

Special Issue on Testicular Biopsy: Prediction and Future Perspectives in the Era of ART

CALL FOR PAPERS

Worldwide, an average of 48.5 million couples reported as infertile in 2010, 19.2 million couples have 1st infertility, and 29.3 million couples have 2nd infertility. Male factor infertility causes about 50 % among infertile couples. Absence of healthy looking sperm in semen, such as in necrozoospermia, severe oligoteratozoospermia, and obstructive or nonobstructive azoospermia, not only prevents natural conception but also compromises assisted reproduction technology (ART) outcome, increases early pregnancy loss and/or abortion rates, and mandates the need to surgically retrieve testicular sperm. Mapping testicles for complete spermatogenesis foci is critical to harvest spermatozoa, capable of fertilizing and achieving pregnancy, and will improve rate of take-home baby following ART. In the era of ART, testicular biopsy (TB), which is almost purposed nowadays for harvesting sperm through several procedures, for example, PESA, MESA, TESA, TESE, MAESA, or micro-TESE, is critical for therapeutic and diagnostic determinations in infertile men. Choice of proper sperm extraction procedure for every patient is essential to personalize TB in precision medicine. Prediction of successful sperm extraction may be a critical factor to help infertile couples get their best options of infertility treatment. TB may be therapeutic for infertility or diagnostic for testicular atrophy or cancer. TB failure and/or complications occurrence will compromise TB repeat and/or patients diagnosis. Factors affecting spermatogenesis or testicular function will determine TB outcome, such as toxin exposure, hormonal abnormalities, infections, varicocele, ultrasonography, and genomics. Moreover, extracted sperm may be affected with handling protocol, preparation for cryopreservation, and *in vitro* culture.

We invite investigators to contribute original research articles as well as review papers which address diagnostic or therapeutic TB outcome and future perspectives in the era of assisted reproductive technology. Prediction of successful TB outcome will be given a priority as urologists may be able from first trial to harvest sufficient numbers of healthy spermatozoa for ART. Moreover, research focus on preventing TB complication or eliminating its failure will be highlighted to improve patient health care. We are also interested in routine clinical and advanced imaging and laboratory studies to personalize TB mapping, which improve likelihood of testicular sperm extraction and do not compromise future patient health care.

Potential topics include but are not limited to the following:

- ▶ Personalize sperm extraction or TB precision, patient related factors to improve its success and limit failure conditions
- ▶ Surgery related factors to predict successful and safe testicular biopsy
- ▶ Lab processing and handling of TB, fresh or frozen testicular sperm usage benefit/risk
- ▶ Molecular biomarkers such as cytogenetics, microdeletion, RNA seq, NGS, and methylation studies to improve TB outcome
- ▶ *In vitro* culture of TB for healthy spermatozoa which could be used for future cryopreservation or intracytoplasmic sperm injection (ICSI)
- ▶ Is there a way to personalize TB practice through proper modeling

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/bmri/urology/tbiop/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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