Hormonal Contraceptive Methods

A PowerPoint presentation (no narration) containing some of this information is available at the below web page:

http://facweb.northseattle.edu/troot/HEA150

Hormonal contraceptive methods are quite popular, mainly due to their overall high effectiveness rates against pregnancy. Virtually all of the hormonal methods on the market today are designed for female use, though there is current research in the development of male hormonal methods. Popularity aside, many hormonal contraceptives are not advised for women who have cardiovascular complications, diabetes, severe depression and liver disease. Hormonal contraceptive methods currently available in the United States include oral contraception, Depo-Provera, Norplant and "emergency contraception."

Oral Contraception

As the term implies, oral contraceptives—also known as “The Pill,” or birth control pills—are taken by mouth. Some of these oral contraceptives contain a combination of estrogen and progestin (synthetic progesterone) and are termed “combination pills.” Some oral contraceptives contain only progestin and are called “minipills.” A woman interested in taking pills can only do so with a prescription. A healthy physical exam is needed and medical history information must be shared before a female may obtain this prescription.

Combination Pill

Combination pills typically come in packages of 21 or 28 pills. In either case, 21 pills contain active hormones; in the 28-day package, the other seven pills are “placebo,” and used to maintain the habit of pill-taking everyday throughout the 28-day cycle. For optimal effectiveness, the combination pill should be taken at the same time everyday, and another contraceptive method should be used for approximately two weeks after the oral contraception begins. A physician or nurse practitioner may recommend that another from of contraception be used anywhere between one and four weeks after the initial pill is taken.

Women interested in taking combination pills can only do so with a prescription. Combination pill brands vary in both the form and the amounts of hormones in them, an example of which is Ovral (O). The biphasic pill contains a constant amount of estrogen and contains less progestin during the first half of the cycle. The triphasic pill contains varying amounts of both estrogen and progestin, in order to more closely mimic the female reproductive hormone milieu. Estrogen is the hormone responsible for the most complications associated with the Pill. Higher estrogen doses may cause nausea, water retention, breast tenderness and leg pain. Low estrogen doses, however, may result in "breakthrough" bleeding (bleeding which occurs between cycles) or missed menstrual periods. The combination pill works by preventing ovulation.
If a pill is missed, nothing serious will happen, but the woman will generally be directed to double the dose, i.e. take two pills the following day. If two or more pills are missed, another form of contraception should be used; again, specific directions may vary slightly from provider to provider, as well as vary upon the type of pill taken.

**Effectiveness, Advantages & Disadvantages**

The combination pill, when taken perfectly, will have a 95-99% effectiveness level against pregnancy. An effectiveness of 95% means that fewer than five out of 100 women will become pregnant over while using combination pills to prevent pregnancy, assuming perfect use. Women should ask their health providers about any possible drug interactions. Antibiotics, for example, may decrease pill effectiveness. Some of the combination pill's advantages include: it is highly effective against pregnancy, it is easily administered, it generally reduces the amount of blood lost (conserving iron), reduces menstrual cramps and PMS symptoms, it may decrease the risk of ovarian cysts and endometrial and ovarian cancers, as well as protect against pelvic inflammatory disease (PID). It is also reversible, allowing a woman to become pregnant if she stops taking the pills. Its disadvantages include: one must be motivated to take the pill everyday, there is an increased risk for blood clots (smokers age 35 or older are generally cautioned against pill use), no STD protection, bothersome side effects (nausea, headaches, fluid retention, breakthrough bleeding—which should subside after a few months), and, though rare, some serious health risks, including increased risk for hypertension, gallstones and gall bladder disease, liver ailments and increased heart attack and stroke risk.

**Minipill**

The progestin-only contraceptive, the minipill inhibits ovulation, thickens cervical mucus and makes the uterine lining less receptive to fertilization. Similar to the combination pill, minipills are taken daily and, if one is missed, one should take it when she remembers, take the next at the regularly scheduled time and use a back-up contraceptive method.

**Effectiveness, Advantages & Disadvantages**

The minipill is also quite effective against pregnancy, but does not necessarily block ovulation and has a slightly lower rate than the combination pill, approximately 95-97% when used perfectly. The minipill works by altering the cervical mucus to make it difficult for sperm to reach and fertilize an egg. Advantages of the minipill include: no estrogen side effects (blood pressure, cardiovascular complications, liver ailments), its ease of use, its high effectiveness rate, fewer PMS symptoms, and that women may not have menstrual periods. Disadvantages associated with the minipill include: motivation for daily pill taking, increased risk of ectopic pregnancy and ovarian cysts, no STD protection, irregular or absent menses and a continued expense. Some women may find an absence of monthly menstrual period an advantage, while others may find the absence stressful. The minipill is also reversible: if a woman wishes to become pregnant, she can stop taking the pills.

**Depo-Provera**
Approved by the FDA in the early 1990's, Depo-Provera is a progestin-only hormonal contraceptive, injected into a female once every three months. Similar to the minipill and other synthetic progesterone methods, Depo-Provera works by preventing ovulation and by thickening cervical mucus.

Effectiveness, Advantages & Disadvantages

Depo-Provera has a greater than 99% effectiveness rate against pregnancy. The contraceptive protection is immediate if the first shot occurs during the first five days of a woman's period; otherwise, another contraceptive method should be used for the first two weeks following the injection. While Depo-Provera does continue to work for one-two weeks past the three month 'safe' period, a woman concerned about becoming pregnant should avoid waiting for her injection. Advantages associated with Depo-Provera include:

- Convenience: to avoid pregnancy, the woman must only schedule one shot every 90 days to avoid pregnancy
- Its high effectiveness rate
- Depo-Provera contains no estrogen, so there are no estrogen-related health risks
- Depo-Provera may protect against ovarian and endometrial cancers

In the last several years, Depo-Provera has received some negative publicity because of its disadvantages. Some of these include:

- No STD protection
- A continued cost (approximately $150 a year; price will vary depending on where the female goes to receive her shot)
- The female must get her injection every three months
- Depo-Provera is not immediately reversible as a contraceptive: some women have reported difficulty becoming pregnant during the first year after stopping their injections
- Loss of menstrual period (though some view this as an advantage)
- Side effects associated with this contraceptive method may continue for several months after stopping the injections
- Side effects: common side effects include weight gain, irregular bleeding, shortened or eliminated period, or even a heavier period. Lesser common side effects include nausea, nervousness, headache, depression, hair loss/gain, decreased/increased sex drive, sore breasts and rashes. In November of 2004, Pfizer Inc. released a statement regarding Depo-Provera's potential for causing bone loss (O). The bone loss may not be reversible, even when stopping Depo-Provera use.
- The FDA issued a "black box" warning for Depo-Provera, with information available via video on Youtube.com (O).

In October 2000, the FDA approved a once-a-month injectable hormone contraceptive, Lunelle (O), but all pre-filled syringe lots were recalled by Pharmacia in 2002 because of risk for failure (O). In 2003 Pfizer apparently stopped manufacturing the drug, and as of January 2006 Lunelle still is unavailable.
Contraceptive Implants

Contraceptive implants became popular with the FDA approval of Norplant in the early 1990's. No longer available in the United States, Norplant consisted of six matchstick-sized, progestin-filled silicone tubes were inserted into the upper arm. A contraceptive billed to last for five years, one of its advantages was that it could be removed at any time. A typical Norplant insertion required approximately ten minutes, with the silicone tubes inserted under the skin of the arm used the least e.g. a right-handed individual would choose the left arm. The insertion was considered painless, except for the needle used to inject a pain killer. Upon removal, at extra cost, one incision—but sometimes more—was required to remove the implants. Although there was much optimism for Norplant several years ago, complications associated with its removal hurt Norplant's reputation. Women complaining of pain, discomfort, or scarring following Norplant removal led to litigation, although such lawsuits were unsuccessful. The Population Council has a picture of Norplant inserts at its website (R), while Healthsquare.com features an illustration showing where the Norplant inserts lay in the upper arm (R).

In 1999 Wyeth-Ayerst Laboratories, the maker of Norplant, agreed to settle a string of lawsuits against the Norplant contraceptive system. In 2000, the company issued a warning (O) to those receiving Norplant in lots after October of 1999, explaining the product's effectiveness could not be assured. In July of 2002, Wyeth Pharmaceuticals announced women no longer needed a back-up for pregnancy prevention, though the announcement also included Wyeth's plan to discontinue Norplant (O ) due to limitations of product component supplies. At that time, Wyeth agreed to pay for the removal of Norplant through December of 2002. Other implant contraceptives, including "Norplant-2" are currently being investigated for use in the U.S., although some are in use elsewhere, including the United Kingdom (O--from the BBC). One of the newer implantables is included in this week's "Search & Report." Another, Jadelle, is used outside of the United States (O-RxList.com), and may become available if a distributor is identified.

Effectiveness, Advantages & Disadvantages

Norplant's effectiveness was over 99%. Norplant's advantages included:

- A high effectiveness rate for five years
- No estrogen-related side effects
- Convenience: to prevent pregnancy, there is only a one-time procedure which lasts for five years
- Norplant is reversible; if a woman wishes to become pregnant, she can get the tubes removed
- Norplant may protect against Pelvic inflammatory disease

Norplant's disadvantages included:

- No STD protection
- Expense for implantation (approximately $500) and removal
Emergency Contraception

There are hormonal methods available to prevent contraception following unprotected intercourse. Emergency contraception is just that, and should not be considered an ongoing contraceptive method. Emergency contraception will not treat or cure any sexually transmitted diseases. Emergency contraceptives are available in the pill form and intrauterine device (IUD) form. While emergency contraception is available in most states through a physician's prescription, some states (including Washington) do not require advance approval from a physician (O-Go2PlanB.com). The Office of Overpopulation and Research at Princeton University has more information on emergency contraception (O).

Combination and minipills

In May of 2004 the FDA made a controversial decision not to approve emergency contraception for over-the-counter availability for the rest of the nation. In Washington and five other states, however, a woman may obtain emergency contraception directly from specific pharmacists. This improved availability is important because emergency contraceptive pills (ECP's) should be taken within 72 hours following unprotected intercourse. The pills are ordinary combination or minipills taken in one dose, sometimes two. Trivora (R-to view photo) is an example of a combination emergency contraceptive pill (O). Minipills are considered more effective than the combined ECP's; they also seem to cause less nausea. Travel to the emergency contraceptive information page at Princeton University for more on progestin-only ECP's (O).

Taking ECP's reduces the pregnancy risk by 75%. This does not mean that 25 out of 100 women will become pregnant after taking ECP's. It does mean that, of those who are at risk of pregnancy through unprotected intercourse, that risk is reduced by approximately 75%.

Intrauterine Device

The Paragard Copper-T intrauterine device, inserted up to five days following unprotected intercourse, or five days after expected ovulation date (whichever is later), can be used as emergency contraception. This emergency IUD is considered more effective than ECP's.

Other Female Hormonal Methods

Ortho Evra ("The Patch") is a beige, plastic patch attached to the skin, releasing estrogen and progestin for pregnancy prevention (O). From the beginning of the menstrual cycle, a new Patch is applied to the stomach, upper arm, or torso once a week for three weeks, after which the woman goes patch-free for a week. Although the Patch is meant to adhere for a week, there have been reports of detachment. In such cases, the Patch should be reapplied as soon as possible, or replaced if the Patch will not adhere to the skin. If the Patch has been detached for more than 24 hours, another form of contraception should be used.

Side effects: menstrual irregularities, tenderness at insertion site, increased ovarian cyst risk, and weight gain
Side effects associated with the Patch are like those for other hormonal methods: breast tenderness, headache, nausea, menstrual cramping, and an increase in blood lipids. Some individuals are sensitive to the adhesive and may subsequently experience itching or redness on the affected skin.

Approved by the FDA in 2001 (O), the NuvaRing (O--Macromedia Flash software required) is a flexible ring inserted into the vagina, releasing estrogen and progestin to prevent pregnancy. Similar to the cycle of oral contraceptive pills, the ring works for three weeks, after which it is removed for a week. More information on this method can be researched in this week's "Search & Report."

**Male Contraceptive Possibilities**

Developing hormonal contraceptives designed for the male is a challenging task, partly because a male has ongoing fertility, compared to the female's cyclic fertility. There is currently some ongoing research in Italy on male oral contraception. Each man involved with the experimental method takes a pill to reduce his sperm count. The men also receive injections to boost pill effectiveness. In October of 2003, the BBC reported of successful research using injections in Sydney, Australia (O). The Population Council reports on MENT, a male contraceptive implant (O). Another example of research in this field is a study performed in nine countries, one site of which was Seattle, WA. Of 399 couples involved in this study, men aged 21-45 years received weekly testosterone injections. Only four pregnancies resulted during the two-and-one-half year study. The main disadvantage, however, was the pain associated with the injections. There is currently continued research on a three-month injection. Other possibilities for men include subdermal implants and battery-powered capsules, inserted into the vas deferens, which immobilizes sperm though a low-level current.

While hormonal contraceptive methods are highly effective against pregnancy, they do NOT protect against STD's, and they are not appropriate for everyone for a myriad of reasons. An individual should educate him- or herself before deciding upon preferred methods.

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