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Practical Tips for INFERTILITY Management



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Infertility: FAQs

3
Chapter

Q1. Define 'Infertility'.

Ans. Failure to achieve a pregnancy after 12 months or more after regular unprotected sexual intercourse.

Primary—Never had a child.

Secondary—Failure to conceive following a previous pregnancy.

Q2. What is the male contribution percentage in infertility?

Ans. Males are the sole cause of infertility in approximately 20% of infertile couples and are an important contributing factor in another 20–40% of couples with reproductive failure **(Fig. 3.1)**.

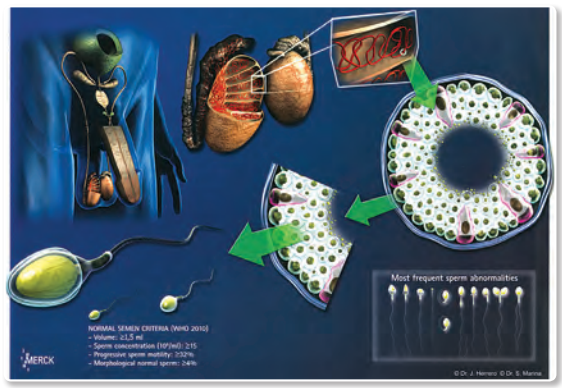

Fig. 3.1: Sperm anatomy: role in infertility

Q3. How long does spermatogenic process take to complete?

Ans. The spermatogenic process is directed by genes located on Y-chromosomes 4 and take approximately 70 days to complete. Another 12–21 days are required for the transfer of sperm from the testis to the ejaculatory ducts.

Q4. How do antisperm antibodies (ASA) affect fertility?

Ans. Approximately 10–12% men have ASA. Their presence may lead to a decrease in sperm motility and may impede sperm binding to the zone pellucida.

Q5. Does age affect male fertility?

Ans. Semen volume, sperm motility and the proportion of morphologically normal sperm but not the sperm concentration decreases gradually as age increases.

Q6. What is the initial evaluation of male factor infertility?

Ans. Initial evaluation should include detailed medical and reproductive history, physical examination and at least two properly performed semen analyses obtained at least 4 weeks apart.

Q7. Further evaluate oligospermia/azoospermia.

Ans. When a male presents with severe oligospermia or azoospermia, a hormonal profile of peripheral blood, including follicle-stimulating harmone (FSH), luteinizing harmone (LH), testosterone and estradiol levels, should be requested. In addition, in azoopermia, a karyotype should also be done **(Fig. 3.2)**.

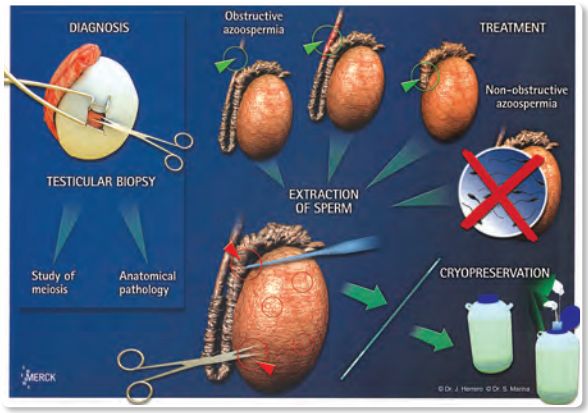

Fig. 3.2: Diagnostic evaluation and semen extraction

Q8. Does obesity contribute to infertility?

Ans. Obesity can lead to a condition known as metabolic syndrome (MS). MS causes infertility through:

- Excess adipose, tissue which causes conversion of testosterone to estrogen. Subsequently causing secondary hypogonadism.
- Increased scrotal temperature due to suprapubic and inner thigh fat.
- MS is associated with increased oxidative stress.

Q9. What is the effect of smoking?

Ans. Smoking leads to increase in reactive oxygen species (ROS) level and reactive nitrogen species, which causes low sperm count, decrease in motility and poor morphology.

Q10. Cell phones affect fertility adversely—Truth or Myth?

Ans. Microwaves produced by mobile significantly deplete superoxide dismutase activity and increase the concentration of malonyldialdehyde. This leads to decrease in sperm parameters.

Q11. What are the causes of congenital azoospermia?

Ans. Congenital causes include cystic fibrosis, congenital absence of vas deferens, ejaculatory duct or prostatic cyst and Young's syndrome.

Q12. What are the various sperm retrieval techniques?

Ans.

- Percutaneous epididymal sperm aspiration (PESA)
- Testicular sperm aspiration (TESA)
- Microsurgical epididymal sperm aspiration (MESA)
- Microsurgical testicular sperm extraction (Micro-TESE)
- Testicular sperm extraction (TESE).

Q13. What are the treatment options for varicocele?

Ans. Varicoceles are treated either by surgery (open with/without magnification and laparoscopy) or percutaneous embolization of internal spermatic vein.

Q14. How does maternal age affect fertility?

Ans. One of the most important factors that influences a couple's fertility is woman's age. This is because of a decline in oocyte quality.

Q15. Are contraceptives the culprits?

Ans.

- Yes, intrauterine device (IUD) users are twice at risk of infertility.
- Low monthly fecundity rates are noted in women who discontinued oral contraceptives.

Q16. What is ovarian reserve?

Ans. The resting follicle pool represents one ovarian reserve from which follicle will be recruited for maturation throughout life.

Q17. What test can identify the ovarian reserve?

Ans. Dynamic

- Clomiphene citrate challenge test
- GnRH agonist stimulation test (GAST)
- Exogenous FSH ovarian reserve test (EFORT).

Biochemical

- FSH, estradiol, inhibin B, antimullerian, hormone.

Sonographic

- Antral follicle count, ovarian volume.

Histiologic

- Ovarian biopsy.

Q18. Which is the standard test to assess tubal patency?

Ans. Hysterosalpingogram (HSG), which is performed in the follicular phase. Besides being a diagnostic tool. HSG has been shown to be therapeutic as well **(Fig. 3.3)**. Approximately, 30% of patients, who have normal HSG, will conceive over the following 6 months.

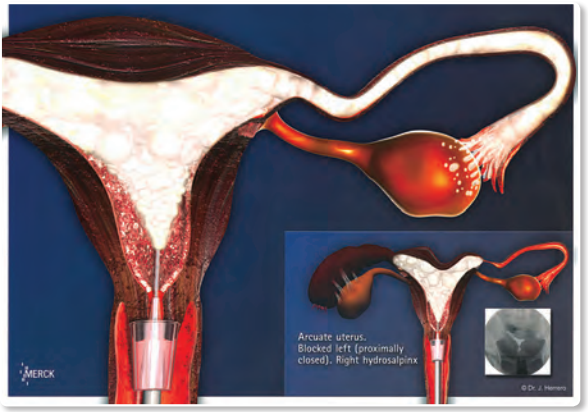

Fig. 3.3: Hysterosalpingogram showing arcuate uterus

Q19. When is laparoscopy indicated?

Ans. It is considered in patients who have a history of pelvic infection, signs or symptoms compatible with endometriosis or abnormal findings on HSG.

Q20. What is the epidemiological trend of natural fertility?

Ans. Natural fertility declines with maternal age. Normal women experience their peak fertility in early 20s and an accelerated decline in late 30s.

Q21. What is intrauterine insemination?

Ans. Intrauterine insemination (IUI) is a method of assisted conception in which washed spermatozoa are deposited in the

uterus at any point above the internal os around the time of anticipated ovulation.

Q22. What is the advantage of IUI?

Ans. This procedure helps in overcoming the problems of vaginal acidity and cervical mucus hostility and allows deposition of a good number of highly motile and morphologically normal sperms in the uterus near the fundus.

Q23. What are the prerequisites for IUI?

Ans.

- Age <40 years.
- Patient capable of spontaneous/induced ovulation.
- At least one patent fallopian tube with good tubo-ovarian relationship.
- Sperm count >10 million/mL prewash or postwash >3–5 millon motile sperm with motility of >40%.
- Easy access to the uterine cavity via a negotiable cervical canal.

Q24. What is the regime of clomiphene citrate (CC)?

Ans. The drug is given in a dose of 50–150 mg/day for 5 days starting from 2nd to 5th day of the cycle. Starting from 2nd day reduces the antiestrogenic effect of the drug by the time ovulation occurs by day 14.

Q25. When is hCG administered?

Ans. Human chorionic ganadotropin (hCG) is administered when the leading follicle is 18–20 mm.

Q26. When to withhold hCG?

Ans.

- If there are more than 4 follicles >16 mm or >8 follicles >12 mm as, it can cause ovarian hyperstimulation syndrome (OHSS).
- If serum E2 >1500–2000 pg/mL.

Q27. How do we monitor follicular growth?

Ans.

- Transvaginal sonography (TVS)—Baseline on day 2, then from day 7 or 8 onwards.
- Serial serum estradiol levels.
- Urinary LH assay.

Q28. What should be the timing of insemination?

Ans. It should be as near to the ovulation as possible. 4 hours before or within 12 hours after ovulation yield good results **(Fig. 3.4)**.

Q29. What is the aim of ovulation induction?

Ans. Ovualtion induction aims to induce formation and ovulation of a single dominant follicle in an anovulatory woman.

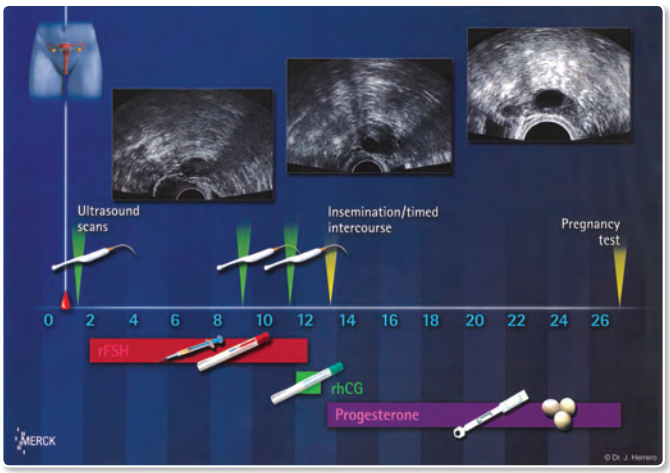

Fig. 3.4: Methods to know timing of insemination

Q30. Compare gonadotropin and CC for ovulation induction?

Ans. Gonadotropins are more effective than CC but are expensive, require parenteral administration and have higher risk for ovarian hyperstimulation and multiple pregnancies.

Q31. How does laparoscopic ovarian drilling help in improving ovulation in PCOS?

Ans. Electrosurgical reduction in the volume of ovarian stroma decreases ovarian androgen production and provides a better follicular environment. Reduction in androgen production causes lesser peripheral aromatization and elevated FSH levels and re-establishment of hypothalamic pituitary ovarian (HPO) axis.

Q32. What is the recommended procedure for ovarian drilling?

Ans. It has been recommended that a total of 4 punctures per ovary using a power setting of 30–40 W for a duration of 4–5 seconds per puncture produce an optimal response.

Q33. When to perform endometrial biopsy (EMB) in evaluation of female infertility?

Ans. EMB is not a part of initial work-up. It may be performed if the biphasic basal body temperature (BBT) curve is shorter than 11 days or if serum midluteal progesterone is less than 20, indicating a possible Luteal phase defect.

Q34. Which is the first test to evaluate uterotubal anomalies?

Ans. Hysterosalpingography.

Q35. When should an HSG be scheduled? Why?

Ans. The procedure should be scheduled in the midfollicular phase, which is 2–3 days after menses and before ovulation. It is scheduled after menses to decrease chances of retrograde flow of menstrual tissue and before ovulation to decrease the likelihood of women being pregnant.

Q36. Does HSG increase fertility by any way?

Ans. An HSG is thought to increase fertility by opening the tubes from the mechanical lavage of the dye, dislodging any

mucous plugs and breaking down peritoneal adhesions. It may also stimulate the cilia within the lumen of the tubes.

Q37. Why is hysteroscopy performed?

Ans. It is performed to further evaluate abnormalities diagnosed by HSG or to surgically address these conditions.

Q38. Which women are at risk for diminished ovarian reserve?

Ans. It includes women older than 35 years, those who smoke, those with previous ovarian surgery and those with moderate to severe endometriosis.

Q39. What are the various autoimmune factors influencing conception naturally or by use of Assisted Reproductive Technology (ART)?

Ans.

- Antiphospholipid antibody syndrome
- Antithyroid antibodies
- Antinuclear antibodies
- Antisperm antibodies
- Antiovarian antibodies.

Q40. What are the major components of a woman's body for female reproduction?

Ans.

- Brain
- Ovary
- Fallopian tube
- Uterus.

Q41. What is the fertility rate of humans?

Ans. Overall, human beings are not very fertile with maximum pregnancy rates of only 20–25% per cycle during the years of peak fertility (second and third decades of life).

Q42. What cases should be exempted from 12 months' window period of inability to conceive as infertility?

Ans. Certain patients may have some recognized factors that would lead to problems in conceiving such as:

- Women with extremely irregular periods
- History of severe endometriosis
- History of previous tubal pregnancies
- Deranged anatomical factors
- Age >35 years.

Q43. Is infertility increasing?

Ans. Infertily rates are relatively stable but utilization of fertility services has increased because of the greater availability of services themselves and trend toward delayed child-bearing.

Q44. What are the basic tests for Infertility?

Ans.

- Transvaginal sonography
- Blood tests
- Fallopian tubes assessment
- Semen analysis.

Q45. What should we look for during a TVS?

Ans.

- Uterine abnormalities like fibroid/polyps
- Location of ovaries
- Antral follicle count (number of follicles present)
- Abnormal ovarian cysts such as:
  - Endometriosis, dermoid cyst, precancerous or cancerous lesions.

Q46. What blood tests should be performed?

Ans. Female—Blood type, blood count, rubella immunity, prolactin, TSH levels and hormone testing for ovarian reserve.

Q47. What factors determine ovarian reserve?

Ans. Ovarian reserve depends on two factors:

- Number of extra follicles available to undergo recruitment which depends on women's chronological age, previous ovarian surgery, genetics and exposure to environmental toxins.
- Actual health of follicles and egg within these follicles.

Q48. Should estrogen testing be performed with FSH levels?

Ans. Yes, because FSH levels can be misleadingly low in women, who have a high estrogen level early in the menstrual cycle.

Q49. Can a patient be normal with high FSH count?

Ans. Yes, she can be normal if TVS reveals a large number of follicles. With elevated FSH levels, she can be reassured about normal ovarian reserve.

Q50. How is clomiphene citrate challenge test (CCCT) performed?

Ans.

- In CCCT, a patient takes 100 mg of clomiphene citrate on cycle days 5–9
- FSH levels are checked on days 3 and 10.
- If levels are:
  - <10 IU/L → Normal response.
  - Normal on Day 3 and >10 IU/L on day 10 → Poor pregnancy rate.
  - >10 IU/L on Day 3 and <10 IU/L on day 10 → Borderline.

Q51. Does spillage of ejaculate out of the vagina after coitus affect pregnancy?

Ans. No, it is normal for much of the ejaculate to spill out of the vagina after coitus, and this does not decrease their chances of being pregnant.

Rarely, women with prolapsed vagina cannot support and hold enough ejaculate following coitus and can have problems with conception.

Q52. What is the relation between FSH levels and ovarian reserve.

Ans. FSH levels more than 15 IU/L are an evidence of diminished ovarian reserve. FSH levels exceeding 30 IU/L usually signify premature ovarian failure.

Q53. What is polycystic ovary syndrome (PCOS)?

Ans. PCOS is defined as the presence of at least two out of these three criteria:

- Irregular menstrual cycles
- Evidence of extra male hormones as determined either by clinical examination or by blood tests.
- Ultrasonography (USG), demonstrating ovaries with numerous small follicles (PCO-appearing ovaries).

Q54. Why should hydrosalphinx tube be repaired before IVF?

Ans. Women who have hydrosalphinx should have their fallopian tubes either removed or cut prior to undergoing IVF so that the tubal fluid, which would be toxic to the embryo or adversely affect the receptivity of the endometrial lining does not flow backward into the uterine cavity, preventing implantation of the embryo.

Q55. Does steroid use affect spermatogenesis?

Ans. One interesting cause of azoospermia is anabolic steroid abuse. High dose of steroids can supress sperm production. In such patients, sperm production can be reinitiated by stopping the steroids and placing men on gonadotropin therapy.

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ISBN 978-93-5152-883-8