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Intracytoplasmic Sperm Injection (ICSI)

The procedure of ICSI involves the direct injection of a single sperm into each egg under direct microscopic vision. The successful performance of ICSI requires a high level of technical expertise. In centers of excellence, when ICSI is employed, the IVF birth rate is unaffected by the presence and severity of male infertility. In fact, even when there is an absence of sperm in the ejaculate such as occurs in cases of Congenital Absence of the Vas deferens; when a man is born without these major sperm collecting ducts; in cases where the vasa deferentia are obstructed (such as following vasectomy or trauma), and in some cases of testicular failure or where the man has impotency, ICSI can be performed with sperm obtained through Testicular Sperm Extraction (TESE), or aspiration (TESA). In such cases, the birth rate is usually no different than when IVF is performed for indications other than male infertility.

The introduction of ICSI has made it possible to fertilize eggs with sperm derived from men with the severest degrees of male infertility and in the process to achieve pregnancy rates as high, if not higher than that which can be achieved through conventional IVF performed in cases of non-male factor related infertility. The performance of ICSI in cases of "male factor infertility" has been shown to slightly increase the risk of certain embryo chromosome deletions (leading to a slight increase in early miscarriages) as well as the potential for a resulting male offspring to have male infertility in later life. However, there is no evidence of any significant increase in the incidence of serious birth defects attributable to the ICSI procedure itself. More relevant is the fact that when ICSI is performed for indications OTHER THAN male infertility, there is NO reported increase in the risk of subsequent embryo chromosome deletions, miscarriages or in the incidence of subsequent male factor infertility in the offspring.

About 12-15% of conventional IVF is associated with unanticipated absent or poor fertilization. This has led many to conclude that male infertility may be an "occult phenomenon" in some men. In fact new tests of sperm DNA integrity (SDI) have demonstrated that DNA damage may be present in sperm from men with both normal and abnormal semen analyses and that male infertility is equally prevalent in such cases. Thus, disappointments associated with unanticipated failed fertilization might be averted through routine performance of ICSI.

ICSI has been a dramatic advance in the field of infertility treatment and has allowed many men to have biologic offspring not possible before this technique was introduced in the 1990's. At Acacio Fertility Center, Inc., we use this technique for many cases to ensure fertilization (not just in cases of severe male factor infertility).

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This handout is intended as an aid to provide patients with general information. As science is rapidly evolving, some new information may not be presented here. It is not intended to replace or define evaluation and treatment by a physician.