

IVF Treatment and Single Embryo Transfer

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IVF has been described as one of the medical breakthroughs of the 20th Century. Over 5 million children have been born using the methods first developed by Robert Edwards who died last year. However there is continuing concern about some of the outcomes of IVF treatment (Kamphuis et al., 2014), particularly the high number of multiple births, a problem which became apparent only a few years after the birth of Louise Brown in 1978. In the beginning clinicians transferred too many embryos, because the initial data seemed to support this practice, but gradually it was understood that the outcome was related to the number of embryos available rather than the number transferred (Templeton and Morris, 1998). Eventually the number of embryos replaced was restricted to two, but this did not reduce the incidence of twins, which continued to cause concern. In the meantime clinicians in Scandinavia decided that one baby was much better than two and began to carry out trials of replacing just one embryo (Martikainen et al., 2001). None of these researchers doubted the obstetric and neonatal morbidity associated with twin pregnancy or the human and economic consequences. Indeed, several of the trials showed the greatly increased risk of preterm delivery when two embryos were replaced compared to one (Thurin et al., 2004).

In 2010 the first meta-analysis of clinical trials using data from individual patients in the field of infertility addressed single embryo replacement (McLernon et al., 2010). The data from the five substantial published trials, as well as three other unpublished trials of single embryo replacement showed that replacing one embryo twice (one fresh embryo then one cryopreserved embryo, several months later if needed) gave the same live birth rate as replacing two embryos at the same time. However with single embryo transfer the singleton live birth rates at term were significantly higher (odds ratio 4.93, 95% confidence interval 2.98 to 8.18), and the risk of preterm birth (at 24-32 weeks) as well

as the delivery of a low birth weight baby were significantly lower (0.08, 0.01 to 0.65 and 0.36, 0.15 to 0.87, respectively). In other words single embryo transfer was nearly five times more likely to result in a healthy term baby.

The embryos needed for single embryo transfer can be obtained from one egg recovery procedure, and it is that procedure and the ovarian stimulation that precedes it that are responsible for the main costs and morbidity associated with in vitro fertilisation treatment.

Now that assisted reproduction is being recognised as an outstanding contribution to medical science, practitioners have a responsibility to develop its use wisely.

EBCOG therefore supports the use of assisted reproduction, recognising that it has brought relief to many millions of infertile couples in Europe and around the world. The aim of treatment should be to maximise the chance of a live healthy baby being born. In this respect the contribution of single embryo transfer is now well established and should be discussed with the couple on each occasion a transfer is being considered.

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