

Contraception Versus Sterilization

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The World Health Organization reported that 40% of the pregnancies in the world in 1977 were unplanned and 20% were unwanted; in the United States in 1978 there were 1,300,000 teenage pregnancies, of which one million ended in abortions. To prevent these unwanted pregnancies and also to abolish the cost in terms of money, time and lives, conception control is very important. Contraception is as old as the human race. In ancient times Chinese women swallowed live tadpoles three days after their menses for this purpose. North African women mixed gunpowder solution and foam from a camel's mouth and drank the resulting potion. Egyptian women inserted pessaries made of crocodile dung to achieve contraception. Greek women in the second century made a vaginal plug that contained oil, honey, cedar gum and fig pulp; others ate the uterus of female mules. As recently as the 17th century, European brides were instructed to sit on their fingers while riding in coaches or to place roasted walnuts in their bosoms, one for every barren year desired. Obviously, an unwanted child was of as much concern to the ancients as it is to modern women.

These are the characteristics of an ideal contraceptive:

1. 100% effective
2. Safe with no side effects
3. Simple to use

4. Inexpensive
5. Removed from the act of intercourse
6. Completely reversible
7. Easily available

There are two types of effectiveness—theoretical effectiveness and use effectiveness. Use effectiveness is invariably found to be lower than theoretical effectiveness.

The varieties of contraceptive methods available are

1. Chance
2. Douching
3. The rhythm method
4. Use of spermicides
5. Condoms
6. Diaphragms
7. Condoms and spermicides or diaphragm and spermicides
8. Oral contraceptives, which can be a combined oral contraceptive or progestin-only (minipill)
9. Injectable contraceptives
10. Intrauterine contraceptives
11. Male sterilization
12. Female sterilization

Of these, chance and douching have the lowest rate of effectiveness, and the rhythm method, or the so called "safe period," supposedly one week before and one week after the first day of menses, should not be considered as particularly safe.

Condoms

Condoms have been in use since the 17th century both to prevent venereal disease and to avoid impregnating women. Today, in the United States, 700 to 800 million condoms are produced annually. Condoms may be a prob-

The following is an edited transcript of remarks by Dr. Kumarasamy at the 51st Annual McGuire Lecture Series, October 19, 1979, at the Medical College of Virginia, Richmond, Virginia.

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lem for men with borderline impotence or those who cannot maintain an erection for some time. The earlier objections to the use of condoms, such as decrease in thermal and/or tactile sensitivity have been overcome by the manufacture of condoms made of very thin but strong material. In Japan, the most commonly used contraceptive agent is the condom. Recently, the International Planned Parenthood Federation has reported that condoms and spermicides used in conjunction by motivated people are as effective as oral contraceptives. Those concerned about the use of oral contraceptives and their complications or the complications of intra-uterine devices, can use condoms and spermicides. And condoms have the distinct advantage of preventing the spread of venereal disease.

Oral Contraceptives

The types of oral contraceptives are 1) the combination pill, 2) the progestin-only (minipill), and 3) the morning after pill. The mechanism of action of the combination pill is supposed to be a combination of the following:

1. Prevention of ovulation
2. Some alteration of tubal transport
3. Changes in the endometrium
4. Alteration of the cervical mucus

Symptoms attributed to estrogens in the combination pill are:

1. Nausea and bloating
2. Cyclic weight gain and/or edema
3. Nervousness, irritability and/or premenstrual tension
4. Venous or capillary engorgement
5. Headache
6. Breast tenderness or cystic changes
7. Mucorrhea, cervical erosion or polypoidosis
8. Hypermenorrhea
9. Dysmenorrhea
10. Fibroid growth
11. Changes in carbohydrate metabolism
12. Hypertension
13. Thrombophlebitis
14. Suppression of lactation

Symptoms related to progestins are:

1. Amenorrhea or oligomenorrhea
2. Acne
3. Hirsutism
4. Increased appetite and steady weight gain

5. Depression and changes in libido
6. Fatigue
7. Moniliasis
8. Early spotting and breakthrough bleeding
9. Oily scalp and loss of hair

Side effects of oral contraceptives are:

1. Nausea and vomiting
2. Weight gain
3. Spotting and breakthrough bleeding
4. Headache
5. Nervousness and irritability
6. Depression
7. Loss of libido
8. Breast discomfort
9. Acne
10. Melasma
11. Amenorrhea
12. Thromboembolic effects

There is some concern that oral contraceptives may be responsible for genetic changes and some forms of cancer. So far, there is no definite evidence to support the idea of genetic changes, and no association, adverse or beneficial, between the use of oral contraceptives and the development of cancer of the breasts, endometrium, or cervix, according to current data. Long-term combined oral contraceptive use appears to be related to the development of benign liver neoplasia. There is also evidence that oral contraceptives may have an adverse influence on the resolution of hydatidiform mole.

ABSOLUTE CONTRAINDICATIONS TO THE USE OF THE PILL

1. Thrombophlebitis, thromboembolic disorders, cerebrovascular disease, or a past history of these conditions
2. Markedly impaired liver function
3. Known or suspected carcinoma of the breast
4. Known or suspected estrogen-dependent neoplasia
5. Undiagnosed abdominal genital bleeding
6. Known or suspected pregnancy
7. Congenital hyperlipidemia
8. Gestational diabetes
9. Progressive heart disease
10. Progressive high blood pressure

Some relative but not absolute contraindications are:

1. Obesity
2. Headache
3. Fibroids

The progestin-dominant pill is suitable for a woman if she should have:

1. Excessive outpouring of leukorrhea
2. A generalized sense of bloating or nausea while taking a contraceptive with high estrogen component
3. A tendency toward fluid retention and premenstrual weight gain
4. A degree of emotional instability and irritability prior to the menses
5. Excessive menstrual flow
6. More than the average amount of fibrocystic disease and a tendency towards swollen, tender breasts and nipples

Women experiencing the following are not good candidates for progestin-dominant contraceptives:

1. Hirsutism and acne
2. Underdevelopment of breasts
3. Very scanty menstrual flow or a fore-shortened cycle
4. Increasing appetite and steady weight gain
5. Varying degrees of depression in the menstrual cycle
6. Excess weight gain during previous pregnancy
7. Intermittent depression or loss of libido
8. Breakthrough bleeding

THE MINIPILL

This is a progestin-only preparation which, when taken as directed, is an effective oral contraceptive, although it is less effective than an estrogen-progestin combination. The preparations available are Micronor, Nor-Q.D., and Ovrette. The anticonception effect is due to a combination of poor endocervical mucus preventing sperm penetration in addition to the endometrial changes that are out of sequence for proper implantation of the blastocyst. There is also an effect on tubal motility and the enzymes in the endosalpings. Presently, the majority of women using the minipill continue to ovulate. These pills are administered on a continuous daily basis, starting on the first day of menstruation. The minipill seems to be perfect for women who cannot tolerate the combined prepa-

arations because of excessive side effects such as nausea, weight gain and mastalgia.

Intrauterine Contraceptive Devices

Stoning the camel was a practice that dates back to ancient Egyptians who introduced a small oval stone into the uterine cavity of female camels to prevent them from becoming pregnant if they were to be used for long journeys across the desert.

Very much later, Pust, a German gynecologist, designed a number of cervical stem pessaries made of glass, a combination of metals and a silkworm, and used them to treat dysmenorrhea when associated with an acutely antileflexed uterus. It was observed that these pessaries acted as contraceptives. Another German gynecologist, Ernst Grafenberg, eliminated the part of the appliance that lay in the cervical canal and produced his now well-known ring made of coiled silver wire.

The Japanese were the first to make and use plastic devices, and today the following devices are available for clinical use:

1. Saf-T-Coil
2. Lippes loop
3. Copper-7
4. Copper-T or Tatum-T
5. Progestasert

The mechanism of action of intrauterine contraceptive devices is not very clear. The theory that increased tubal and uterine motility causes the fertilized egg to reach the endometrium before the conditions are favorable for implantation has not been substantiated. It is also believed that the inflammatory and immune reaction within the endometrium may cause problems of implantation of the blastocyst.

The action of copper in copper-impregnated intrauterine devices is believed to be due to its interference with the migration of spermatazoa as well as with implantation, probably by disrupting the sulphydryl groups in the endometrium and in the spermatazoa.

HISTOLOGICAL CHANGES

The effects of intrauterine contraceptive devices on the endometrium have been well studied in human beings. The most obvious changes are 1) an increase in the number and size of vascular channels, 2) a diffuse or patchy subsurface stromal hemorrhage, and 3)

changes in the amount and distribution of fluid in the endometrial stroma

ADVANTAGES OF THE INTRAUTERINE DEVICE

1. The greatest advantage is that once the device is in place, no further motivation, effort or treatment is required for continued contraception
2. It is especially useful for those who have trouble following directions or remembering to use any other method
3. There is a lack of systemic effects
4. It may be most suitable for older women

DISADVANTAGES OF THE INTRAUTERINE DEVICE

1. Pain and difficulty associated with insertion
2. Side effects of cramps and bleeding and vasovagal reaction
3. Failure (2% to 5% pregnancy rate)

COMPLICATIONS OF THE INTRAUTERINE DEVICE

1. Bleeding
2. Pregnancy
3. Expulsion
4. Pain
5. Perforation
6. Infection
7. Fracture of the device or loss of the string attached to the intrauterine device

CONTRAINDICATIONS

1. Severe dysmenorrhea
2. Menorrhagia
3. Pelvic infection, recent or chronic
4. Perimenopausal menstrual abnormality
5. Congenital anomalies of the uterus
6. Some women with fibroids

Surgical Sterilization

The use of sterilizing procedures is increasing world wide. In the male, vasectomy is simple, safe and effective, but has the mild disadvantage of not being immediately effective. On the other hand, in the female, the tubal ligation involves no measurable risk to life, can be done as an outpatient procedure, and is immediately effective. Tubal sterilization in the female can be performed in the postpartum period or

as an interval procedure. The routes by which this procedure can be performed are via the abdominal wall, via the posterior fornix of the vagina, or by the use of a laparoscope or hysteroscope. Though the use of the laparoscope for tubal sterilization procedures has gained wide acceptance and popularity, the mini-laparotomy is as safe and quick and effective in selected females and has the additional advantage of low cost.

Damage to the tubes caused by coagulation or cauterization via the laparoscope not only damages extensive areas of the tube and the broad ligament, but also may cause some ovarian dysfunction leading to post-sterilization problems of pain and bleeding. On the other hand, use of mechanical devices to occlude the fallopian tube such as the use of silicone rubber bands or plastic clips has been shown to minimize the above-mentioned postoperative symptomatology. Because the mechanical devices produce minimal damage to the fallopian tubes this method is most suitable for a young woman who may request tubal reanastomosis at a later stage.

To date, we do not have a single reversible method of sterilization. Any surgical sterilization method is designed to be permanent and tubal occlusion procedures are accepted as the preferred procedure for those women who have definitely completed their child-bearing and who desire sterilization. Should any uterine pathology and/or symptomatology of significance be found, then hysterectomy is acceptable and fully justified as a sterilization procedure.

Overall, from my experience, I would advise the following as the best forms of contraception for the various categories of women:

Unmarried teenagers

1. Abstinence through education and self-control
2. Condoms and spermicides
3. Diaphragm and spermicides
4. Oral contraceptives

Married women

1. Condoms and spermicides
2. Diaphragms and spermicides
3. Oral contraceptives
4. Intrauterine contraceptive devices
5. Tubal occlusion by a method that would result in minimal damage to the

tubes. Example: clips, bipolar cautery or Falope rings

6. Hysterectomy only if uterine pathology of significance exists

Women over 35

1. Diaphragm and spermicides or condoms and spermicides
2. Intrauterine contraceptive devices
3. Tubal occlusion
4. Hysterectomy if uterine pathology or symptomatology of significance exists

Preabortal women

1. Suction dilatation and curettage followed by tubal occlusion

2. Saline abortion followed by tubal occlusion
3. Abortion-hysterectomy if, in addition, any uterine pathology is found

Postabortal women who desire further fertility

1. Barrier methods
2. Oral contraception
3. Intrauterine devices

Postpartum women

1. Use of condoms and spermicides
2. Oral contraceptives
3. Intrauterine devices
4. Tubal occlusion