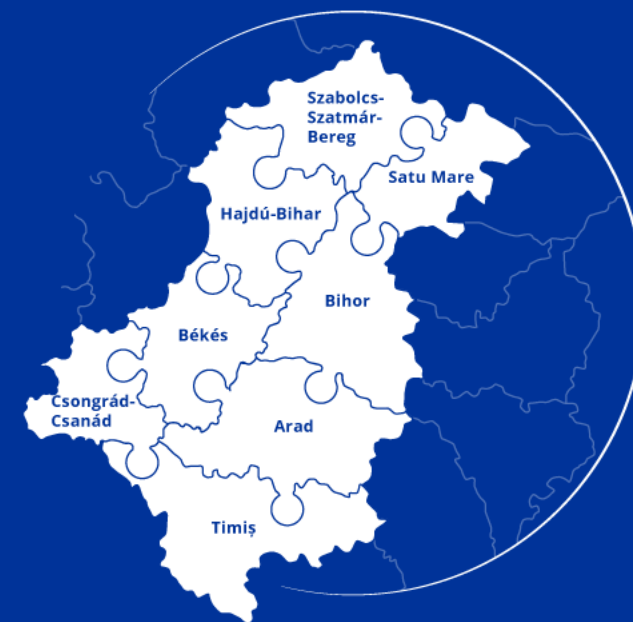


INFERTILITY BETWEEN MYTH AND REALITY

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INFERTILITY- INTRODUCTION

Significant social and medical problem affecting couples worldwide

- Average incidence of infertility is about 15% globally
 - Varies in different populations
- Some causes can be detected and treated, whereas others cannot
 - Unexplained infertility constitutes about 10% of all cases



WHAT IS INFERTILITY?

NICE:

Failure to conceive after regular unprotected sexual intercourse for 2 years in the absence of reproductive pathology.

GP NOTEBOOK:

Infertility is the failure of conception in a couple having regular, unprotected sexual intercourse for 1 year, provided that normal intercourse is occurring not less than twice weekly.



TYPES OF INFERTILITY

- Primary infertility
 - couple has never produced a pregnancy
- Secondary infertility
 - woman has previously been pregnant, regardless of the outcome, and now is unable to conceive.



CONCEPTION AND FERTILITY

Natural conception rates:

- 80% of couples will be pregnant after 12 cycles.
- 50% of remaining will conceive during a 2nd year (hence cumulative rate 90%)
- 50% in the following 4 years.

Main events necessary for pregnancy to occur are:

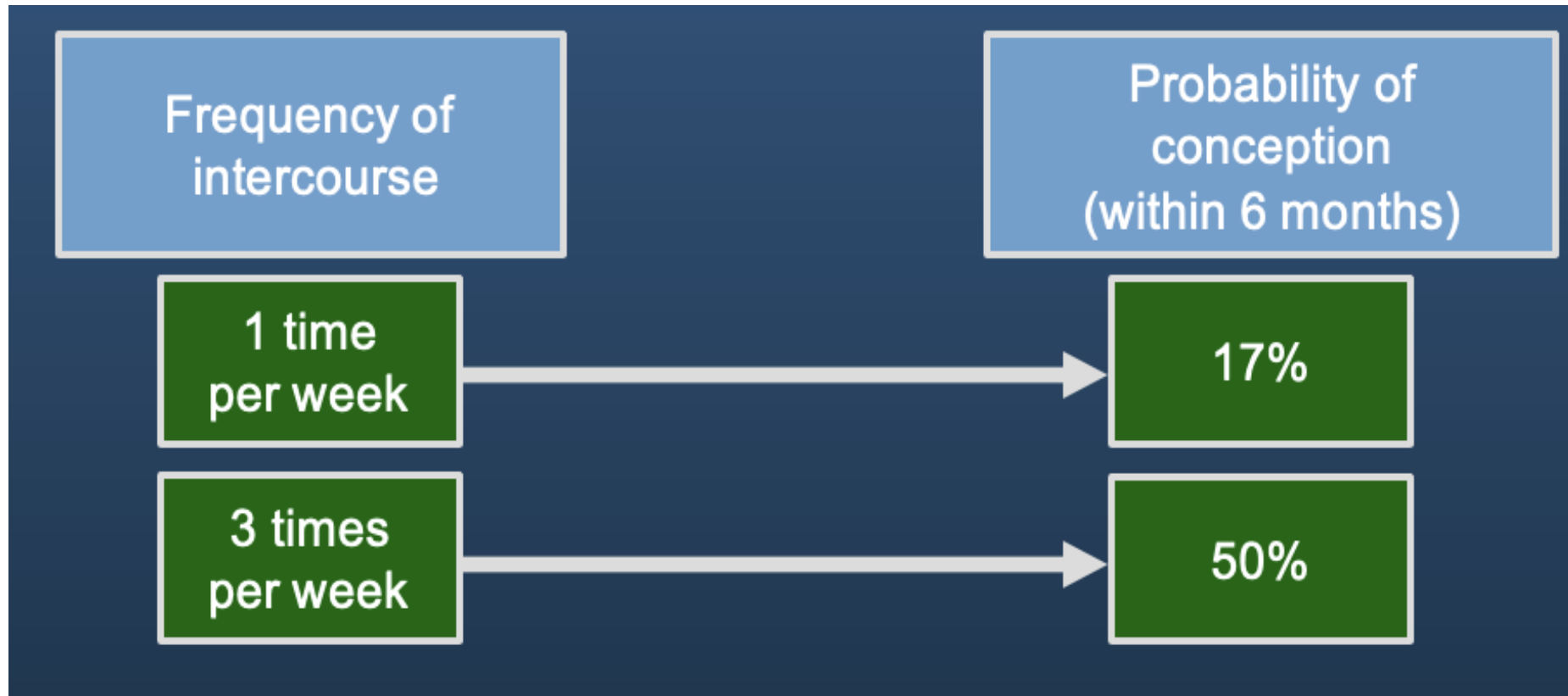
- ovulation
- fertilization
- implantation



Factors Affecting Fertility:

Frequency of Intercourse

Coital frequency is positively correlated with pregnancy rates



Factors Affecting Fertility:

Timing of Intercourse

Intercourse just before ovulation maximizes the chance of pregnancy

- Sperm survives as long as 5 days in the female genital tract
- Ovum life expectancy is about 1 day if not fertilized
- Sperm should be available in the female genital tract at or shortly before ovulation



Factors Affecting Fertility: STIs and Other Infections

- Gonorrhoea and chlamydia can cause:
 - in women: pelvic inflammatory disease (major cause of tubal infertility) and cervicitis
 - in men: urethritis, epididymitis, accessory gland infection
- Mumps, leading to orchitis, may cause secondary testicular atrophy
- Other infections that may affect fertility include tuberculosis, toxoplasmosis, malaria, schistosomiasis and leprosy



Factors Affecting Fertility

- Age of the woman
 - after 40 the fertility rate decreases by 50% while the risk of miscarriage increases
- Age of the man
 - increased age affects coital frequency and sexual function
- Nutrition
 - for women, weight 10% to 15% below normal or obesity may lead to less frequent ovulation and reduced fertility



Factors Affecting Fertility

Factors that can contribute to fertility problems include:

- toxic agents, such as lead, toxic fumes and pesticides
- smoking and alcohol

All these factors may cause:

- in women: reduced conceptions and increased risk of fetal wastage
- in men: reduced sex drive and sperm count

Infertility may be a result of one or more male or female factors

Female and male factors are equally responsible for infertility

(30% to 40% each)

In 20% of cases there is a combination of both factors

Evaluating both partners is essential



Requirements for Female Fertility

- Vagina capable of receiving sperm
- Normal cervical mucus to allow sperm passage
- Ovulatory cycles
- Patent fallopian tubes
- Uterus capable of developing and sustaining pregnancy
- Adequate hormonal status to maintain pregnancy
- Adequate sexual drive and sexual function
- Normal immunologic responses to accommodate sperm and conceptus
- Adequate nutritional and health status to maintain nutrition and oxygenation of placenta and fetus



Causes of Female Infertility

Pelvic inflammatory disease (PID) leading to blocked or damaged fallopian tubes

- may interfere with fertilization and transport of egg

Ovarian dysfunction resulting in absent or diminished egg production

Local factors in the uterus and cervix

- may interfere with implantation and woman's ability to carry pregnancy to term

Luteal phase defect

- results in low production of progesterone
- may lead to early miscarriage

Production of anti-sperm antibodies

- can interfere with fertilization
-



Fertility Evaluation:

General and Sexual History

- General history
 - occupation and background
 - use of tobacco, alcohol and drugs
 - history of abdominal surgery and earlier diseases/infections
- Sexual history
 - sexual disturbances or dysfunction such as vaginismus, dyspareunia or erectile dysfunction
 - sexually transmitted infections

Obstetric and Gynecological History

- Reproductive history
- Gynecological history
- Age at menarche
- Menstrual periods: duration and intervals
- Previous contraceptive use
- Previous testing and treatment for infertility



Fertility Evaluation: General and Gynecological Examination

Visual evaluation and pelvic exam for women to rule out:

Endocrinopathy

Congenital anomalies

Uterine hypoplasia

Cervical lesions

Dyspareunia

Visual evaluation and penile exam for men to rule out:

Hypogonadism

Tumors

Epididymal cysts

Cryptorchidism

Hydrocele

Varicocele



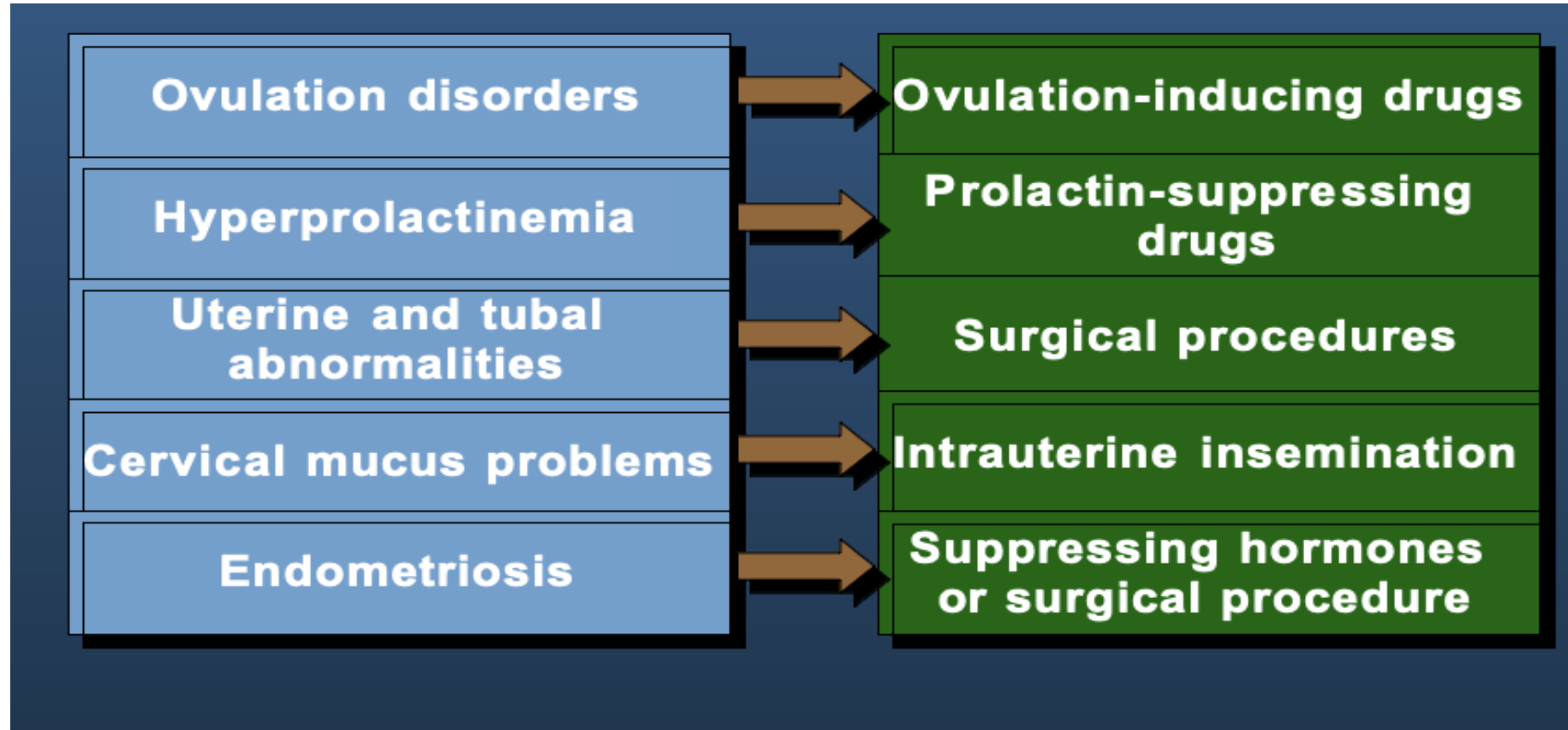
Fertility Evaluation of Female Partner: Evidence of Ovulation

Ovulation can be established based on:

- Urine test
 - measures the LH in urine to detect if and when ovulation occurred
- Basal body temperature chart
 - temperature is measured every morning, before woman gets out of bed
 - elevation in temperature indicates ovulation
- Progesterone test
 - progesterone level in blood is measured on days 21 or 22 of 28-day cycle
- Endometrial biopsy
 - done during premenstrual phase
 - detects if endometrium undergoes expected changes (consistent with ovulation and production of progesterone)



Treatment Possibilities: Female Infertility



Treatment of Female Infertility:

Induction of Ovulation

- Involves the use of medication to stimulate development of one or more mature follicles
- Success rates vary considerably and depend on age of the woman, the type of medication used, whether there are other infertility factors present in the couple and other reasons

Intrauterine Insemination

- A fertility procedure in which sperm are washed, concentrated and injected directly into a woman's uterus
- Increases the number of sperm in the fallopian tubes
- Not recommended in cases of tubal blockage, poor egg quality, ovarian failure and severe male factor infertility
- Most successful when coupled with drugs inducing ovulation (success rates of 5% to 20% per cycle)



Treatment of Female Infertility: Assisted Reproductive Technology (ART)

- Noncoital methods of conception
- Includes all fertility treatments in which both eggs and sperm are manipulated
- Types of ART include:
 - In Vitro Fertilization (IVF)
 - Zygote Intrafallopian Transfer (ZIFT)
 - Gamete Intrafallopian Transfer (GIFT)

ART: In Vitro Fertilization

- Involves retrieving eggs and sperm from female and male partners and placing them in a lab dish to enhance fertilization
- Fertilized eggs are transferred several days later into the uterus
- Ovarian stimulation drugs are used prior to procedure in order to retrieve several eggs and maximize chances for successful fertilization
- Success rates are about 20% per egg retrieval



ART: Gamete Intrafallopian Transfer (GIFT)

GIFT is a procedure that involves:

- ovarian stimulation
- retrieval of eggs
- placing a mixture of sperm and eggs directly into the woman's fallopian tube

GIFT does not allow visual confirmation of fertilization

Success rates per egg retrieval are about 28% (higher than for IVF)

ART: Zygote Intrafallopian Transfer (ZIFT)

- ZIFT, also called tubal embryo transfer, is another variation of IVF
- As with IVF, the actual fertilization takes place in a lab dish
- Fertilized eggs are placed directly into a fallopian tube
- Success rate is about 29% per egg retrieval



Infertility: A MYTH?

- Infertility is a significant social and medical problem affecting couples worldwide
- Female and male factors are equally responsible
- Evaluation of both partners is essential
- Treatment depends on the cause of infertility and varies from ovulation-inducing drugs to surgery to ART





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