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# Unnecessary IVF/ICSI Procedures and their Related Risks

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## Abstract

Assisted reproductive techniques are nowadays widely used to help couples suffering from infertility to achieve successful pregnancy. By far IVF and ICSI are the most popular techniques used. Although these techniques are beneficial and have a reasonable success rates, they have some risks and catastrophic complications. Both gynaecologists and couples may opt to these procedures without clear indications. In this article complications of these techniques are discussed.

**Keywords:** Unnecessary IVF; ICSI; Complications; Risks

## Introduction

The process of *in-vitro* fertilization (IVF) involves monitoring and stimulation of the ovulatory process, retrieving ova from the ovaries and letting sperm fertilize them in a Petri dish in the laboratory. The fertilized egg is cultured for 2-6 days in a growth medium and is then transferred to the uterus, with the intention of establishing a successful pregnancy. Intra-cytoplasmic sperm injection (ICSI) involves selecting a sperm, picking it up with a specialized micro-needle and injecting it into the middle of the egg. Forcing fertilization for each egg-instead of mixing sperm and eggs together-hoping that all eggs got fertilized [1,2].

Intracytoplasmic sperm injection (ICSI) and *in vitro* fertilization (IVF) have different risks and benefits associated with these procedures. These techniques had the benefits of helping many couples suffering from infertility due to male factor, tubal disease, and unexplained infertility to get successful pregnancy [3].

Many couples in addition to gynaecologist may opt to IVF/ICSI procedures in non-indicated patients with possibility of natural conception. Just assurance and waiting may help many couples to achieve successful pregnancy naturally. Nowadays many couples may choose IVF/ICSI for azoo-spermia/asthenospermia, hypoplastic tubes, polycystic ovaries, pelvic adhesions and endometriosis from the start without any trial for medical or surgical therapies [4].

These techniques are not without risks or complications. The complications were found to be present and if not predicted, prevented and properly managed would endanger patient's life. Here are some more common risks associated with ICSI procedures.

### Damage to embryos

Not all fertilized eggs develop into healthy embryos because some eggs and embryos become damaged during the ICSI process. Fertilization rates with ICSI range from 50 to 80 % [5].

### Multiple pregnancies

Transfer of more embryos for women in ICSI procedures is associated with 30 to 35 % chance for twins and a 5 to 10% chance for having triplets or more. Carrying multiples increases the chances of developing the numerous complications during pregnancy and childbirth including gestational diabetes, preeclampsia, preterm birth, prematurity complications and increased rate Cesarean delivery [6-8].

### Birth defects and transmission of genetic diseases

Studies show that ICSI and IVF lead to a similar percentage of birth defects as babies conceived naturally. However, the ICSI risk of having a baby with abnormalities is very minimal (less than 1%) [9].

The explanations proposed for this issue were: (i) ICSI doesn't allow for a "weeding out" process that might occur with natural conception (ii) Less healthy sperms are allowed to break through the egg barrier. These may lead to a higher risk of abnormalities. Some specific risks for birth defects with ICSI include Sex chromosome abnormalities, Hypospadias, Angelman syndrome and Beckwith-Wiedemann syndrome [10].

### Increased risk of miscarriage

Many IVF/ ICSI patient suffer this problem when low quality sperms were used [11].

### Cerebral palsy

A higher likelihood of cerebral palsy regardless of multiplicity was detected in ICSI/IVF children. The vanishing twin syndrome,

which occurs in about 10% of IVF singleton births and in naturally conceived multiple gestations, is associated with cerebral palsy; there is no reason to believe that this association would not be present in ART pregnancies [12,13].

### Autism

A large study compared all IVF babies with babies conceived naturally, they found no increased risk for autism, and only a small risk for intellectual disability. Intellectual disability was more common in ICSI than in IVF [14].

### Drug reactions

Usually mild reactions to fertility drugs occur including hot flushes, irritability, headaches and restlessness.

### Ovarian hyper stimulation syndrome (OHSS)

A life-threatening complication occurs during gonadotropins administrations. It occurs in about 1.3% of all patients undergoing IVF/ICSI procedures. It may be mild, moderate or severe. Severe forms require ICU admission and intensive management otherwise maternal mortality may be a sequence [15,16].

### Adnexal torsion

Adnexal torsion was reported due to enlargement of ovaries due to stimulation by gonadotropins [17].

Ectopic and heterotopic pregnancies may complicate IVF/ICSI procedures with rate of 2-3%. It could be prevented by prophylactic salpingectomy [18].

### Blood born and pelvic infections

If sterilization was inadequate or in presence of pre-existing pelvic inflammatory disease [19]. Many infections like HIV, Hepatitis and syphilis could be transmitted if precaution was not taken [20].

### Bleeding

At site of puncture at surface of ovaries or at the vaginal puncture. It could be stopped by coagulants or vaginal packing or rarely suturing of bleeders [21].

Injury to great pelvic vessels or organs by needles of ovum pick-up in non-well trained personnel [22].

### Economic burdens and psychological issues

IVF/ICSI cycle may cost more than 700$ in Egypt and this is considered a great burden if failed to achieve pregnancy. When IVF/ICSI succeed with multiple pregnancy, burdens increase due to the need for neonatal intensive care and special drugs and milk for each baby with much costs in low resources countries as Egypt. Psychological sequalae of failed IVF/ICSI are many including depression, psychosis, hallucination and may be divorce [23,24].

## Conclusion

Gynaecologists should not proceed to IVF/ICSI except when indicated explaining the procedures and their benefits, risks and their success rates. IVF/ICSI when indicated should be followed by Single-embryo transfer to avoid hazards of multiple pregnancies. Pre-implantation genetic screening should be requested in couples with positive consanguinity and those with past history of poor pregnancy outcome.

## Conflicts of Interests

No conflicts of interest from any kinds.

## References

1. Hoffman BL, Schorge JO, Schaffer JI, Halvorson LM, Bradshaw KD, et al. (2015) Williams Gynecology (2nd Edn).
2. Alan HD, Lauren N, Neri L, Ashley SR (2016) Current Diagnosis & Treatment: Obstetrics & Gynecology (11th Edn).
3. Zollner U, Dietl J (2013) Perinatal risks after IVF and ICSI. J Perinat Med 41: 17-22.
4. Karpman E, Williams DH, Lipshultz LI (2005) IVF and ICSI in male infertility: update on outcomes, risks, and costs. Sci World J 5: 922-932.
5. Dale B, Menezo Y, Coppola G (2015) Trends, fads and ART!. J Assist Reprod Genet 32: 489-493.
6. Zhu L, Zhang Y, Liu Y, Zhang R, Wu Y, et al. (2016) Maternal and Live-birth Outcomes of Pregnancies following Assisted Reproductive Technology: A Retrospective Cohort Study. Sci Rep 6: 35141.
7. Svobodová M, Brezinová J, Oborná I, Dostál J, Lubuský M (2005) Prevention of multiple pregnancy after IVF/ICSI by elective single embryo transfer--pilot study. Ceska Gynekol 70: 343-347.
8. Health Quality Ontario (2006) In vitro fertilization and multiple pregnancies: an evidence-based analysis. Ont Health Technol Assess Ser 6: 1-63.
9. Iwashima S, Ishikawa T, Itoh H (2016) Reproductive technologies and the risk of congenital heart defects. Hum Fertil (Camb) .
10. Snajderova M, Zemkova D, Mardesi AT, SÃpek A, Gregor V, et al. (2008) [Birth defects, medical outcome and somatic development in children conceived after intracytoplasmic sperm injection (ICSI)]. Ceska Gynekol 73: 22-29.
11. Steward RG, Zhang CE, Shah AA, Yeh JS, Chen C, et al. (2015) High Peak Estradiol Predicts Higher Miscarriage and Lower Live Birth Rates in High Responders Triggered with a GnRH Agonist in IVF/ICSI Cycles. J Reprod Med 60: 463-470.
12. Pinborg A, Loft A, Nyboe AA (2004) Neonatal outcome in a Danish national cohort of 8602 children? born after in vitro fertilization or intracytoplasmic sperm injection: the role of twin pregnancy?. Acta Obstet Gynecol Scand 83: 1071-1078.
13. Pinborg A, Lidegaard O, Freiesleben N, Andersen AN (2007) Vanishing twins: a predictor of small-for-gestational age in IVF singletons. Hum Reprod 22: 2707-2714.
14. Sandin S, Nygren KG, Iliadou A, Hultman CM, Reichenberg A (2013) Autism and mental retardation among offspring born after in vitro fertilization. JAMA 310: 75-84.


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15. Xing W, Lin H, Li Y, Yang D, Wang W, et al. (2015) Is the GnRH Antagonist Protocol Effective at Preventing OHSS for Potentially High Responders Undergoing IVF/ICSI? PLoS One 10: e0140286.

16. Fischer D, Reisenbüchler C, Rösner S, Haussmann J, Wimberger P, et al. (2016) Avoiding OHSS: Controlled Ovarian Low-Dose Stimulation in Women with PCOS. Geburtshilfe Frauenheilkd 76: 718-726.

17. Wang YQ, Yang J, Xu WM, Wu GX, Xie QZ (2012) [Ovarian torsion after controlled ovarian hyperstimulation: 5 cases report and clinical analysis]. Zhonghua Fu Chan Ke Za Zhi 47: 612-615.

18. Polat M, Boynukalın FK, Yaralı I, Yaralı H (2014) Bilateral ectopic pregnancy following ICSI. BMJ Case Rep.

19. Xie QZ, Xu WM, Qi QR, Luo ZL, Dong L (2016) Patients with cervical Ureaplasma Urealyticum and Chlamydia Trachomatis infection undergoing IVF/ICSI-ET: The need for new paradigm. J Huazhong Univ Sci Technolog Med Sci 36: 716-722.

20. Zheng Z, Zhao X, Hong Y, Xu B, Tong J, et al. (2016) The safety of intracytoplasmic sperm injection in men with hepatitis B. Arch Med Sci 12: 587-591.

21. Roy Mashiach, David S, Mati Z, Raoul O (2013) Delayed intra-abdominal bleeding following trans-vaginal ultrasonography guided oocyte retrieval for in vitro fertilization in patients at risk for thrombo-embolic events under anticoagulant therapy. F1000Res 2: 189.

22. Bhandari H, Agrawal R, Weissman A, Shoham G, Leong M, et al. (2014) Minimizing the Risk of Infection and Bleeding at Trans-Vaginal Ultrasound-Guided Ovum Pick-up: Results of a Prospective Web-Based World-Wide Survey. J Obstet Gynaecol India 65: 389-395.

23. Collins J (2002) An international survey of the health economics of IVF and ICSI. Hum Reprod Update 8: 265-277.

24. ESHRE Capri Workshop Group (2015) Economic aspects of infertility care: a challenge for researchers and clinicians. Hum Reprod 30: 2243-2248.