

## Results of Testicular Sperm Extraction (TESE/mTESE) in Congenital Hypogonadotropic Hypogonadism Men with Persistent Azoospermia after Hormonal Therapy

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**Abstract :** Introduction: Azoospermia is the absence of sperm in the ejaculate following centrifugation of semen and may be broadly classified into obstructive and nonobstructive azoospermia. Among the causes of NOA, congenital hypogonadotropic hypogonadism (CHH), on the other hand, is one of the major causes of NOA that impairs male fertility. CHH is characterized by insufficient production or action of GnRH and results in low levels of LH and FSH, hence causing the insufficient and impaired production of testosterone and spermatogenesis, respectively. Medical therapy using gonadotropin or GnRH may stimulate testicular function and thereby potentially restore fertility. While most patients with CHH recover after hormonal replacement, a small number remain azoospermic despite proper treatment. The objective of our work is to evaluate sperm extraction effectiveness in persistent azoospermia in CHH men. Methods and Materials: Azoospermic patients with Congenital hypogonadotropic hypogonadism patients who were referred to Royan Institute between 2010-2020 and did not respond to gonadotropin treatment were included in this retrospective study. The diagnosis of these patients included Medical history, Azoospermia, a Medical examination, a low-level hormone profile (Testosterone, LH & FSH) and normal prolactin level, Normal Karyotype and Normal reporting in sellar MRI. Before gonadotropin therapy, these patients stopped injecting testosterone for at least 3 months, then we started HCG 5000IU 3 times a week after 3 until 6 months, adding HMG 75 IU twice a week. After 6 months, HMG 75IU was raised to three times a week. 24 CHH Patients who remained azoospermic after 12 to 24 months of treatment were classified as having persistent azoospermic and were considered candidates for sperm extraction via surgical methods. The surgical techniques employed included testicular sperm extraction, with or without the use of microscopic magnification. Results: Hormonal replacements were prescribed between 14-36 months. Twenty-four patients were azoospermic after this period and accepted the surgical sperm extraction from their testicles. In 21 cases (87.5%) the result of sperm extraction was positive, and sperm retrieved successfully. The positive results did not correlate with other variables, including the patient's age, testicular size before and after hormonal treatment, hormone levels before and after treatment, and history of anosmia ( $P > 0.05$ ). Conclusion: Our study has the largest number of patients compared to other studies. Sperm extraction in CHH men by surgical method in persistent azoospermia following hormonal treatment is an acceptable method with appropriate results and can be recommended for these patients. There is no correlation between the patient's age, testicular size before and after hormonal treatment, hormone levels before and after treatment, and history of anosmia by operation results.

**Keywords :** azoosperm, congenital hypogonadotropic hypogonadism, TESE, microdissection TESE

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