TABLE 414-2 ORAL CONTRACEPTIVES: CONTRAINDICATIONS AND DISEASE RISK

Contraindications
Absolute
Previous thromboembolic event or stroke
History of an estrogen-dependent tumor
Active liver disease
Pregnancy
Undiagnosed abnormal uterine bleeding
Hypertriglyceridemia
Women age >35 years who smoke heavily
Relative
Hypertension
Women receiving anticonvulsant drug therapy
Women following bariatric surgery (malabsorptive procedure)
Disease Risks
Increased
Coronary heart disease—increased in smokers >35; no relation to progestin type
Hypertension—relative risk 1.8 (current users) and 1.2 (previous users)
Venous thrombosis—relative risk ~4; may be higher with third-generation progestin, drospirenone, and patch; compounded by obesity (tenfold increased risk compared with nonobese, no OCP); markedly increased with factor V Leiden or prothrombin gene mutations
Stroke—slight increase; unclear relation to migraine headache
Cerebral vein thrombosis—relative risk ~13–15; synergistic with prothrombin gene mutation
Cervical cancer—relative risk 2–4
Breast cancer—may increase risk in carriers of *BRCA1* and possibly *BRCA2*
Decreased
Ovarian cancer—50% reduction in risk
Endometrial cancer—40% reduction in risk

Abbreviation: OCP, oral contraceptive pill.

no medication during which menstrual bleeding generally occurs. Two extended oral contraceptives are approved for use in the United States; Seasonale is a 3-month preparation with 84 days of active drug and 7 days of placebo, whereas Lybrel is a continuous preparation. Current doses of ethinyl estradiol range from 10 to 50 μg. However, indications for the 50-μg dose are rare, and the majority of formulations contain 30–35 μg of ethinyl estradiol. The reduced estrogen and progestin content in the second- and third-generation pills has decreased both side effects and risks associated with oral contraceptive use (Table 414-2). At the currently used doses, patients must be cautioned not to miss pills due to the potential for ovulation. Side effects, including breakthrough bleeding, amenorrhea, breast tenderness, and weight gain, often respond to a change in formulation. Even the lower dose oral contraceptives have been associated with an increased risk of cardiovascular disease (myocardial infarction, stroke, venous thromboembolism [VTE]), but the absolute excess risk is extremely low. VTE risk is higher with the third-generation than the second-generation progestins, and the risk of stroke and VTE is also higher with drospirenone (although not cyproterone), but the absolute excess risk is small and may be outweighed by contraceptive benefits and reduction in ovarian and endometrial cancer risk.

The microdose progestin-only minipill is less effective as a contraceptive, having a pregnancy rate of 2–7 per 100 women-years. However, it may be appropriate for women at increased risk for cardiovascular disease or for women who cannot tolerate synthetic estrogens.

Alternative Methods A *weekly contraceptive patch* (Ortho Evra) is available and has similar efficacy to oral contraceptives. Approximately 2% of patches fail to adhere, and a similar percentage of women have skin reactions. Efficacy is lower in women weighing >90 kg. The amount of estrogen delivered may be comparable to that of a 40-μg ethinyl estradiol oral contraceptive, raising the possibility of increased risk of VTE, which must be balanced against potential benefits for women not able to successfully use other methods. A *monthly contraceptive estrogen/progestin injection* (Lunelle) is highly effective, with a first-year failure rate of <0.2%, but it may be less effective in obese women. Its use is associated with bleeding irregularities that diminish over time. Fertility returns rapidly after discontinuation. A *monthly vaginal ring* (NuvaRing) that is intended to be left in place during intercourse is also available for contraceptive use. It is highly effective, with a 12-month failure rate of 0.7%. Ovulation returns within the first recovery cycle after discontinuation.

Long-Term Contraceptives Long-term progestin administration acts primarily by inhibiting ovulation and causing changes in the endometrium and cervical mucus that result in decreased implantation and sperm transport. Depot medroxyprogesterone acetate (Depo-Provera, DMPA), the only injectable form available in the United States, is effective for 3 months, but return of fertility after discontinuation may be delayed for up to 12–18 months. DMPA is now available for both SC and IM injection. Irregular bleeding, amenorrhea, and weight gain are the most common side effects. This form of contraception may be particularly good for women in whom an estrogen-containing contraceptive is contraindicated (e.g., migraine exacerbation, sickle cell anemia, fibroids).

POSTCOITAL CONTRACEPTION

The probability of pregnancy without relation to time of the month is 8%, but the probability varies significantly in relation to proximity to ovulation and may be as high has 30%. In order of efficacy, methods of postcoital contraception include the following:

1. Copper IUD insertion within a maximum of 5 days has a reported efficacy of 99–100% and prevents pregnancy by its spermicidal effect; insertion is frequently available through family planning clinics.
2. Oral antiprogestins (ulipristal acetate, 30 mg single dose, available worldwide, or mifepristone, 600 mg single dose, not available for this indication in the United States) prevent pregnancy by delaying or preventing ovulation; when administered, ideally within 72 h but up to 120 h after intercourse, they have an efficacy of 98–99%; require a prescription.
3. Levonorgestrel (1.5 mg as a single dose) delays or prevents ovulation and is not effective after ovulation; should be taken within 72 h of unprotected intercourse, and has an efficacy that varies between 60 and 94%; it is available over the counter.

Combined estrogen and progestin regimens have lower efficacy and are no longer recommended. A pregnancy test is not necessary before the use of oral methods, but pregnancy should be excluded before IUD insertion. Risk factors for failure of oral regimens include close proximity to ovulation and unprotected intercourse after use. In addition, there is an increased risk of pregnancy in obese and overweight women using levonorgestrel for postcoital contraception and an increased risk in obese women using an antiprogestin.

IMPACT OF OBESITY ON CONTRACEPTIVE CHOICE

Approximately one-third of adults in the United States are obese. Although obesity is associated with some reduction in fertility, the vast majority of obese women can conceive. The risk of pregnancy-associated complications is higher in obese women. Intrauterine contraception may be more effective than oral or transdermal methods for obese women. The WHO guidelines provide no restrictions (class 1) for the use of intrauterine contraception, DMPA, and progestin-only pills for obese women (BMI ≥30) in the absence of coexistent medical problems, whereas methods that include estrogen (pill, patch, ring) are considered class 2 (advantages generally outweigh theoretical or proven risks) due to the increased risk of thromboembolic disease. There are no restrictions to the use of any contraceptive methods following restrictive bariatric surgery procedures, but both combined and progestin-only pills are relatively less effective following procedures associated with malabsorption.