Infertility: A Global Problem
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Introduction
Infertility is not a physically debilitating disease. However, the desire to have a child is the strongest that people experience, and no wonder that infertility is ranked among life's greatest stresses, similar in intensity of having a life threatening illness. It also effects the psychological harmony of sexual life and social function, even in those countries where the family planning and birth control is their special policy and social vogue. Unfortunately, because infertility involves the loss of something that has never been, it goes unnoticed. Perhaps that is why infertile couples have been called the most neglected silent minority.

Incidence
According to data provided by United Nations Population Division, the world population in 1991 was about 5.3 billion and half of the world's residents are women. About 20% of female are in the reproductive age and the mean incidence of infertility throughout the globe would be approximately 90 million.

In rural population of Bangladesh, 3.2 percent of married women of reproductive age has primary infertility and 3.0 percent has secondary infertility. Majority of infertile women i.e. more than 40 percent believed this to be their fate and about 33 percent accused themselves for infertility.

Definition
Normal fertility means achievement of pregnancy by a couple within two years by regular coital exposure. Those couples who do not achieve a pregnancy within two years include sterile members of the population, for whom there is no possibility of natural pregnancy and the reminder are those who are sub fertile. Together they comprise the infertile population. The term sterile may refer to either the male or female whereas the term sub-fertile refers to the couple.

Management of infertility at primary care level

Male Factor (Incidence)
1) Male factor is important cause in approximately 40% of infertile couples.
2) In 15%-30% of cases both partners have detectable abnormalities.
3) Thus male factor playa significant role in about 50% of infertile couples.

Asses the opportunities for conception
H/O Duration of fertility and past fertility.
H/O Smoking and alcohol consumption.
H/O Mumps, orchitis or other infection.
H/O Sexual function frequency/adequacy of erection and use of lubricants.

Medical history of significance
Bronchitis, Diabetes Mellitus, Recent pyrexial illness, Thyroid disorder.

Surgery of significance
Herniorraphy, Vasectomy, Hydrocele repair, Varicocele, Prostatectomy.

Drug history of significance
• Sulphasalazine- Reduces concentration and motility of sperms.
• Nitrofurantoin -Can cause spermatogonic arrest.
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• Tetracycline- Interferes with sperm motility.
• Cimetidine- Seminal abnormalities, gynecomastia, impotence.
• Ketoconazole -Impotence, loss of libido, gynecomastia.
• Colchicine and Allopurinol- Defects of fertilization.
• ß-adrenergic blockers/MAG inhibitors/Trycyclic antidepressant drugs- Ejaculatory defect.
• Chemotherapeutic agents-Chromosomal abnormalities.
• Cannabis/Anabolic steroid-Affects sperm morphology and motility i.e. more abnormal forms of sperm.

Female (Investigations at Primary care level )
History and examination: Following points should be remembered
* Female rubella status                  * Plasma folic acid level
* If BMI >30, advice weight loss * Drug history
* Occupational history                  * Cervical smear history

Consider early referral to the specialized clinics if history suggestive of
1. Female age > 35 yrs 2. Amenorrhoea/Oligomenorrhoea
3. Previous abdominal/pelvic surgery 4. Previous PID/STD
5. Abnormal findings in pelvic examination.

Investigation
Mid luteal progesterone level should be done to confirm ovulation. Serum progesterone should be measured 7 days before expected period in all women. Interpret after next period starts-
• If correctly timed and found to be < 16 nmol/L-Repeat in another cycle. If consistently low refer to specialist.
• If > 16 nmol/L but < 30 nmol/L -repeat in another cycle. If the same or lower, may be indication for controlled ovarian stimulation. So needs referral to specialist.
• If serum progesterone > 30 nmol/L-consider as proof of adequate ovulation.

Management at primary care level
If husband's semen analysis is normal and wife's menstrual cycle is regular and there is no positive factor in the history, coital function and physical findings are normal: Consider waiting before doing any invasive procedure. Many patients will conceive spontaneously if sufficie't time is given, provided they are not waiting for too long period and are not in the advanced age group.

Reassure the couple regarding their normality and give advice regarding
1. Timing and Frequency of coitus,
2. Reduction of body weight if obese,
3. Avoiding smoking by the husband.

Unnecessary investigations or procedures are not advisable at this stage
• Do not do a D&C without anaesthesia. This does not enhance the possibility of conception, rather can reduce the chances of subsequent successful pregnancy.
• Not recommended to do VDRL or prostatic smear at this stage.
• Ovulation inducing drugs can be prescribed if there is knowledge and experience regarding the use of these drugs.
• If semen analysis is abnormal, repeat the analysis at an interval of 3-4 weeks, two times.
• Many male partners complain of imaginary sexual problems. Asses these problems correctly by taking a detailed history and reassure if they are of not much consequence regarding fertility.
• Administration of androgens for sexual problems may lead to a deterioration in the quality of semen.
• Duration of sexual intercourse and orgasm has no relationship with fertility.
• It is natural for a part of the seminal plasma to come out of the vagina after intercourse. Patients are often worried. It is of no consequence. Reassurance should be given.
• If the patient has been examined and found to have a retroverted uterus do not tell the patient that retroversion is the cause of infertility, because it has not been shown to be so.
• A good ultrasonography can give informations which can be elicited from a
vaginal examination. Consider advising an ultrasonic scan where vaginal examination is not possible or refused. 

• If abnormality is found in any partner or if the couple do not conceive within a reasonable time, refer to secondary care level.

Management of male infertility at secondary level

Men with persistent poor semen quality should have:

• Hormone assays, particularly FSH, LH, Prolactin, TSH, Testosterone, blood sugar should be done and the results should be properly interpreted.

• Semen and prostatic smear for bacteriology should be done and treatment should be given accordingly.

• In case of Azoospermia or severe Oligo/Asthenozoospermia refer the patient to specialized clinic.

• Empirical therapy with hormone, vitamins etc. has no proven value.

• Change in life style may have some beneficial effects. Couple should be informed about the poor result of male infertility.

• Option for ICSI (Intracytoplasmic sperm injection) and IVF (In vitro fertilization) and their success rate should be discussed with patient.

Management of female infertility at secondary level

A. For ovulation disorders

1. Anovulation should be established, if ovulation induction is given - as or repeated.

2) Clomiphene is a safe drug for use, but should not be used for more than 12 cycles. Ovarian ultrasound facilities will be an added advantage in such circumstances.

3) FSH and LH can be used but only if the consultant has expertise and facilities for monitoring is available. Risk should be explained to the patient.

4) Bromocriptine is an effective treatment for hyperprolactinaemia, but the diagnosis must be established accurately. The level should be three times normal or should be sustained on at least more than one occasion to initiate treatment. Skull x-ray and C- T scan is essential in proven cases. Treatment should be continued for 6 months to one year with standard dose.

5) Laparoscopic ovarian drilling can be done in genuine polycystic ovary cases if the consultant is experienced in this technique.

6) Blood sugar, Thyroid function test. Post coital test can be done if facilities are available.

B. Tubo-peritoneal factors

1. Hystero- salpingography can be an effective investigation for finding tubo-peritoneal factors, but should be done by the consultant himself under proper aseptic condition.

2. Diagnostic laparoscopy can be very useful investigation at this level.

3. Tubal surgery should be performed only by micro-surgical technique, otherwise it may cause more harm than doing good.

4. Endometriosis should not be diagnosed only on the basis of clinical feature and/or ultrasonography; laparoscopic assessment is essential, as treatment is prolonged, expensive and complicated.

5. Medical treatment of mild, moderate or severe endometriosis do not significantly improve fertility.

6. Surgical management of endometriosis by laparoscopy or laparotomy often improve fertility provided it is done with proper care by a trained person.

7. All attempts should be made to do salpingostomy rather than a salpingectomy in the management of tubal pregnancy.

8. Pelvic inflammatory disease should be treated aggressively to prevent future infertility.

Other consideration

1. Empirical D&C is not the proper treatment of infertility. It does not improve fertility.

2. It's main role is in endometrial sampling.

3. Tubal insufflation is unreliable as diagnostic procedure and carries considerable risk of air embolism.

4. Hydrotubation may have some beneficial effect in selected cases, but must be done under full aseptic condition.

5. Myomectomy is not the first line of treatment of infertility in women with uterine fibroids until all other causes of infertility has been excluded. Done unnecessarily or improperly, it may make infertility permanent.
6. Ovarian cysts found incidentally during surgery for other reasons should be dealt with caution. They are often functional cysts and attempt at their removal may cause more harm than good.

7. Correct handling of tissues without trauma, prevention of dehydration and proper haemostasis should be the standard practice during surgery in and around the genital tract preservation of future fertility is important.

Conclusion

References
5. Assessment of Reproductive Health Care Needs and Review of Services Provided the levels of Thana, Union and Village. Published by Bangladesh Institute of Resear for Promotion of Essential and Reproductive Health and Technologies (BIRPERH Vol-5, August, 1997.