

- Benzodiazepines
- First-trimester use of benzodiazepines has been reported to increase the risk of congenital malformations
  - Cleft palate and lip and neural tube defects have been seen
- Benzodiazepines are indicated during pregnancy only for the treatment of status epilepticus

- Alcohol
- Fetal alcohol syndrome (FAS) is associated with the changes that occur in the infant exposed to excessive alcohol intake by the mother
  - FAS involves abnormalities in three areas
    - Growth retardation
    - Central nervous system abnormalities
    - Facial dysmorphology