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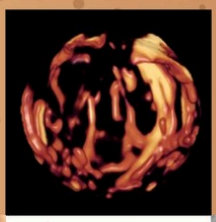

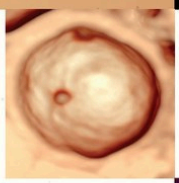

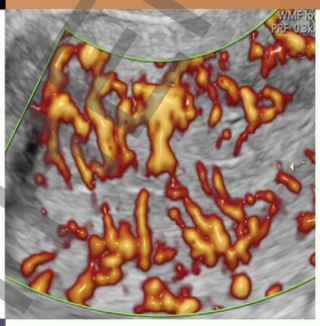

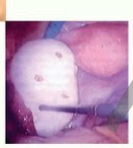

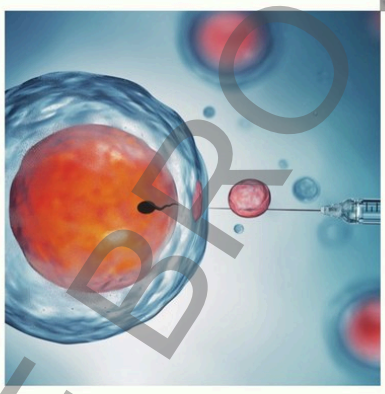

Practical Guide to Infertility Management & IVF

Chaitanya Nagori
Sonal Panchal

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Chapter 1

Counseling of an Infertile Couple

INTRODUCTION

Counseling is the backbone of infertility management. The correct explanation about reproduction and dialog with the patients help them conceive. Insler has mentioned in his book that "many patients conceive when they are sitting outside the consulting room". This means that there should be informative literature placed in the waiting room, handouts given to patients, and elaborative explanatory displays placed in the waiting room that patients can read and would help them clear a lot of their misconceptions about reproduction, which they might be reluctant to clear in person.

In the busy outpatient department (OPD), it is very difficult for a practicing gynecologist to spend time with the patients for counseling. I shall put forward a few suggestions from my side:

- There should be informative and illustrative posters placed in the waiting room explaining the physiology of conception.
- Attractive and interesting literature regarding reproductive physiology, causes of infertility, and outline of management should be placed in the waiting room, which should be easily accessible to them.
- We have prepared a small booklet regarding the same, which is given to every patient once detailed consultation has been done about their problems. This booklet helps the patient to go through the things that are already discussed and take a correct decision about the management of their problem.

Such an explanation or literature allows the patients to know what would be the management strategy for their problem and therefore they appreciate the treatment that is given. This transparency also builds the patient's confidence in the treating doctor. It also answers several questions which the couple might be hesistant to ask.

Moreover, it also would be a great means of propagating the correct knowledge about infertility through patients as they would discuss whatever they have read and understood by reading the book with their friends.

One very important suggestion that I would like to give to very busy practitioners is: Please allot a specific and separate time slot for patients with fertility problems, so that you can patiently listen to them and discuss the solutions or treatment strategy with them. Remember that the initial counseling and the time spent with them play a very vital role in management of the patient.

Video consultation is considered at par with regular fertility work up in terms of patient centered approach and shared decision making. Video consultation may provide more privacy and reduces time and travel efforts.[1]

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Let us now discuss in detail about the different aspects of infertility and its management as these need to be discussed with the patients.

As infertility is a social stigma in our culture, not only the couple (I mean the husband also) but also concerned relatives should be involved in counseling, so that they would allow and co-operate with the couple to take the correct treatment. The refusal of treatment in majority of cases is by in-laws or parents. Therefore, it is very vital that all the people concerned and all those who are going to play a role in decision-making as to whether to continue the treatment or not should know about infertility and the correct treatment option for that particular couple.

When IVF was new to the fraternity, there was a strong opposition against it and to pursue it as practice required a strong sense of mission. The IVF doctors probably survived not because they were the strongest, not because they were the most intelligent but they had a quality to adapt the changes.[2]

WHEN TO START THE TREATMENT?

The American college of Obstetricians and Gynecologists (ACOG) and the American society for reproductive medicine (ASRM) recommendations for prepregnancy.[3]

Before starting the treatment it is important to counsel about wellness and healthy habits to improve reproductive outcomes. Try to bring her BMI within normal range. Women should be counselled to seek medical care just before or at the beginning of the pregnancy for correct dating and monitoring of medical conditions such as diabetes mellitus, thyroid abnormality, hypertension, psychiatric conditions, etc. All prescription and nonprescription drugs, herbal products, nutritional supplements must be evaluated to decide their need and safety during pregnancy. They should also be screened for common genetic conditions. It is also important to confirm before planning pregnancy that the female is adequately immunized for conditions like tetanus, diphtheria, pertussis, measles, mumps, rubella, hepatitis and varicella. Influenza vaccine may also be considered in sensitive areas. Proper inquiry should be done for the possibility of sexually transmitted diseases and viral infections. History must be elicited and proper action should be taken for the females with addiction of drugs like nicotine, alcohol, opioids and others. If required she should also be protected against domestic violence.

About 85% of the couples conceive within 1 year of unprotected intercourse and 95% in 2 years. Therefore, if a patient comes for treatment, earlier than a year and a half of continuous unprotected intercourse (active married life), which is very common in rural areas of India and in lower socioeconomic class of people, explaining the above-mentioned fact will increase their faith in you and your treatment and will also prevent unnecessary investigations, anxiety, and frustrations for the patient.

No invasive investigations such as laparoscopy should be done within these 2 years and nature should be given enough time to work for the couple to achieve pregnancy.

Among noninvasive investigations, semen analysis and midcycle/preovulatory scan are the two investigations that may be done. These will more or less prove the normalcy of the couple and then counseling only can help them conceive.

It is commonly observed that couples do conceive very often after the treatment is stopped. This is because the stress and

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anxiety of treatment are removed and the patient is relaxed. Moreover, when a specialist is treating these couples. They become very enthusiastic about doing some invasive investigation/procedure in every cycle, one after the other such as Rubin's test (RT), hysterosalpingography (HSG), dilatation and curettage (D&C), and laparoscopy, and do not allow an opportunity for conception. Therefore, when this patient is exhausted and abandons treatment, she conceives spontaneously.

Therefore, remember that counseling is more important than overenthusiastic invasive investigations.

Preconception dietary folate intake and folic acid supplementation are of importance not only to prevent neural tube defects but also to enhance fecundability.[4]

COUNSELING FOR SEMEN ANALYSIS

In 40–50% of couples presenting with fertility problems, the male factor is responsible either partially or completely. In our social setup even today, males do not accept this fact and therefore they do not agree for examination or investigations. This problem is more prevalent in people who are less educated. Proper counseling is a must with the male partner before subjecting the female partner to treatment of infertility.

The couple must be explained that according to the recent World Health Organization (WHO) criteria 2010,[5] 15 million sperms/mL, 30% motility, and 4% sperms with normal morphology are considered normal physiological semen criteria. In spite of this even today, we read several laboratories quoting 60 million counts as normal in their reports. Because of this wrong information and ignorance of laboratory officials and clinicians, several patients unnecessarily have to take medicines for long periods to increase their sperm count. Remember that when the sperm count is 15 million/mL or more, no treatment is required. Up to 86% of abnormal sperms is normal and physiological and even patients with 4–14% normal sperms can conceive either naturally or by intrauterine insemination (IUI). It is only when <4% of sperms are normal that in vitro fertilization/intracytoplasmic sperm injection (IVF/ICSI) may be required.

When the sperm count is <15 million/mL, semen analysis must be done at least three times—2 weeks apart and 2 months apart to confirm the diagnosis. These patients should directly not be subjected to IVF or ICSI. Instead, we must try medical treatment for these males to improve the sperm count so that they can conceive naturally or with IUI. The whole moto of medical management of a subfertile male is not to increase the sperm count 5–10 times or to achieve excellent semen parameters. It is to increase the count by a few million so that ICSI can be converted to IVF, IVF to IUI, and perhaps IUI into natural conception. Medical management has been discussed in the chapter on male infertility of this book.

Coital practices:

- Sperm reaches fallopian tube in 15 minutes.
- These are not stored in the ampullary region but go to the peritoneal cavity.
- The sperms travel more towards the side of dominant follicle.
- Jelly inhibits motility.
- Mineral oil or Canola oil has no effect.
- Hydroxyethyl cellulose based lubricants are safe.

COUNSELING FOR CERVICAL FACTOR

The cervical factor of infertility is rare at present, as surgeries on cervix are not often

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done. Frequent D&Cs may damage endocervical glands and epithelium. Cauterization of the cervix should be discouraged.

I believe that even today, postcoital test (PCT) is very useful in infertility management. When more than seven sperms are seen per high-power field of microscope, 10–12 hours after intercourse, it is considered an excellent PCT according to the WHO standards.[6]

Majority of assisted reproductive technology (ART) textbooks opine that PCT has no significance. I have found it very useful for counseling the husband. He gets assured that he is normal when PCT is normal, so he does not feel guilty and becomes more cooperative for the treatment. It may not have much role for ART, but it is helpful in cases for regular infertility treatment. These are the patients for whom even timed intercourse can be an option. Many a times when the couple changes the gynecologist, semen analysis is asked for. If the patient already has a few semen analysis reports, I will depend on PCT. The satisfaction of the couple is of the highest level and the confidence increases when the couple sees the moving spermatozoa in cervical secretions under the microscope after 10–12 hours of intercourse. Before doing the test it must be confirmed that it is preovulatory period for the female, considering the cycle length and also that the intercourse was done the previous night.

WHAT INFORMATION DO WE GET FROM A NORMAL POSTCOITAL TEST?

- Preovulatory cervical mucus is normal.
- Sperm count is normal.

Moreover, when the patient (the couple) is shown these moving sperms under microscope even after 12 hours of intercourse, it gives them confidence that both the partners are normal and that helps them conceive.

The patient is explained that these sperms may remain alive for 48–72 hours in the cervix in most patients and in a few, these have also been seen till 7 days. There is a misconception in majority of the couples that intercourse must be done when ovulation occurs. Showing PCT to patients removes this misconception. The cervix acts as a reservoir for sperms, so after the intercourse even if ovulation occurs in 2–3 days, conception can occur. We can explain to the patient that if for conception, the intercourse was needed exactly when ovulation occurs, hardly any raped girl would conceive. The couple should therefore be advised intercourse at least once in 2–3 days during 10–20 days of a 28–30-day cycle. The couple should be clearly told that abstinence of more than 3 days is not advisable during this period, in natural cycle as well as in stimulated cycles for IUI.

Majority of the couples believe that if IUI is done, it is better to have abstinence before to get a good sperm count. But this is not true. An abstinence of more than 3–4 days does not increase the count; instead the percentage of dead sperms in this semen increases. Therefore, intercourse should not be planned; it should be absolutely voluntary and can be done irrespective of the day of IUI.

Abstinence is one of the causes for failed IUI. In majority of gynecology clinics, where there is no IVF setup, the semen preparation laboratory is not adequately equipped, and so the semen preparation is suboptimal and thus chances of conception are less. Moreover, the patient observes abstinence before IUI, so the chance of natural conception also is denied. As a result, the patient does not conceive when she is on treatment but conceives spontaneously when she abandons treatment. Therefore, remember that

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intercourse at regular intervals in the fertile period is absolutely essential.

Majority of couples with long-term infertility have lost the charm of their marital relations. Their sexual relations are only planned and compulsory, only targeted for childbearing. They must be explained that a child is only a byproduct. The main thing is the love and affection; intercourse is just an expression of this feeling and results in conception. Counseling can help them regain the charm of their marriage. All myths regarding intercourse must be discussed and sorted out, e.g., posture, position, timing, and washing.

Nothing including diet can give gender selection or increase in pregnancy rate.

COUNSELING FOR UTERINE FACTOR

This is to be discussed with the patient after a three-dimensional (3D) ultrasound as 3D ultrasound is now a gold standard for congenital uterine malformations and endometrial pathologies. The patient also can see and understand these 3D pictures and the optimum management then can be easily explained. Fibroids <4–5 cm in size and not touching the endometrium do not require removal. The patient can also be convinced by explaining to them how the embryo comes from the tube to the uterus and implants in the endometrium.

Majority of the patients have a wrong concept that dilatation and curettage (D&C) helps conception. This is a myth and should be clarified. D&C should not be done in modern infertility practice. The only role today of D&C is to exclude endometrial tuberculosis (TB) by either histopathology or TB polymerase chain reaction (PCR) of the endometrial sample along with culture. D&C must not be done to diagnose luteal phase defect or to check whether the endometrium is in the proliferative phase or the secretory phase. It has a higher chance of damaging the endometrium and resulting in infertility.

COUNSELING FOR TUBAL FACTOR

The patient must be explained that fertilization occurs in the fallopian tube and after 4–5 days, the embryo comes to settle in the uterus. This explanation is also useful to counsel if the patient gets an ectopic pregnancy. Tubal evaluation is very important in infertility practice. RT for tubal evaluation should be discarded. Laparoscopy is the gold standard for evaluation of the tubes.

The patient should be explained that at the time of ovulation, the fimbrial end of the tube covers the ovary and a negative pressure of –1 mm Hg (mercury) develops due to movements of the cilia, which sucks the ovum from the follicle into the tubal lumen. So the ovum does not separate and release from the follicle to roll into the tubal lumen, but the tube is vital and instrumental. Therefore, it is important that the tubo-ovarian relation should be healthy; a patent tube is not sufficient. HSG gives us only incomplete information about the patency of the tube. This can be replaced by sonosalpingography (SSG).

Now microsurgery is almost replaced by ART for pathological tubes. The results of microsurgery are very good in tubotubal anastomosis in patients with tubal ligation (TL), especially laparoscopic TL. Therefore, in young patients where TL is done microsurgery should be offered as an alternative to ART as it is a one-time procedure and the patient gets a breathing time for up to 2 years and also has a chance to conceive more than once if the couple wishes so.

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COUNSELING FOR OVARIAN CAUSES

The patient should be counseled that ovum is released from the ovary only once in a month and survives for 6–8 hours. Sperms that are stored in the cervix can reach the ova and conception can occur. Ovulation can be confirmed by serum progesterone levels assessed on Day 21–22. Daily sonography is not required just to confirm whether the ovulation has occurred or not if no active treatment or intervention is planned. Basal body temperature record and cervical mucus assessment do not help much in management.

UNEXPLAINED INFERTILITY

About 5–10% of patients are infertile in spite of everything being normal. They have normal semen analysis, normal endoscopy, normal luteal phase, and normal endocrinological reports. These are the patients with unexplained infertility and are the ideal patients for IUI. Six cycles of superovulation with IUI must be tried for these couples before subjecting them to ART. The IUI is the choice of treatment for idiopathic infertility rather than IVF.

COUNSELING FOR INTRAUTERINE INSEMINATION

Intrauterine insemination is a very effective method for fertility treatment. But the couple must be explained that it is not the IUI procedure alone that gives pregnancy; selection of the patient, correct stimulation protocol, precise ultrasound monitoring, and optimum luteal support are all equally important to get pregnancy. So six cycles of properly and dedicatedly done IUI must be tried in patients of <35 years of age and at least three to four cycles in patients up to 40 years of age. It gives an excellent pregnancy rate provided all the steps mentioned earlier are done correctly.

There should not be any abstinence of >48 hours before IUI; otherwise, it decreases the pregnancy rate. Gynecologists should have a good setup for IUI to get excellent results. In-house laboratory should be established in a gynecologist's setup.

COUNSELING FOR DONOR INSEMINATION

Counseling for donor insemination should be done to all the patients who have very low count or azoospermia before proceeding to ICSI. Many patients who cannot afford ART may opt for artificial insemination by donor (AID).

The donor must be unknown. At times, patients may ask to use semen sample from a known donor and that must be discouraged. The sample must be ordered from a registered semen bank. The donor and couple's identity must not be revealed to each other in any case. The child has a right to ask about his/her genetic prints after 18 years and so the records should be maintained. But when that information is given, the donor's identity must not be revealed.

COUNSELING FOR IN VITRO FERTILIZATION

There are many misconceptions prevailing for IVF treatment regarding three aspects:

1. Indications
2. Results
3. Cost

Indications

It must be clearly understood that IVF is the first choice in only those patients who have bilateral tubal block, severe endometriosis, or severe male factor infertility. IVF may be

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done in patients with unexplained infertility only when six well-tried superovulation with IUI cycles have failed to give pregnancy. Dysovulatory infertility like polycystic ovaries (PCO) is not an indication of IVF.

Results

Patients believe that IVF is a sure-shot solution to infertility. They have been misled about the same. They must be explained that the results of IVF in the best centers of the world are:

- 30% in the first cycle
- 40–45% in the second cycle
- 50–55% in three cycles
- 60–65% in four cycles
- 65–70% in five cycles
- 70–73% in six cycles.

Therefore, patients who do not have absolute indications for IVF should be given a chance of IUI instead of taking them for IVF because about six superovulation with IUI cycles cost the same as one IVF cycle, with more chances of success.

Cost

The IVF is a very expensive procedure. Its cost includes charges for gonadotropins and medicines, which comprises the largest amount, nearing ₹ 60,000–80,000 depending on the requirement of the patient. The second highest cost is of disposables and media. This is also about ₹ 10,000–15,000. Over and above this, the cost also includes consulting fees of the IVF consultant, embryologist, anesthetist, etc. Therefore, it must be understood that when we try to cut-off the cost, one has to compromise on drug quality and disposables. This would definitely compromise with the results also.

With fixed packages, it is likely to do compromise with the quality of treatment.

POINTS TO BE EMPHASIZED (AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE RECOMMENDATIONS, 2017)

Chances of conception decrease after 35 years and so evaluation must be done after 6 months of marriage in elder age group only.

Intercourse every 1–2 days minimum during the fertile period gives a comparable pregnancy rate. The fertile window starts 6 days prior to ovulation. Smoking, alcohol (>2 pegs), coffee, recreational drugs, and commercially available vaginal lubricants should be discouraged.

Dietary advice before planning pregnancy:

- Folic acid supplementation.
- Vitamin D does not have a definite beneficial effect.
- Greater intake of ω-3 PUFA and lower intake of transfats shorten the time to pregnancy and gives better ART outcomes. Healthy dietary patterns favoring whole grains, fish, fruits, vegetables, and olive oils are helpful for better fertility outcomes.[7]

CARRY HOME MESSAGE

- Counseling plays a very important role in infertility management.
- About 15 million counts with 30% motility and 4% normal sperms are new WHO 2010 criteria.
- Seven motile sperms/high-power field (HPF) are excellent PCT.
- Dilatation and curettage is done only to rule out tuberculosis.
- Laparoscopy is the gold standard for tubal evaluation.
- Serum progesterone 3 ng/mL on Day 21 indicates ovulation.
- Six cycles of IUI should be tried in unexplained infertility before ART.
- When taking patients for ART, results and cost must be discussed with the patient.

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Practical Guide to
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Management of infertility is a challenging field for a gynecologist with updates in different aspects of the field pouring in continuously. Sound knowledge of the basics, proven facts, and evidence base makes a strong foundation to keep pace with these fast progressing scientific fields with new therapies and protocols pouring in. This book is designed to provide this strong base of knowledge in a comprehensive way. It is a basis for practical knowledge for the young budding infertility specialists and a book to refer to for busy infertility practitioners in cases of doubt in order to strengthen the foundation of their knowledge.

Chaitanya Nagori MD DGO is the Director of Dr Nagori's Institute for Infertility and IVF, Ahmedabad, Gujarat, India. He is a successful infertility consultant for more than 32 years and is known for a very high success rate in his practice, especially so in cases with recurrent pregnancy failure, IVF failures, and male factor infertility. He has a thorough knowledge of infertility and gynec-endocrinology. He is a core academician and a teacher of high repute. He is a synonym for to-the-point teaching, with crisp and clear concepts.

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