Chapter 1

Introductory Chapter: One-Stop Infertility Evaluation Unit

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Additional information is available at the end of the chapter

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1. Introduction

It is a dream for most couples to have their own children as a part of their relationship. Infertility is a distressing and sensitive problem affecting 10–15% of couples worldwide [1]. It affects one couple in six [2]. WHO considered it a clinical disease of the reproductive system [3].

2. When is a couple infertile?

For healthy young couples without any treatment, the probability of getting pregnant per a reproductive cycle is about 20–25%. Their cumulative probabilities of conception are 60% within the first six months, 84% within the first year, and 92% within the second year of regular fertility-focused sexual activity [4]. There is no definite cutoff point to say when a couple is infertile. If the couple is young, this term is used if they fail to conceive after 1 year of having regular sexual intercourse without the use of birth control. Early evaluation can be started after 6 months if the female is older than 35 years. A known fertility medical problem or a social circumstance like previous prolonged infertility in a previous marriage of one of the partners is another indication for early evaluation.

3. Infertility is a real disease

Infertility, particularly if it is long term, is probably one of the most difficult times in a couple's life. Many physicians underestimate infertility problem, and this behavior is distressing to the infertile couple. The physician should be sympathetic with the patients and should be very keen and kind to solve this real problem. Infertility is usually associated

with social stigma and can lead to divorces and separation, leading to a broken family life. Infertility generates disability (an impairment of function), and thus, access to health care falls under the Convention on the Rights of Persons with Disability. Infertility in women was ranked the fifth highest serious global disability [5].

4. Time limit to reach the diagnosis of infertility

In general, the cause of infertility can be found within one to two cycles in most cases (80–85% of cases) with the use of standard diagnostic measures like semen analysis (SA), tests for ovulation, and tubal patency. The rest is considered unexplained infertility (UI). UI does not mean there is no physical explanation for infertility, but it is just that medical tests have not identified any specific problems [6].

5. What are the additional complaints of the infertile couple?

In addition to failure to conceive, many infertile couples have extra complaints like failure to understand the main cause of their infertility, the stress of prolonged medical or hormonal treatment, fear of some operative procedures for the male or the female partner, stress of the surrounding community, and wasting time in the clinics and hospitals. Moreover, many doctors consider imperial lines of treatment relying on the natural percentage of pregnancy with time. Lengthy courses especially for the male make infertile couple drug-linked. Many cases develop Gastrointestinal tract (GIT) troubles on prolonged courses of drug therapy that may lead to discontinuation of therapy. Overoptimistic hope with strict following of instructions faints out due to nonoccurrence of pregnancy as the physician does not tell them the truth that the highest pregnancy rate/cycle is just 20%/cycle in most cases [7]. Lack of cooperation between gynecologists and andrologists makes one partner's treatment not synchronous with the other. In addition, gynecologic treatment for men is usually underestimated by the male partner.

6. Construction of an infertility unit: as a solution of most of the additional complaints

6.1. Rationale

A basic concept is to consider both partners as one unit. If the evaluation of both partners starts simultaneously, prompt diagnosis and short treatment pathway can be expected. Some gynecologists are poor at interpreting semen analysis reports or dealing with infertile men. The same applies for the andrologists regarding female investigations. Collaboration between gynecologists and andrologists would expand their knowledge about proper diagnostic as well as therapeutic approaches of the case.

6.2. Prerequisites

- **Team approach:** A well-trained team is a basic requirement for an efficient infertility unit. A team approach is the most successful and cut-short way to diagnose and promptly treat a case of infertility. A team approach is proposed to save a lot of time and money lost by trials and errors of lengthy medical treatment or unnecessary investigations. Evaluation requires a well-trained gynecologist, an andrologist, nurses, health providers, and a clinical pathologist. The investigators should not accuse one partner in front of the other partner that he or she is the main cause of infertility even if the examination or investigations show that he or she is the most probable cause of infertility. Accusing one partner will lead to many psychological upsets and will interfere with sexual activity. Nurses and health care providers should be trained on how to deal with the infertile couple who are usually injured by the failure of conception. Their job is very important as it saves the time of the clinicians. Stress on hygiene and coital recommendations should be highlighted. Even how and when to take injections, particularly hormones, is very important for better results. In short, the main goal of an infertility unit is to minimize time and effort to reach a diagnosis of infertility. All basic requirements to achieve this goal should be available at this unit including imaging modalities and laboratory equipment for hormonal assay.

- **Prepregnancy counseling:** Ideally, any couple willing to have children should be evaluated prior to allowing unprotected intercourse. Increased risk of congenital anomalies with increased maternal age should be highlighted. Some women may have some serious diseases that may contraindicate pregnancy. Some serious cardiac diseases like cardiomyopathy or heart failure are good examples. Some diseases require prepregnancy modification of the therapy prior to pregnancy. Diabetic women on oral hypoglycemic agents should be switched to insulin therapy prior to fertilization of the oocyte. Prepregnancy estimation of blood sugar and glycosylated hemoglobin is essential to have a good idea about control of diabetes and to estimate the possible risk of fetal anomalies. The same applies to the male partner. Men on antihepatitis drugs or chemotherapy or radiotherapy should be properly evaluated prior to allowance of pregnancy. If some chromosomal diseases are expected due to a past or family history of either partner, a thorough genetic and chromosomal workup is mandatory. In short, prepregnancy evaluation of both partners is an integral part of the infertility evaluation.

- **Check fertility awareness of the infertile couple:** This is a crucial job for the entire infertility team. Surprisingly, only 13% of women seeking fertility assistance could accurately identify the most fertile time in their menstrual cycle. It is possible that poor fertility knowledge could be a key factor in cases of infertility. Fertility education should be a fundamental part of preconception care and the primary care of couples when they first report difficulty conceiving. Intercourse on fertile days of the menstrual cycle may help in getting pregnant and avoid unnecessary Assisted Reproductive Techniques (ART) treatment [8]. Cervical mucus monitoring (CMM) can identify the fertile days with the highest pregnancy rate [9]. Timed intercourse may improve pregnancy rates compared to intercourse without

ovulation prediction [10]. Basal body temperature chart poorly predicts ovulation. A single serum progesterone assessment in midluteal phase is as effective as repeated serum progesterone measures [11].

- **Optimizing natural fertility [12]:** Some physicians go directly into investigating couples, provided that they know natural fertility. Physicians should ask in detail about the basic knowledge of the couple on fertilization days. Frequent intercourse (daily or every other day) yields the highest pregnancy rates, but results achieved with less frequent intercourse (two to three times weekly) are nearly equivalent. The "fertile window" spans the 6-day interval ending on the day of ovulation and correlates with the volume and character of cervical mucus. Specific coital timing or position and resting supine after intercourse have no significant impact on fertility. For women having regular menstrual cycles, frequent intercourse should begin soon after cessation of help to maximize fecundability. The use of most commercially available vaginal lubricants should be discouraged for couples trying to conceive. Devices designed to determine or predict the time of ovulation may be useful for couples who have infrequent intercourse.

- **Have an idea about lifestyle and occupation of both couples:** Overexercise or sedentary life would affect fertility in both partners. Occupations with exposure to some chemicals like some pesticides, herbicides, metals (lead), and solvents have been linked to fertility problems in both men and women. Couples should be asked about continuous or daily traveling of either partner.

- **Direct inquiry about habits and addiction:** Smoking, recreational drugs and alcohol consumption are lifestyle factors that are suspected to have adverse effects on health and subsequently reproductive functions [13, 14]. It has been estimated that in each menstrual cycle, smokers have about two-third the chance of conceiving compared to nonsmokers. Smoking is also harmful to a developing baby if the mother smokes. For men, mostly due to defective oxygen supply, heavy smoking would lead to decreased sperm concentration, viability, motility, increased DNA fragmentation, and poor outcome of IVF/ICSI [15, 16]. Therefore, it is a good time for both partners to stop if they are smokers. There are many studies on the deleterious effects of recreational drugs, sports drugs (anabolic steroids), marijuana, opioids and tramadol on spermatogenesis in men, and folliculogenesis in women [17–20].

- **Focus on a fertility diet:** Women who become seriously underweight as a result of an eating disorder or severe anemia or vegans may have fertility problems. They should be promptly treated with suitable supplementation prior to pregnancy. Normal females should be advised to increase intake of some foods or drinks rich in multivitamins that are thought to support ovulation, hormonal balance, and oocyte quality. The male partner is also advised to improve his dietary habits. Good nutrition with diets rich in multivitamins would improve sperm motility and viability.

- **Searching for risk factors of infertility:** These factors can be obtained from history, examination, and investigations of both partners.

  History-taking: Ideally both partners should be seen together. Evaluation of both partners must begin with a detailed history-taking directed to complete all items related to infertility. It should be fertility-oriented history-taking, which means asking about any

possible cause of infertility and any possible problem that may interfere with infertility treatment or subsequent pregnancy or delivery later on. Importantly to ask about past history of medical or surgical treatment of this current problem, this is actually a history of present illness. The most important part of taking an infertility history is to ask women and men of reproductive age if they are sexually active, if they are trying to get pregnant, and for how long they have been trying. Not all women will complain openly about their inability to get pregnant; instead, they may present with surrogate complaints such as lower abdominal pain or abnormal vaginal bleeding. A careful history can often help to find the causes of infertility. Gynecologists, as well as andrologists, should pay attention to the following clues:

***Age*:** It is the most important independent factor of infertility due to changing ovulation patterns and reduced oocyte quality, and it is one of the most important prognostic factors for treatment outcome. For healthy, young couples, the chance that a woman will become pregnant is about 20% in any single menstrual cycle and starts to decline in a woman who is in her early 30s. It declines more rapidly after age 37 [7]. A woman has 12% of her ovarian reserve at age 30 and has only 3% at age 40. About 81% of the variation in ovarian reserve is due to age alone, making age the most important factor in female infertility. For women aged 35–39, the chance of conceiving is about half that of women aged 19–26 [21]. ACOG recommends ovarian reserve testing for women older than 35 years who have not conceived after 6 months of attempting to get pregnant and for women at higher risk of diminished ovarian reserve such as those with a history of cancer treated with genotoxic therapy, pelvic irradiation, or both; those with medical conditions who were treated with genotoxic therapies; or those who had ovarian surgery for endometriomas. It is important to recognize that a poor result from ovarian reserve testing does not signify an absolute inability to conceive and should not be the sole criterion considered to limit or deny access to infertility treatment [21]. An important point is that with aging there are higher percentages of chromosomal defects in the oocytes of older women, which may cause infertility, miscarriages, or Down syndrome in full-term babies. This defect can be attributed to poor working of the "glue" that keeps the chromosomes or poor function of the microtubules in the chromosomes. Instead of sending an even number to each oocyte in a controlled fashion, the microtubules go in all directions in old oocytes. So, it is not only a matter of decreased ovarian reserve but also poor-quality eggs. Likewise, it is thought that men over the age of 35 are half as likely to achieve a pregnancy when compared to men younger than 25. Levita et al. [22] examined 6022 semen samples according to WHO criteria and correlated findings to patients' age. They reported an inverse statistically significant correlation between semen volume, sperm quality, and patient age, in spite of prolonged sexual abstinence duration. Top sperm parameters were observed at the age of 30 to <35 years, while the most significant reduction in sperm parameters occurred after the age of 55.

***Current drug therapy or medical illness*:** Many commonly used drugs, as well as cancer chemotherapeutic agents, are potentially toxic to the gonads [23]. There is a possible association between impaired semen qualities and the commonly used histamine H1-receptor antagonists, antiepileptic drugs, antibiotics, histamine H2-receptor antagonists, mast cell blockers, antidepressants, and brain stimulators [24]. Diabetes mellitus

may affect male reproductive function at multiple levels as a result of its effects on the endocrine control of spermatogenesis or spermatogenesis itself or by impairing penile erection and ejaculation [25]. Renal failure impairs the endocrine system, especially in women, due to hyperprolactinemia, altering fertility, ovulation, libido, and growth in adolescents. Kidney transplant is less efficient for restoring the perfect function of the hypothalamic-pituitary-gonadal axis due in part to the immunosuppressant regimens prescribed [26].

- **Gynecological history:** Regular cycles are commonly ovulatory cycles. In a previous study, only 3.7% were proved an ovulatory despite regular eumenorrheic women [27]. Heavy regular menses may signify an intrauterine polyp or a submucous myoma. Irregular menses may signify ovarian dysfunction. Postcoital spotting or even bleeding may signify a local lesion in the cervix or vagina. Oligohypomenorrhea or even periods of amenorrhea responsive to progesterone challenge test signify ovarian factor. If associated with evidence of hyperandrogenism, the possibility of polycystic ovaries (PCOS) is raised. Failure to respond to progesterone and combined progesterone and estrogen tests may signify an end-organ failure like severe intrauterine adhesions. However, the possibility of undiagnosed pregnancy should always be kept in mind. Any form of dysmenorrhea should be recorded. Severe spasmodic dysmenorrhea may signify tight cervical stenosis or uterine malformation. Severe congestive dysmenorrhea may signify a uterine mass or severe pelvic inflammatory disease (PID).

- **Think endometriosis:** It is mentioned that you will not diagnose endometriosis unless you are endometriosis-oriented. Endometriosis is definitely associated with infertility; however, the mechanism of impaired fertility in the presence of minimal disease has not been clearly documented. Endometriosis is suspected whenever a special type of dysmenorrhea is present. It starts as congestive dysmenorrhea but continues during menses and subsides after few days when fluid is absorbed from the retained menstrual blood in the endometriotic lesion. Of course, dyspareunia especially the deep type raises the possibility of endometriosis.

- **Past medical and surgical history:** Start by asking about childhood development, sexual development during puberty, menarche, sexual history, or chronic illnesses. Moreover, please ask about prolonged medications especially immunosuppressant or chemotherapeutic drugs used; exposure to certain environmental agents (alcohol, radiation, steroids, chemotherapy, and toxic chemicals); and any previous fertility evaluations especially invasive procedures like HSG or laparoscopy. Attention should be directed to prior treatment for pelvic inflammatory diseases (PID) or STDs (for chlamydia, HPV, herpes, syphilis, or trichomonas), which may suggest tubal damage and pelvic adhesions. History of pulmonary tuberculosis or bilharziasis may raise the suspicion of genital tract damage, which may necessitate HSG or even laparoscopy [28]. Detailed history-taking of previous surgeries particularly pelvic surgery is mandatory as the nearer to the pelvis, the higher possibility of fertility affection by the surgery. Of great importance is to obtain details of the past history of appendectomy, ovarian cystectomy, myomectomy, or tubal surgery. Past history of uterine surgery can affect fertility by induction of intrauterine adhesions or cervical

stenosis. The latter commonly occurs after cervical amputation or large loop excision of the transformation zone (LLETZ) in cases of abnormal cytology and colposcopy.

- **Obstetric history:** A detailed history of a previous delivery whether vaginally or by cesarean section is mandatory. Sometimes, intraoperative or postoperative complications may have a direct impact on future fertility. In such cases, investigations should focus on tubal, peritoneal, or uterine factors of infertility. Hysterosalpingography (HSG) or even combined laparoscopy and hysteroscopy should have a priority during investigating this couple. Ask about a course of previous pregnancies and deliveries with stress on any complication related to either of them. Sometimes, past history of serious pregnancy or delivery complication is considered as a contraindication for future pregnancy like an acute renal failure with repeated dialysis, placenta accrete on the scar, or repair of a ruptured uterus. In such cases, the health provider should convince the couple to avoid pregnancy for the sake of saving the woman's life. The same applies for women with recurrent miscarriages who may require investigation before they try to get pregnant again.
- **Male history:** Ask about pregnancies or deliveries by a previous wife or previous attempts to get pregnant via ART, previous sexually transmitted infections, mumps, or trauma to the scrotum.
- **Social history:** Infertility can have many negative social implications. The socioeconomic environment of the patient should be explored. A couple should have basic means to raise a child. In addition, resources for possible infertility investigations and treatment should be discussed.
- **Sexual history:** Many infertile subjects experienced trouble in various aspects of sexuality [29]. Couples may not volunteer such information unless specifically asked. For optimal fertility, couples should have intercourse every 2–3 days. Ask about frequency and timing of sexual relation, orgasm, lubrication in females, and desire and potency of the male. Ask about any difficulties with intercourse. Deep dyspareunia may suggest pelvic pathology. Impotence and vaginismus can also be causes of infertility [30]. In one of these situations, when they become imperative to have intercourse at specific times, some of them will be affected by poor erection. What was once an intimate moment can become very clinical and a job. Going into a sterile room with a cup, under the pressure of performance, can harm any male. Women undergoing infertility treatment experience significant changes in various aspects of sexual desire, arousal, orgasm, length of foreplay, and frequency of intercourse [31].
- **Stress factor of infertility:** A physician should be clever to observe couples with stress. Studies indicate that female ovulation and male sperm production may be affected by mental stress. If one partner is stressed, it will affect the quality and frequency of sexual intercourse, resulting in a lower chance of conception. It is thought that the more relaxed and spontaneous sexual life is, the more likely that conception will occur. Also, stress can affect libido and how often the couple has sex. Long cycles (32 days or longer) are usually associated with stress (emotional or physical). A systematic review [32] found that there is evidence that infertility has a negative effect on the psychological well-being and sexual relationships of couples, but the evidence is inconclusive for the effect on marital relationships and quality of life.

7. Examination of the infertile couple

Infertility evaluation should include a complete physical examination of the male and female partners, as well as an array of laboratory and imaging studies.

Consider **"testes and ovaries - functional and clinical differences and similarities"** during the examination of an infertile couple. Evaluate primary and secondary sexual organs in both partners. Ovarian and uterine measurements and volume by Transvaginal Ultrasonography (TVS) as well as testicular measurements and volume by clinical examination and by testicular ultrasonography would give a good idea about the primary sex organs. Small-sized gonads would suggest defective folliculogenesis or spermatogenesis as well as defective sex hormone production. Proper development of secondary sexual characters may reflect normal steroidogenesis. Poorly developed characters would suggest hypogonadism mostly due to an underlying genetic abnormality. In such cases, baseline hormonal profile is mandatory.

8. Fertility-oriented examination

The general examination is very essential from the fertility point of view. Focus on stature, body built, and look. Overweight or underweight female or male may affect fertility. Excessive facial or body hair, weight gain, or staring look may indicate hormonal imbalances that can impair ovulation. These findings are often found in PCOS and thyroid conditions. Oxidative stress, inflammation, and insulin resistance are common mediators of the effects of obesity on reproduction. Moreover, obesity is a prominent aggravating factor in the development of PCOS [33]. Meticulous breast examination in female and male partners for evidence of masses (gynecomastia in male) or galactorrhea should not be ignored as the latter may interfere with ovulation and implantation. Abdominal examination is done to document any scar of a previous operation that may interfere with fertility or interfere with infertility management like laparoscopy. Any abdominal masses should be thoroughly evaluated. Vaginal examination is essential to find out any local genital cause of infertility like chronic cervicitis, cervical masses, or polyps. Comment on the position of the cervix is helpful. If it is high and attracted upwards particularly after cesarean section, a possibility of uterine adhesions to the anterior abdominal wall is expected. In such cases, the investigator should go to laparoscopic evaluation faster than other investigations to perform ureterolysis and adhesiolysis of any associated adhesions. Male partner should be examined while standing with a comment on testicular size, evidence of hydrocele, varicocele, or epididymal cyst or nodules.

9. Fertility-oriented investigations

9.1. Hormonal assay

One of the clues to a successful one-stop infertility unit is to facilitate blood sampling for hormonal assay in the same place. Besides saving a lot of time and effort for the infertile couple, it avoids lab-to-lab discrepancies and allows frequent interactive discussion with the clinical

pathologist to correlate clinical with laboratory findings. Basic hormonal profile should include FSH and LH. Serum prolactin (better fasting morning sample) and TSH are helpful particularly if the female has galactorrhea or irregular cycles. Free testosterone and specific suprarenal DHEA-sulfate are requested whenever excessive androgen or hirsutism is present. Day 21 serum progesterone is mandatory to confirm ovulation. AMH and FSH are good ovarian reserve tests if its compromise is suspected.

9.2. A quick guide to assessing semen analysis

In clinical settings, at least two semen samples should be obtained because of the significant intraindividual variation of semen parameters.

- **Old or recent SA report?** Previous SA reports should be evaluated in a chronologic manner. Take an overview on the homogeneity of reports. Exclude eccentric or poorly performed reports. Usually, they direct you toward a specific diagnosis by repetition of the same defective finding in all or most reports. A new SA is requested if you are confused with the previous reports, when they are old or heterogeneous, or if the male has a recent indication for SA. Repeatedly, normal SA excludes male factor.
- **Which WHO SA report?** Old WHO manual has many limitations. First, data were derived from imprecisely defined reference populations and obtained from laboratories with unknown comparability with respect to analytical methodologies. Second, there is a lack of available data on semen variables in recent fathers and they did not define true reference ranges or limits. In 2010, WHO changed guidelines for SA. A man with sperm

Finding	Main cause	Diagnostic steps	Management
Agglutination	Infection, antisperm antibodies	Culture, antisperm antibodies	Appropriate antibiotic
Acidic pH (<7.2–8)	Infection	Culture	Appropriate antibiotic
Oligospermia(<1.5 ml)	Poor collection, hypogonadism, or partial obstruction	Hormonal profile, ultrasonography	Repeat SA, causal
Oligozoospermia (<15 mil/ml)	Varicocele, smoking, leukospermia, or genetic abnormalities	Repeated semen analysis, serum testosterone level, and transrectal ultrasound (TRUS)	Treatment of the cause
Oligozoospermia, asthenozoospermia (progressive sperm motility<32%) **and/or teratozoospermia** (normal sperm morphology <4%)	Varicocele, smoking, leukospermia, or genetic abnormalities	Clinical examination, Doppler scrotal US	Treatment of the cause Antioxidants and/or anti estrogen
Pyospermia	Infection (s)	Prostatic culture and sensitivity	Appropriate antibiotic
Azoospermia	Spermatogenic arrest, genetic defect, or obstruction	Hormonal profile, scrotal US, TRUS, seminal fructose, α-glucosidase, genetic assessment	Treatment of the cause, epididymovasostomy or sperm retrieval and ICSI

count ≥15 million/ml, >4% normal morphology, and ≥40% progressive motility would be considered normal.

- **Quick guide for SA interpretation**

9.3. Imaging modalities

First-visit transabdominal as well as transvaginal ultrasonographic evaluation of the infertile female is very helpful to detect ovarian or uterine factors. Antral follicle count is a good ovarian reserve test. Folliculometry and comment on the endometrium are valuable, especially in ART programs. Scrotal US allows the differentiation of obstructive azoospermia (OA) (normal vessel distribution) from nonobstructive azoospermia (reduced or absent testicular vessels) [33]. Transrectal ultrasound (TRUS) enables high-resolution imaging of the prostate, seminal vesicles, and vas deferens and is the modality of choice in diagnosing congenital and acquired abnormalities implicated in the cause of obstructive azoospermia (OA). MRI is rarely needed in infertile women particularly in some endometriosis cases. Pituitary MRI may be requested if the pituitary adenoma is suspected. In men MRI is useful for both detection and characterization of prostatic cysts detected on a TRUS and evaluation of the vas deferens, seminal vesicles, and ejaculatory ducts.

9.4. Tubal patency testing

Think of tubal factor whenever your patient has a previous gynecologic or nongynecologic pelvic surgery or cesarean section, while other factors are normal or normal SA, ovulation, and hormonal profile without pregnancy. Consider the therapeutic effect of HSG during counseling. Most of the scientific societies including ASRM consider that the initial assessment of tubal patency is HSG [34]. Laparoscopy is restricted to cases with a history of pelvic surgery or history suggestive of pelvic endometriosis or patients with abnormal HSG. Saline infusion sonography (SIS) is a valuable easy office test without irradiation risks but less accurate than HSG.

9.5. Endoscopy

Combined laparoscopy and hysteroscopy are requested in selected cases [6].

9.6. Additional optional male investigation

Sperm DNA fragmentation (SDF) is valuable in cases with idiopathic infertility, excessive abnormal forms, or repeated abortions, while hypo-osmotic swelling test (HOST) has been proposed to test viability in severely immotile sperms or before ICSI.

9.7. Final step: treatment road map

At the end of one-stop evaluation of both partners, the team should decide the best treatment for each couple. A short meeting with the couple should explain the plan of management of infertility. Proper counseling regarding each option's advantages, disadvantages, and risks should be clarified.

9.8. Periodic team meetings

It is very important to assess the pattern and success of the provided service. Failures and successes should be discussed. Evidence-based discussion of every step is mandatory. Pitfalls in the diagnostic approaches should be corrected. Plan for further improvement should be clearly discussed. Local statistical analysis of the unit's results is very helpful.

10. Keynote points

- In the very fast modern world, construction of a one-stop infertility evaluation unit is recommended to cut-short lengthy infertility evaluation and treatment protocols and to widen the scope of both the gynecologist and andrologist.
- Gynecologists and andrologists should know how to disclose the male and female infertility factors, respectively, to counsel a future plan of investigations and management, and to provide actual prognostics figured for each individual case.

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