Fertility regulation

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Abstract

Ovarian cells or the number of incompetent ovarian cells that may lead to pregnancy is reduced. At a certain age, for example, after 40 years of age, naturally reduces the possibility of conception also the possibilities of spontaneous abortion and anomalies. Fertility of men and women also depends on life habits, the presence of certain illnesses, the enjoyment of various opiates, etc. Unhealthy lifestyle, poor nutrition and obesity are also factors that reduce fertility in men and women. An average, healthy couple it is necessary six to twelve months of active endeavours to conceive of pregnancy. If pregnancy does not occur during this period, it is necessary to seek medical help.

Keywords: Woman; Man; Pregnancy; Fertility; Infertility

Introduction

Influences that determine when a woman will become pregnant have changed in modern society [1]. Today young women can defer pregnancy and control their fertility in ways that our grandmothers had little choice over. Becoming a mother at the turn of the twentieth century brought real and significant risk of mortality, whereas loss in modern society is perceived in much less of a physical sense and more of a materialistic event.

Fatherhood is a social construct, which is bequeathed, whereas motherhood is physically experienced and witnessed by society, there is no doubt that a woman is inextricably bound to her developing fetus in a way that fathers never could be. This fact may explain some of the patriarchal constructs created to control fertility, childbirth and womanhood. Feminists have long explored and challenged the role of men with infertility and questioned their interference; women are by their nature able to procreate and suckle their babies and therefore perceived to be much closer to nature. This gives women a fixed certainty with their infants, an interconnectedness that is private and excludes the male.

Pregnancy

Fertility regulation, whether by pre- or postconceptive means, is neither a socially progressive nor reactionary idea when viewed in historical perspective [2]. While many individual physicians have made outstanding...
contributions and consistently championed the rights of women, organized medicine in many lands has been reluctant to support voluntary family planning services unless established under medical control. Such policies have often been particularly detrimental to those economically disadvantaged women who wanted to regulate their childbearing but were unable to afford financially costly abortions.

In some respects the process of obtaining an abortion differs markedly from traditional medical practice. Women wishing to terminate an unwanted pregnancy are usually 'healthy' and seldom in need of medical diagnosis or medical treatment of a medically identified disease. Some physicians are prepared to perform abortions to save a woman's physical health, but not to preserve the economic well-being for her family. Women requesting implementation of their abortion decision do so because their pregnant condition is personally aversive or perceived to be socially stigmatizing. The role conflict between serving as a medical implementor of a woman's decision and the more traditional orientation of medical decision-maker is perhaps a greater divisive influence in the abortion debate than the more widely discussed moral and ethical issues.

The decision to terminate an unwanted pregnancy is usually a private matter, affected to only a limited degree by public policies. Such choice behavior is the end product of complex interaction processes, including psychosocial and socioeconomic determinants, couple communications, and cultural/environmental influences. As the law becomes more responsive to social needs and women's concerns, and as legal rights are translated into personal choices and readily accessible facilities, the goal will be to provide early, safe and dignified abortion services when needed and at reasonable cost to all segments of the population.

The medical profession has not taken kindly to its involvement in matters of contraception and abortion [3]. Life-threatening disease receives an undisputed priority in medical thinking and for most doctors trained before 1965, preservation of fetal life was the keystone of teaching in obstetrics and gynaecology. Abortion for serious illness was permissible but advances in the treatment for such cases meant that abortion became less important. Uncontrolled fertility, with its social, economic and health consequences, is no longer acceptable. Social and emotional aspects of disease are now respectable concepts in medicine and doctors can no longer ignore the consequences of an unwanted pregnancy. So often unplanned pregnancy, conceived against a background of social deprivation, threatens to exacerbate existing tensions and carry them forward into a new generation.

Diseases

Abortion can play an important part in the management of a somatic disease where pregnancy adversely affects an existing medical condition such as severe respiratory impairment, glomerulo-nephritis, dermatomyositis and breast carcinoma [3]. In such circumstances continuation of a pregnancy could impair or delay the proper treatment of the disease. Carcinoma of the cervix or malignant disease of the abdomen may require urgent surgery with or without radiotherapy, which cannot be safely carried out in the presence of a continuing pregnancy. Successful renal transplant or artificial heart-valve implant requires continuous treatment with anti-rejection or anti-coagulant therapy, both of which can adversely affect the continuing pregnancy. In such cases the choice may lie between an abortion and withholding treatment for the sake of the foetus. The ability of a woman to cope with an existing illness such as rheumatic heart disease, schizophrenia, or a severe physical disability, may be disrupted by the arrival of another infant and it is in such circumstances that medical and social indications overlap. Lastly there are circumstances when a previous obstetric history of a ruptured uterine scar, severe Rhesus iso-immunization, or hypertension suggest that a
new pregnancy would cause a serious risk to the life or health of the mother. Here again abortion will offer an alternative to the risks of continuing the pregnancy.

**Venerable Diseases**

Venereal diseases are epidemic in the United States alone [4]. Venereal diseases are among the most prevalent and dangerous of our communicable disease states. The term venereal diseases (VD) seems to be losing favor in the contemporary literature, and sexually transmitted diseases (STD) will be the designation in the 1980s. The sexually transmitted diseases are diseases of human behavior and are influenced greatly by socioeconomic, psychologic, and cultural factors. Some of the diseases are obviously more important than others because of their sequelae, but in aggregate they are the major cause for patient visits to physicians and can include some of the most common and important infectious diseases. Because reports limited to the sexually transmitted diseases of adolescent women are not abundant in the literature, much of the following review will depend on studies of adults. However, the ready application to the teenage patient is quite clear.

**Family Planning**

The decision of when to start a family, or how to space children within a family, is inherently colored by social and psychological factors [5]. Unlike biological events in a woman’s life such as puberty or menopause, family planning is largely under a woman’s control, and her decisions are shaped by other life events. Issues such as psychological maturity, dynamics of the partner relationship, demands of work and career, and financial readiness may all contribute to a woman’s decision to put off pregnancy when she is sexually active. To do so, she has at her disposal a wide array of contraceptives, including behavioral (abstinence or natural family planning), pharmacological (oral, implantable or injectable contraceptives), and surgical choices (sterilization). Decisions regarding method of pregnancy prevention are dependent on which of these methods is most suitable to her lifestyle and mindset.

In fact, in no other aspect of medicine is the prescription of pharmaceuticals or medical procedures so closely tied to psychosocial as opposed to biological factors. Unlike the medications dispensed for illness, or surgeries intended to rectify a disorder, interventions for family planning are largely elective and the best course of treatment is decided not by the health care provider but by the patient. In this respect, family planning is more subject to the psychological and social attributes of the patient than most other aspects of medical practice, or even gynecological practice.

**Family Life**

One concrete way in which health services can improve family life is by assisting people in the planning and spacing of their children [6]. Comprehensive family health services, including family planning, can make an important contribution in preventing illness, and in enhancing health in general and mental health in particular.

However, assisting people to plan and space their children is not a simple undertaking especially where social and economic conditions are unfavourable. In such situations, the mere distribution of contraceptive technology has not had a significant effect either on family planning patterns or on the health of people. Success requires a host of educational, counselling and medical care services geared to meet complex needs. Abortion should be provided as one of these services. The availability of abortion does not have to be defended on ideological or moral grounds. For anyone sensitive to the reality and the needs of the community, the moral controversy over abortion is of little concern. If the goal of health services is to improve the health of the community, and if abortion is a health problem, then it should be made safe. But
since abortion is costly both financially and personally, efforts should be made to prevent the need for it by contraception. However, abortion and contraception are not alternatives but complementary, and no contraceptive method is completely effective. In any case many women do not use contraception either because of medical contraindications, or because they are not exposed to the risk of pregnancy regularly enough to need continuous protection.

Examining more specifically the contribution of abortion to mental health, two sets of arguments can be put forward. One argument is that by preventing compulsory pregnancy and parenthood abortion services contribute to the enhancement of human dignity and demonstrate man's ability to shape and control his fate.

**Infertility**

About one in seven couples have difficulty conceiving naturally [7]. The birth of the first 'test-tube' baby, Louise Brown, in 1978 gave hope to many childless couples. Since then, the pace of development in the reproductive technologies has been relentless. Reproductive medicine no longer focuses exclusively on the management of infertility. Single women can be assisted to have a child without resort to sexual intercourse. Same sex couples can be helped to have a child. Couples, who are fertile, but know that they, or one of them, is a carrier of a genetic disease can be helped to have a healthy child, by way of preimplantation genetic diagnosis (PGD) whereby embryos are screened to avoid implanting any embryos with the defective gene. Couples who already have one sick child can seek PGD together with tissue typing, to attempt to create a 'saviour sibling' for their sick child. Each and every development in the reproductive technologies attracts controversy.

An interesting set of issues has arisen as a result of the new developments that have taken place to assist people who have fertility disorders to conceive and bear children [8]. The techniques of artificial insemination and in vitro fertilization, as well as the use of surrogate mothers, bring several moral issues to the fore. A consideration of these issues helps to identify some of the underlying values that society uses to drive policy decisions. It seems that whenever the creation of life is concerned a deep seated mysticism often is brought into play, and people appeal to a different set of principles than those involved in other matters regarding similar formal concerns regarding moral and commercial issues. The same level of emotionality can be seen when people discuss the Human Genome Project and when they consider the possibilities of genetic screening, cloning, and manipulations of the genome.

It is widely accepted practice to describe couples who are unable to have a family as being 'infertile' but this is not always correct [9]. Infertility is an inability to produce gametes and this accounts for only about half the cases in which couples are unable to have children. In the remainder, the individuals produce gametes normally but, for one reason or another, fertilisation and implantation of an embryo in the woman’s womb is prevented or is contraindicated. It is, therefore, more correct to speak in terms of ‘childlessness’ to describe such a condition. The distinction is more than a matter of semantics and has practical consequences. One line of justification for this is to argue that, while the underlying cause – for example, disease of the Fallopian tubes – is certainly a matter of medical concern, the result, childlessness, is a social rather than a medical matter. Thus, although unblocking the tube would come within the ambit of the health authority, the provision of in vitro fertilisation (IVF) would not. This perspective may be arguable on both economic and ethical grounds, but it is mentioned in order to show that health authorities which do not provide IVF may have a tenable point of view. In any event, it is reasonable to take a more open view and to define infertility as ‘the involuntary, significant reduction of reproductive capacity’ – a definition that was accepted by the Canadian Law Reform Commission and which conforms to popular usage.
Investigation

The aim of the investigation of the infertile couple is to find the cause(s) of the problem and treat accordingly [10]. Both investigation and treatment are logical stepwise processes. A ‘blunderbuss’ approach may sometimes be successful, but it is not the most efficient, safe, and economical way to approach the problem. Accurate history taking is absolutely essential for discerning the cause(s) of the infertility. By listening carefully and asking direct questions, many clues can be found. The headings can be used as a guide at the first consultation. The answers to the direct questions can prompt further, more detailed inquiries, e.g. is the amenorrhoea 1° or 2°? If 1°, is there a problem with the sense of smell? If 2°, are there any hot flashes, etc.?

The results of the history and examination alone will often indicate the possible cause of the infertility and will also dictate the order in which the more specific examinations be made. It should be remembered that many couples may have more than one specific cause for their infertility and also that up to 30% may be ‘unexplained’ in that all the basic, and more specific, infertility investigations prove to be normal.

The investigation of the infertile couple at a basic, first-line level involves a semen analysis, and an examination of ovulatory function and of the integrity of the female reproductive tract. An abnormal result for any of these basic investigations may prompt second-line examinations. The basic investigation of fertility problems should always include a semen analysis and assessment of ovulation [10].

A normal semen analysis precludes the need for further examination. A grossly abnormal result (azoospermia or severe oligo-terato-asthenospermia) demands a repeat test without further delay. An otherwise abnormal result should be confirmed or negated by a repeat test after 3 months as this is the normal duration of a sperm cycle. The practical help from the performance of a screening test for antisperm antibodies is doubtful.

Ovulation can be most simply confirmed in women with regular cycles by measuring serum progesterone concentration in the mid-luteal phase, i.e. day 21 in a woman with 28-day cycles. A serum progesterone concentration of >5ng/mL (25nmol/L) is a clear indication that ovulation is occurring. For women with prolonged cycles, a similar blood test should be performed ~ 7 days before the time of the expected menstruation. For women age ≥ 35yrs, a routine examination of serum FSH, oestradiol, and LH is warranted on day 3 of the cycle.

A history of conditions such as PID, pelvic surgery (including appendicectomy), previous Caesarean section, ectopic pregnancy, endometriosis, etc. indicates early investigation of a possible mechanical factor. In the absence of any hint of a mechanical problem, its assessment can be left to a later stage if needed, preferably by HSG. Some prefer performing a laparoscopy using a dye as the first-line investigation, but this more invasive examination is often reserved for when an HSG reveals obvious abnormalities. Further, the use of an HSG as a screening test, as opposed to laparoscopy, has the advantage of demonstrating the uterine cavity and the fact that the revelation of clear evidence of a lesion, e.g. bilateral tubal occlusion with hydrosalpinges, can indicate proceeding directly to IVF or tubal surgery without the need to perform a diagnostic laparoscopy.

Clearly, the process of sperm-oocyte fusion is central to fertility, and therefore a logical target for fertility regulation [11]. Resolving the molecular mechanisms that drive this process is critical if it is to be a target for vaccine development. In this context, recent data indicating that nitric oxide is in some way involved in programming the sperm surface for fusion with the oocyte, and has a possible role in mediating the adhesion process, provide direction for future studies. Similarly, analysis of the molecular mechanisms responsible for
controlling the sperm-zona interaction should produce potential candidates for contraceptive vaccine development. Characterization of human sperm surface antigens is still in its infancy, although several candidate molecules have already shown promise in vivo.

Sperm surface antigens could be developed as contraceptive vaccines in the male as well as the female. Clearly, clinical data support the general concept that antisperm antibodies could have a contraceptive effect in the male. The challenge will be to develop immunization protocols capable of generating local immune responses in the epididymis or, possibly, the secondary sexual glands, of sufficient intensity to compromise the function of millions of spermatozoa. Suppressing the function of the small population of spermatozoa that reach the site of fertilization in the female will always be a more straightforward proposition than targeting the large number of spermatozoa being continuously generated in the male reproductive tract. For this reason, antisperm vaccines are more likely to be developed for the control of fertility in the female rather than in the male.

Regulation

Rapid population growth can be threatening to the environment and compromises long-term health [12]. Personal regulation of fertility helps women realise their reproductive goals allowing opportunities for career aspirations, and improves maternal health by reducing the risk of pelvic inflammatory disease (PID), associated ectopic pregnancy, morbidity and mortality of illegal abortions and their complications. Regulation of fertility also promotes better health for children and reduces the strain on environmental and community resources. When such a broad concept of reproductive health care is endorsed and recognised it improves the quality of life.

Sub-Saharan Africa has high fertility rates but paradoxically also has the highest incidence of infertility due to sexually transmitted infections (STI). Infertility can be a major cause of ill-health especially in those societies where the worth of a woman is related to her reproductive potential, often resulting in disastrous emotional and psychological sequelae. Provision of reproductive health care has a dual role in enhancing the quality of life and impacting on population control policies and demographic targets.

Conclusion

Infertility is an important public health problem because it is believed that only 85% of couples who do not use contraception will be able to achieve pregnancy in the first year of trying, while the other 15% is at least temporary infertility. Some couples will succeed during the second and third year of trying, and some couples will seek immediate medical help. Very few couples will never succeed in fulfilling their wishes. Fertility is the ability of individuals or populations to have children. Fertility depends on factors of diet, sexual behavior, culture, instinct, endocrinology, time, economy, lifestyle and emotions.

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