The Hewitt Fertility Centre

Liverpool Women's NHS Foundation Trust

Intra-Cytoplasmic Morphologically selected sperm Injection (IMSI)

Background

Intra-cytoplasmic sperm injection (ICSI) is a technique, introduced in 1992 to help certain types of infertility. Thousands of couples have become parents as a result of ICSI. It involves the injection of a single sperm directly into the centre of an egg to fertilise it. This procedure bypasses the natural process of the sperm travelling to the egg on its own.

What is IMSI?

Intra-cytoplasmic morphologically selected sperm injection (IMSI) is a more advanced form of ICSI. This technique uses a higher magnification (x6000) to select the sperm used for the injection into the egg. The sperm are carefully chosen by the embryologist, who assesses the sperm head, mid-piece and tail. The sperm are also investigated for structural defects. The best sperm are chosen for the injection based on their appearance.

Are there any risks associated with ICSI or IMSI?

Risks associated with ICSI include the potential for damage to a small number of eggs as they are prepared for the injection procedure.

ICSI has also been associated with certain genetic and developmental defects in a very small number of children born using this treatment. However, it is difficult to determine whether this is a result of the ICSI procedure or the underlying cause of infertility. Follow up studies from children born using this technique are still on-going. Another issue to consider is the possibility that if your child conceived as a result of ICSI is a boy, he may inherit his father's infertility. At this stage it is too early to know if this is the case.

IMSI is a non-invasive test performed on a semen sample as an additional step to the ICSI process. The risks associated with the use of ICSI also apply to IMSI; there are no significant additional risks to the patient or embryo with IMSI. IMSI just allows the embryologist to take a closer look at the sperm prior to injection. IMSI does not give any information about the genetic content or internal quality of the chosen sperm.

It is important that you discuss possible risks with your doctor before going ahead with treatment. You may also find it helpful to discuss your concerns with a counsellor.

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How likely is IMSI to work?

The research that has been carried out generally does not support the use of IMSI over standard ICSI for infertile men. However, the latest Cochrane review stated that the evidence available on IMSI vs ICSI is of very low quality evidence and the benefit of IMSI over ICSI is uncertain due to the limitations of the studies compared[1].

IMSI may help the following patient groups:

- Men who have a high number of abnormal sperm found in their semen
- Recurrent miscarriage
- Previous failed fertilisation with ICSI
- Poor quality embryo formation in previous treatments

The Human Fertilisation and Embryology Authority (HFEA) and IMSI:

IMSI is regarded by the HFEA as a treatment 'add on'. The HFEA status for the use of IMSI as a treatment add-on is red. This means that there is no evidence that this add-on is effective and safe at present.

For up-to-date information and access to recent patient experiences using ICSI, please use the following link to access the HFEA website:

https://www.hfea.gov.uk/treatments/explore-all-treatments/intracytoplasmic-sperm-injection-icsi/

This leaflet can be made available in different formats on request. If you would like to make any suggestions or comments about the content of this leaflet, then please contact the Patient Experience Team on 0151 702 4353 or by email at pals@lwh.nhs.uk

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1= Teixeira et al (2020) Regular (ICSI) versus ultra-high magnification (IMSI) sperm selection for assisted reproduction, Cochrane Database of Systematic Reviews 2020, Issue 2. Art. No.: CD010167. DOI: 10.1002/14651858.CD010167.pub3