

gonadal hormone variations. Men tend to respond to different antidepressants than women because of the hormones found in each.

A person's culture can also affect the use of medications. Some cultural beliefs are grounded in scientific research, and people in these cultures find comfort in knowing that medications have been rigorously tested before approval. These patients are more likely to depend on their primary health-care provider to choose drugs for them.

Conversely, more holistic cultures believe that imbalances in a person's life cause disease. People with a holistic outlook may be less likely to use conventional drugs and more inclined toward herbal remedies. Other cultures believe that illness comes from evil spirits who hurt people if taboos (rules) are broken. People in these cultures may search for alternative healers and may or may not continue to take medications prescribed by their primary health-care provider.



CRITICAL THINKING

Seth E. comes to the office with a wound that does not seem to be healing. As he is leaving he states: "I am going to see my herbalist. Your drugs can't help me!" What would you do or say?

Environmental Factors

Environmental hazards may affect drug absorption and metabolism. Smoking cigarettes induces liver enzymes to metabolize drugs more rapidly. This may also be true for all other forms of smoking that contain nicotine, but research is not available to either support or disprove this supposition. Patients who smoke cigarettes may need larger doses of liver-metabolized drugs than do nonsmokers. The effects of active and secondhand smoke may persist for months. Many occupational exposures may also cause a change in metabolism of medications. For example, many industries use organic solvents, which can cause hepatic injuries. Once the liver is damaged, the metabolism is slowed down causing medications to accumulate in the body.

Pregnancy

Pregnancy is another consideration when administering medications. Drugs affect not only the mother, but also the fetus she is carrying. The blood-placental barrier protects the fetus from the effects of certain medications. Water-soluble medications such as heparin are kept from crossing this barrier, although fat-soluble medications are more likely to cross it. **Teratogens** are drugs and other agents that cause abnormal fetal development. Severe malformations or death of the fetus can occur if a teratogenic drug crosses the placenta.

The fetus is especially vulnerable to medications during the first trimester, when vital organs are forming, and the last trimester, when the baby is prone to accumulating drugs before birth. The Food and Drug Administration (FDA) previously classified drugs according to their safety during pregnancy. In 2015, this was replaced with new requirements for pregnancy and lactation labeling requiring labeling to contain a summary of the risks when using each drug during both pregnancy and lactation. The labeling must include research data supporting the summary that will allow the health-care provider to make educated decisions when prescribing medications in these situations.



CRITICAL THINKING

If an obstetric patient calls and asks what over-the-counter drugs she can take for a cold, where would you find that information? How would you explain your responses?

Patients with Organ Dysfunction

As discussed in Chapter 2, great care must be taken when medications are administered to patients with organ dysfunction because drugs can easily build up to undesirable levels. Pay close attention to the kidneys, liver, and heart, the organs most affected by systemic drug accumulation. The liver and