

examination difficult, a scrotal ultrasonography may aid in the diagnosis of a clinical varicocele. In general, patients in need of further diagnostic evaluation of infertility should be referred to a specialist.

TREATMENT OF MALE INFERTILITY IN PRIMARY CARE

There are several options for the treatment of male infertility, and the choice of treatment depends on the results of the history, physical examination, and diagnostic evaluation. First, fertility is a reflection of a patient's overall general health. Decreasing the patient's stress level, improving sleep habits, and fostering a healthy diet may all have beneficial effects on fertility. There is conflicting evidence as to whether antioxidants in the form of vitamins or diet modification improve the viability of sperm. Patients can purchase antioxidant multivitamins at most supermarkets and health food stores. Because the evidence for benefit is mixed, it is important to tell the patient not to overspend on this treatment.

Other lifestyle modifications may also improve fertility. For example, avoiding hot baths and whirlpools may provide more optimal conditions for sperm production. In addition, tobacco, alcohol, and marijuana use have all been shown to negatively affect fertility in males. Certain medications also can have a negative impact on infertility. α -Blockers used to treat BPH can cause retrograde ejaculation. Exogenous testosterone replacement decreases sperm production, and at least 2 months are required for sperm production to recover once testosterone therapy is stopped.

The timing and frequency of intercourse can affect the ability to conceive. Ovulation predictor kits are readily available to patients without a prescription and may improve fertility. Because sperm can survive at least 2 days in the female genital tract, having intercourse every 2 days may maximize male sperm concentration and delivery. In addition, patients should make sure that they are not using a lubricant that has spermicidal activity.

F. Benign Scrotal Diseases

VARICOCELE

A varicocele is classically described as an abnormal dilation of the veins of the pampiniform plexus that can be palpated as a "bag of worms" with or without having the patient performing the Valsalva maneuver while standing. When examining a patient for any scrotal pathology, it is important to have the patient stand. A clinical varicocele is one that can be palpated on physical examination. Because the occurrence of varicoceles increases with age, the prevalence in the literature is highly variable. The prevalence of a unilateral palpable left-sided varicocele is between 6.5% and 22%, and that of bilateral palpable varicoceles ranges from 10% to 20%. The prevalence of an isolated right-sided palpable varicocele is less than 1%; because of their very rare association with retroperitoneal malignancy, many clinicians perform axial imaging on patients with a unilateral right-sided varicocele. In general,

Patients who have a palpable varicocele and oligospermia with or without defects in sperm morphology or motility may benefit from a varicocelectomy and should be referred to a urologist for further evaluation (see later discussion). The most common methods of surgical correction are varicocelectomy and gonadal vein embolization.

Patients with oligospermia and a normal or low FSH level may benefit from treatment with clomiphene citrate (Clomid). The typical dosage is 25 mg daily or 50 mg every other day for at least 2 months (it takes 64 days for new sperm to be made). Most studies of this drug have shown a significant increase in sperm production but little impact on fertility. However, it may be beneficial for selected patients with the above-mentioned laboratory values.

If a varicocele is present in an infertility patient or severe oligospermia or azoospermia does not respond to the treatments already mentioned, referral to a urologist for additional testing is warranted. Oligospermia or azoospermia with a low semen volume and a negative fructose result may suggest ejaculatory duct obstruction. If azoospermia is present with no sonographic evidence of ejaculatory duct obstruction, a testicular biopsy might be the prudent next step. If retrograde ejaculation is suspected (oligospermia, normal fructose, and low semen volume), the urologist may elect to examine a postejaculation, centrifuged urine specimen for the presence of sperm.

Once the evaluation by the urologist has been completed, he or she may recommend that the patient proceed with assisted reproductive technology (ART). The simplest form of ART is intrauterine insemination, for which patients with oligospermia and normal motility are excellent candidates. In vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) are more costly but often successful. Even patients with azoospermia due to Klinefelter's syndrome have had frequent success (46% rate of pregnancy) with ICSI.

A left-sided varicocele does not have clinical significance unless it can be palpated on physical examination. A left-sided varicocele that is incidentally found during ultrasonography of the scrotum and is not palpable on examination is considered a subclinical varicocele and is typically not the source of any pathology.

Palpable and nonpalpable varicoceles are most commonly found incidentally and in most cases have no clinical significance. However, palpable varicoceles can cause ipsilateral testicular atrophy. Therefore, it is important for the clinician to compare the size of the testicles in patients who desire future fertility. If the physical examination is unclear, scrotal ultrasonography can be used to accurately measure the size of both testicles. Any patient who desires future children and has a size discrepancy greater than 20% should be monitored closely and possibly referred to a urologist. Although varicoceles are most commonly found incidentally, they may also be found during a work-up for