The use of ICSI for all cases of in-vitro conception

Dear Sir,

We read the article of Oehninger and Gosden (2002) with much interest and would like to congratulate the authors on their eloquent debate. However, we are of the opposite opinion and strongly support the use of ICSI for all indications, and would like to express this opinion in a counter-argument to that presented by the authors.

The argument is whether or not ICSI should be used for all cases of infertility. On one hand and according to the authors, there is general agreement that ICSI should be used in male factor infertility cases, such as oligoasthenoteratozoospermia, presence of anti-sperm antibodies, or azoospermia. These cases
being diagnosed from an abnormal semen analysis. On the other hand, and strongly disagreed with by Oehninger and Gosden, is the use of ICSI in cases of unexplained infertility (in the presence of normal semen parameters), and in general cases of in-vitro conception, the argument being that there is a high genetic abnormality risk due to the lack of knowledge as to the reasons of infertility. Other arguments against the use of ICSI include its expense and questions about the safety of the technique and the possibility of the technique inducing damage or genetic abnormalities. 

This paper proposes and strongly supports the use of ICSI for all indications. ICSI is a new method replacing an old one. An example of this is when the use of transvaginal ultrasound replaced open surgery for the removal of ovarian cysts. It is a newer and more efficient method. 

With ICSI we can have direct vision of oocytes and evaluate their maturation state, thereby determining female factors. Concerns over germinal arrest or metaphase I have been eliminated because this technique allows us to see these conditions, along with the quality of the oocytes. 

Regarding the sperm, there is no relation between sperm morphology and genetic condition, meaning that it is not guaranteed that spermatozoa with good morphology do not have any genetic abnormalities, and vice versa, that spermatozoa with bad morphology do have genetic abnormalities (Bianchi et al., 1996). If good morphology means good genetic quality then there would be no abortions in normozoospermia cases, but there are. Even more significant than this is, how can we be more worried over genetic abnormalities in normozoospermia than of those in cases of severe male factor cases—cases where there is a much greater risk of genetic abnormalities? Regarding post-zygotic events leading to chromosome abnormalities induced by the actual procedure itself, Bonduelle et al. (2002), in their recent study using pre-natal testing in ICSI pregnancies, concluded that there is a higher risk of de novo chromosomal anomalies that is mainly related to a higher level of sex chromosomal anomalies and also to a higher level of de novo structural anomalies, and not to the actual procedure of ICSI.

In a study carried out by Hariprashad et al. (2002) to determine if ICSI is an effective method for improving pregnancy rates among patients who had previously unsuccessful IVF cycles resulting from poor or total fertilization failure, it was found that fertilization, clinical pregnancy and implantation rates were all significantly higher after the use of ICSI. The ongoing pregnancy rate between the ICSI and insemination group were significantly different; 34.1 and 10.7% respectively. It was concluded that ICSI can overcome certain factors that may cause abnormally low or no fertilization, and that even in cases where semen parameters are normal, ICSI can be useful and give a positive result. 

The study that most supports this argument, is that of Liu and Baker (2000), in which 563 couples were included. The couples underwent standard IVF, resulting in 369 with zero fertilization and 194 with a fertilization rate of 1–25%. In total, 180 of these couples were subsequently treated with ICSI, resulting in an average fertilization rate of 58%. In summary, these authors suggest that IVF can be bypassed by ICSI in order to reduce the incidence of fertilization failure in standard IVF, and this includes cases of defective sperm and normozoospermia. 

Therefore ICSI should be considered as the first line of treatment in any case of poor fertilization or complete fertilization failure, and will consequently save time, money and most importantly stress to the patients.

Finally, the financial aspect of ICSI. The answer to the argument that ICSI is more expensive than IVF, resulting in worries over the practice of ICSI by clinics with profit rather than the patient in mind, is quite simple: make the cost of ICSI the same as that of IVF. This is feasible, and will be implemented in Germany next year.

The conclusion is that there are no data suggesting that ICSI should not be performed in all cases of in-vitro conception. In all cases, female factor or male factor (normal or abnormal sperm) the use of ICSI bypasses most dysfunctions eliminating the majority of barriers to fertilization. If fertilization still does not occur, then there is a greater chance of it being a genetic reason, and the risk of genetic abnormalities in normal sperm should not be of greater concern than those in abnormal sperm.

We strongly support the use of ICSI for all indications and are confident that it will replace other methods.

References

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