Unraveling the mystery of genetics and male infertility

Taking 13 years to complete, the Human Genome Project sequenced the entire euchromatic human genome. The accomplishment was hoped to offer solutions to many of man's most befuddling medical conditions, male infertility a prime example. What was discovered, however, was the tip of the iceberg. The sequence of base pairs only begins to shed light on the complex interplay between pre-translational, translational, and related factors that determine fertility potential.

This focused series of *Translational Andrology and Urology* explores our current understanding of the genetic causes and management of male infertility. Beginning with reviews of the basic genetic etiologies and relevant tests, this series then delves into well-known causes of male infertility including Y chromosome copy number variations, Y chromosome microdeletions, cystic fibrosis transmembrane conductance regulator (*CFTR*) gene mutations, and hypogonadotropic hypogonadism. A novel review collates the available literature on nutrigenomics, detailing the interplay between diet, genetic makeup, and fecundity.

The latter half of this series focuses on management options for the above-mentioned and other genetic etiologies of male infertility. Two articles on Y chromosome microdeletions detail sperm retrieval techniques and assisted reproductive outcomes. Two additional reviews address sperm retrieval techniques and success rates for Klinefelter's syndrome and *CFTR* mutations. Equally as important, a special review discusses genetic counseling recommendations for men with known and unknown causes of infertility. The last article looks to the future, exploring research on the verge of bettering our understanding of genetic causes of male infertility.

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We all are living in a constant state of flux related to the ongoing COVID pandemic—from social isolation to implications on clinical practice to rapid advancements in medical research. Many relevant publications start with: "*By the time you are reading this*, *much will have changed*." As the reviews in this special edition will show, we are primed for similar changes in understanding the genetics of male infertility. We hope that by the time you are reading this, the mystery will continue to unravel.

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