chapter **28**

Estrogens, Progestins, and Hormonal Contraceptives

Objectives

AFTER STUDYING THIS CHAPTER, THE STUDENT WILL BE ABLE TO:

1. Discuss the effects of endogenous estrogens and progestins.
2. Describe the benefits and risks of post menopausal hormone replacement therapy (HRT).
3. Describe adverse effects associated with estrogens, progestins, and hormonal contraceptives.
4. Apply nursing process with clients taking estrogens, progestins, and hormonal contraceptives.

Critical Thinking Scenario

Sally Chow, a perimenopausal woman has concerns about hormone replacement therapy (HRT). She seeks information from you to help her make an informed choice whether to use HRT.

Reflect on:

- Benefits of HRT for the postmenopausal woman.
- Possible adverse effects of HRT for the postmenopausal woman.
- Teaching strategies helpful in teaching Ms. Chow about HRT.
- As a nurse, your role in assisting Ms. Chow in her decision-making process.

OVERVIEW

Estrogens and progestins are female sex hormones produced primarily by the ovaries and secondarily by the adrenal cortices in nonpregnant women. Small amounts of estrogens are also synthesized in the liver, kidney, brain, skeletal muscle, testes, and adipose tissue. In normal premenopausal women, estrogen synthesis in adipose tissue may be a significant source of the hormone. Some evidence indicates that a minimum body weight (about 105 lbs.) and fat content (16% to 24%) are required for initiation and maintenance of the menstrual cycle. This view is supported by the observation that women with anorexia nervosa, chronic disease, or malnutrition and those who are long-distance runners usually have amenorrhea. With anorexia nervosa, regaining weight and body mass usually reestablishes normal menstrual patterns.

Small amounts of progesterone are secreted by the testes and adrenal glands. In men and in postmenopausal women, the peripheral sites produce all endogenous estrogen. Almost no progesterone is synthesized in postmenopausal women.

As with other steroid hormones, estrogens and progestins are synthesized from cholesterol. The ovaries and adrenal glands can manufacture cholesterol or extract it from the blood. Through a series of chemical reactions, cholesterol is converted to progesterone and then to androgens, testosterone, and androstenedione. The ovaries use these male sex hormones to produce estrogens. After formation, the hormones are secreted into the bloodstream in response to stimulation by the anterior pituitary gonadotropic hormones, follicle-stimulating hormone (FSH), and luteinizing hormone (LH). In the bloodstream, the hormones combine with serum proteins and are transported to target tissues where they enter body cells. They cross cell membranes easily because of their steroid structure and lipid solubility. Once inside the cells, the hormones bind to estrogen or progestin receptors and regulate intracellular protein synthesis. Estrogen can enhance target tissue responses to progesterone by increasing progesterone receptors. Progesterone seems to inhibit tissue responses to estrogen by decreasing estrogen receptors.