

Single embryo transfer reduces the risk of perinatal mortality in IVF

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A policy of single embryo transfer (SET) reduces the risk of perinatal mortality in infants born as a result of IVF and ICSI. The conclusion emerged from an analysis of more than 50,000 births recorded in the Australian and New Zealand Assisted Reproduction Technology Database between 2004 and 2008, where the introduction of an SET policy has been associated with a reduction in overall perinatal mortality for IVF and ICSI babies.

Results of the analysis were presented here today at the annual meeting of ESHRE (European Society of [Human Reproduction](#) and Embryology) by Professor Elizabeth Sullivan from the Perinatal & Reproductive Epidemiology Research Unit of the University of New South Wales in Sydney, Australia. Professor Sullivan said that from a public health perspective "there is justification for advocating SET as first line management in [assisted reproduction](#) with the aim of minimising preventable perinatal deaths".

The study she described included 50,258 births which were of more than 20 weeks gestation and/or 400 grams birthweight following [IVF](#) and ICSI pregnancies. Total perinatal deaths were defined as the number of fetal deaths (stillbirths) plus the number of neonatal deaths (deaths that occur before 28 days after [birth](#)).

Analysis showed an overall perinatal mortality rate of 16.2 per 1000 births, representing 813 perinatal deaths during the study period (630 stillbirths and 183 neonatal deaths).

However, births following the transfer of two embryos had a significantly higher perinatal mortality rate than births following SET (19.1 per 1000 births and 13.2 per 1000 births). The risk of perinatal mortality for all births following two embryo transfer was 53% higher than those following SET. This difference was especially apparent in births following the transfer of fresh (and not frozen) embryos; births following the transfer of two fresh embryos had 74% higher risk of perinatal mortality than births following fresh SET.

Twins accounted for half the total neonatal deaths and one-third the [perinatal deaths](#). Twins also had significantly higher perinatal mortality rate than singletons (27.8 per 1000 births and 12.4 per 1000 births). However, twins born from SET (ie, monozygotic) had a higher risk of perinatal mortality than those born from two embryo transfers.

Professor Sullivan noted that the voluntary adoption of an IVF policy of single [embryo transfer](#) in Australia and New Zealand has been associated with a reduction in overall [perinatal mortality](#) for all [babies](#) conceived by assisted reproduction methods, which was justification in itself for recommending SET as a first line fertility treatment for non-donor cycles in women aged under 35 years.

Moreover, said Professor Sullivan, there are wider public health benefits from an SET policy. She explained: "The number of embryos transferred per procedure is the major determinant of multiple pregnancy and multiple delivery, which contribute to an elevated risk of preterm birth and low birth weight, and its sequelae. These are risks in addition to those already faced by women being treated for infertility.

"Australia and New Zealand have shown that in the right policy environment a voluntary change to SET practice is achievable," she added. The proportion of single embryo transfers in Australia/New Zealand IVF rose from 14.2% in 1999 to 67.8% in 2008, which was

accompanied by a decline in multiple deliveries of 13.7 percentage points - from 22.1% in 2000 to 8.4% in 2008.

"In some other countries and regions," said Professor Sullivan, "the uptake of SET has been more dramatic, particularly where policy initiatives linked to funding have led to significant change in practice without compromising quality or safety."

More information: * Multiple pregnancy has been described by many authorities (ESHRE, ASRM) as the most serious and frequent complication of IVF. Multiple pregnancies are known to be high risk pregnancies with higher chances of maternal and perinatal mortality.

* According to ESHRE's most recent IVF monitoring data (for 2009) only 24% of total IVF/ICSI cycles in Europe were single embryo transfers - most (57%) were double embryo transfers. High rates (60% and higher) of double embryo transfers were found in Germany, UK, and France, while high rates of SET were found in Finland, Sweden and Belgium.

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