Hypertension

Chronic hypertension (hypertension beginning before conception or up to 20 weeks of pregnancy) is associated with increased maternal and fetal risks. Thus, appropriate management is mandatory. Nonpharmacologic interventions (e.g., avoiding excessive weight gain, sodium restriction, increased rest) should be emphasized. If drug therapy is required, methyldopa is the drug of first choice because it has not been associated with adverse effects on the fetus or neonate. Alternatives include labetalol and other beta blockers, clonidine, hydralazine, isradipine, nifedipine, and prazosin. With beta blockers, fetal and neonatal bradycardia, hypotension, hypoglycemia, and respiratory depression have been reported. As a result, some authorities recommend avoiding the drugs during the first trimester and stopping them 2 to 3 days before delivery.

Opinions seem divided on the use of angiotensin-converting enzyme (ACE) inhibitors. Some sources say the drugs are contraindicated during pregnancy; others say they can be used during the first trimester but should then be discontinued because of potential renal damage in the fetus. The same effects would probably occur with angiotensin II receptor blockers (ARBs), because they also act on the renin–angiotensin system.

Although diuretics are commonly used in the treatment of hypertension, they should not be given during pregnancy. They decrease blood volume, cardiac output, and blood pressure and may cause fluid and electrolyte imbalances, all of which may have adverse effects on the fetus.

Seizure Disorders

Although antiepileptic drugs (AEDs) are known teratogens, they must often be taken during pregnancy because seizures may also be harmful to mother and fetus. Fortunately, most pregnancies (90 to 95%) result in normal infants. Despite the usually good outcomes, the incidence of birth defects is 2 to 3 times higher in fetuses exposed to AEDs than in those not exposed. If an AED is required, monotherapy with the lowest dose that stops seizures should be used and plasma drug levels should be checked monthly. Women with epilepsy should take a folic acid supplement (at least 400 mcg daily) all the time and 800 mcg or more during pregnancy. Supplemental vitamin K is usually needed during the last month of pregnancy, to prevent bleeding in neonates. An injection of vitamin K is also given to the infant immediately after birth.

There has been controversy as to whether teratogenic effects stemmed from epilepsy or AEDs. A newer study indicates that the drugs are responsible. Moreover, the rate of birth defects in infants exposed to one AED was significantly higher than those not exposed (20.6% vs 8.5%) and 28% in infants exposed to two or more AEDs. Infants whose mothers took AEDs for bipolar disorder rather than epilepsy also had higher rates of birth defects.

Nursing Notes: Ethical/Legal Dilemma

As a nursing student, you are assigned to a unit where abortions are performed. Your religious and family upbringing has taught you that abortion is an immoral act. Do you have a right to refuse to participate in an experience involving abortion as a student? If so, how might you approach your instructor about this issue? Would this situation be different if you were a regular employee on a unit that performs abortions?

ABORTIFACIENTS

Abortion is the termination of pregnancy before 20 weeks. It may occur spontaneously or be intentionally induced. Medical abortion may be induced by prostaglandins and an antiprogestin (Drugs at a Glance: Abortifacients, Prostaglandins, Tocolytics, and Oxytocics). Prostaglandins may be used to terminate pregnancy during the second trimester. In the female reproductive system, prostaglandins E and F are found in the ovaries, myometrium, and menstrual fluid. They stimulate uterine contraction and are probably important in initiating and maintaining the normal birth process. Drug preparations of prostaglandins are capable of inducing labor at any time during pregnancy. Misoprostol, a prostaglandin developed to prevent nonsteroidal anti-inflammatory drug–induced gastric ulcers (see Chap. 60), is being given orally or intravaginally for first or second trimester termination. It is not FDA approved for this use.

Mifepristone is a progesterone antagonist used to terminate pregnancy during the first trimester. A prostaglandin is given approximately 48 hours after the mifepristone to augment uterine contractions and ensure expulsion of the conceptus.

TOCOLYTICS

Drugs given to inhibit labor and maintain the pregnancy are called *tocolytics.* Uterine contractions with cervical changes between 20 and 37 weeks of gestation are considered premature labor. Nonpharmacologic treatment includes bed rest, hydration, and sedation. Drug therapy is most effective when the cervix is dilated less than 4 cm and membranes are intact.

Ritodrine, terbutaline, magnesium sulfate, and nifedipine are used as tocolytics (see Drugs at a Glance: Abortifacients, Prostaglandins, Tocolytics, and Oxytocics). Ritodrine and terbutaline are beta-adrenergic agents that relax uterine smooth muscle and thereby slow or stop uterine contractions. Terbutaline is not FDA approved for use in premature labor, but is used widely for that purpose. Magnesium sulfate is most often used as an anticonvulsant in the treatment of preeclampsia, but it also inhibits preterm labor. Hypermagnesemia may occur because tocolytic serum levels (4 to 7 mEq/L) are higher than normal levels (1.5 to 2.5 mEq/L). Close monitoring of serum