

Importance of Elective Single Embryo Transfer

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Since the birth of Louise Brown in 1979, millions of babies have been born due to IVF treatment. Louise Brown was born after natural cycle IVF whereas currently majority of IVF treatment cycles are after ovarian stimulation. Transferring of single embryo in an unselected population may result in lower live birth. Clinics world-wide are increasingly resorting to double/three embryo transfer which has resulted in increased rate of multiple pregnancies.

In natural conception the rate of multiple pregnancies is 1 - 2% whereas the same in IVF is around 15%. There is increased risk of preterm deliveries prematurity and its associated implications along with the increased possibility of having gestational diabetes, pre-eclampsia operative delivery and hemorrhage during delivery. There have been marked variations globally in the rates of elective single embryo transfer with varying rates of multiple pregnancy rates.

Japan had a total of 424,151 cycles in 2015 of which 79.7% were single embryo transfers in fresh cycles with own eggs. The pregnancy rate per embryo transfer was 21.2% with a live birth rate/embryo transfer of 14.4%. The multiple pregnancy rates were 3.1%. The treatment with frozen embryo has similar statistics. Overall 81.8% had single embryo transfer with a pregnancy rate of 34.2% per ET procedure and a live birth rate/ET of 23%. The multiple pregnancy rates were 3.2%. When frozen eggs were used the pregnancy rate/ET was 11.1% with a live birth rate/ET of 8.1%. The overall multiple pregnancy rates were 9.1%. Canada (2016) had a cumulative pregnancy rate of 27% and 30% in fresh/frozen embryo transfers respectively. Almost 60% had single embryo transfers and the multiple pregnancy rates were 11% overall. Israel (2016) had a cumulative pregnancy rate of 21.9% and 16.1% in fresh/frozen embryo transfers respectively. The multiple pregnancy rates were 17.5% overall. Australia/New Zealand (2015) also showed somewhat similar statistics. 85.7% had single embryo transfers. The cumulative pregnancy rate/ET in fresh cycles was 31.3% and 25.4% for single/double embryo transfers respectively. The live birth rate was 25% and 17.8% for single/double embryo transfers. The results were similar in frozen embryo transfer group as well. However in Latin America (2014) only 18.25% and 22.24% were single embryo transfers in fresh/frozen cycles. The multiple pregnancy rates were 18.25% in fresh and 60.05% in frozen cycles. The multiple pregnancy rates were 16% in UK (2016).

Single embryo transfer strategies have been accepted as a mandatory practice in many countries. This has been complemented by the fact that there has been increase in the funding by the respective governments for fresh and frozen cycles. While elective single embryo transfer is the only option to reduce multiple pregnancy rates, implementation does require additional rounds of treatment, which should be funded. A single cycle of single cycle of embryo transfer is less expensive, but also less effective compared to one cycle of double embryo transfer. However society needs to pay towards the additional costs for one extra successful pregnancy. Embryo transfer decision strategy should be based on age of mother, the funding status (state/self-funded), discussion about the implications of multiple pregnancies.

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