

The Indian perspective on male infertility care: Takeaways from USI guidelines

Evaluation and semen analysis^{1,2}

- ➔ Conduct a relevant reproductive history and focused clinical examination.
- ➔ Semen analysis must follow the WHO 6th edition standards.
 - ↳ Standardised collection (2–7 days abstinence)
 - ↳ Accurate volume measurement
 - ↳ Sperm concentration, motility, morphology and vitality assessment
 - ↳ Internal/external quality control

WHO 6th–edition reference values²

| Parameter | Reference value (5 th percentile, 95% CI) |
|----------------------------------------|------------------------------------------------------|
| Semen volume (mL) | 1.4 (1.3–1.5) |
| Sperm concentration (million/mL) | 16 (15–18) |
| Total sperm number (million/ejaculate) | 39 (35–40) |
| Total motility (PR + NP, %) | 42% (40–43) |
| Progressive motility (PR, %) | 30% (29–31) |
| Vitality (%) | 54% (50–56) |
| Normal morphology (%) | 4% (3.9–4.0) |

Indications for further evaluation¹

- ➔ Endocrine evaluation is indicated only after two abnormal semen analyses.
- ➔ Scrotal ultrasound is recommended for obese men, those with prior scrotal surgery, or those who have a tight/small scrotum.
- ➔ Transrectal ultrasound is reserved for suspected ejaculatory duct obstruction.

Obstructive azoospermia¹

- ➊ Suspect congenital bilateral absent vas deferens in men with non-palpable vas and test for CFTR mutations.
- ➋ Testicular biopsy should be performed in centres with sperm retrieval and cryopreservation capability.
- ➌ Microsurgical reconstruction (vasovasostomy / epididymovasostomy) is preferred in men with partners with good ovarian reserve.
- ➍ When ovarian reserve is limited, use sperm retrieval (MESA/TESE/PESA/TESA) adjunctively.
- ➎ For irreparable obstruction, sperm retrieval is preferred for ICSI/IVF.

Non-obstructive azoospermia¹

- ➊ A comprehensive evaluation includes a detailed history, hormonal profile and genetic testing.
- ➋ AZFa/AZFb microdeletions contraindicate surgical sperm retrieval.
- ➌ Microdissection TESE is the most efficient sperm retrieval technique in NOA.

Hypogonadotropic hypogonadism¹

- ➊ HH results from pituitary/hypothalamic dysfunction, causing impaired androgen and sperm production.
- ➋ **Diagnosis:** Confirm by low FSH, LH and testosterone; brain imaging is advised.
- ➌ Androgen replacement therapy is recommended when fertility is not desired; gonadotropins are required to induce spermatogenesis.

Infections¹

- ➔ A 3–6 week course of antibiotics and anti-inflammatory agents may help with infections and related conditions.
- ➔ Antioxidants may aid ROS reduction following epididymal inflammation.

Genetic considerations¹

- ➔ High LH/FSH levels in azoospermia warrant genetic testing.
- ➔ Sperm concentration <10 million/mL (especially <5 million/mL) requires genetic counselling and karyotyping/microdeletion testing.
- ➔ Men with Klinefelter syndrome have 22%–50% sperm retrieval success rate via micro-TESE.

Varicocele¹

- ➔ Only a clinically palpable varicocele requires treatment.
- ➔ Microsurgical varicocelectomy is preferred.

Cancer and fertility¹

- ➔ Fertility counselling and cryopreservation are mandatory.
- ➔ Assess and discuss hypogonadism risk and establish baseline hormones.
- ➔ Onco-TESE is an option for azoospermia with bilateral tumours.

Idiopathic infertility¹

- ➔ Empirical therapy includes hormonal agents and antioxidants.
- ➔ Treat for 4–6 months before considering ART.
- ➔ Men with abnormal testosterone-to-oestradiol ratio may benefit from aromatase inhibitors.

Abbreviation

ART: Assisted reproductive technology; CFTR: Cystic fibrosis transmembrane conductance regulator; CI: Confidence interval; FSH: Follicle-stimulating hormone; HH: Hypogonadotropic hypogonadism; ICSI: Intracytoplasmic sperm injection; IVF: *In vitro* fertilisation; LH: Luteinising hormone; MESA: Microsurgical epididymal sperm aspiration; NOA: Non-obstructive azoospermia; NP: Non-progressive motility; PESA: Percutaneous epididymal sperm aspiration; PR: Progressive motility; ROS: Reactive oxygen species; TESE: Testicular sperm extraction; TESA: Testicular sperm aspiration; USI: Urological Society of India; WHO: World Health Organization

References

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