

# Single thawed embryo transfer after PGD does not affect pregnancy rates

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Transferring just one embryo at a time to a woman's womb after embryos have undergone preimplantation genetic diagnosis (PGD) and freezing at the blastocyst stage has become a real option after researchers achieved pregnancy rates that were as good as those for blastocysts that had not had a cell removed for PGD before freezing. Their results mean that it will be possible to reduce the number of multiple pregnancies after PGD and the consequent complications associated with these pregnancies.

The research was presented at the 25th annual meeting of the European Society of [Human Reproduction](#) and Embryology in Amsterdam and published online in Europe's leading reproductive medicine journal, *Human Reproduction*, simultaneously today.

Dr Yacoub Khalaf, director of the assisted conception unit at Guy's and St Thomas' Hospital, London (UK), told the conference: "To the best of our knowledge, our study is the first to provide reassurance that a strategy of elective single embryo transfer in good prognosis patients seeking PGD, backed by an efficient PGD cryopreservation service, can result in [pregnancy rates](#) that are comparable to those for non-biopsied embryos that are frozen as part of conventional fertility treatment. These results should empower fertility centres to include PGD cycles for inherited genetic disorders in their efforts to reduce the multiple pregnancy rates after various forms of assisted conception treatment. Given the increasing number of PGD cycles performed each year, the advantage of widespread application of this policy would be

considerable."

Until now, fertility specialists have not applied a single embryo transfer policy to PGD for inherited genetic disorders because of concerns about how well biopsied embryos survive after freezing and thawing. "It was thought that the effect of the biopsy might reduce the embryos' tolerance to freezing. This concern was not based on any scientific evidence, only on observations of low survival rates of biopsied frozen embryos," said Dr Khalaf.

From January 2006 to July 2008 Dr Khalaf and his colleagues offered single embryo transfer together with freezing of surplus blastocysts to couples seeking PGD for single inherited genetic disorders such as cystic fibrosis. All the embryos were biopsied for the purposes of PGD on the third day after fertilisation, which is the time that they start to divide. Healthy embryos were cultured in the laboratory for a further two to three days to check that they were capable of reaching the next appropriate stage of development - the blastocyst stage. At this point, 32 couples who had two or more embryos that had successfully reached the blastocyst stage were offered the option of having one transferred to the womb and the rest frozen.

The researchers compared the pregnancy outcomes from a subsequent 32 frozen-thawed PGD cycles in these couples with the pregnancy outcomes from a control group of couples where 191 cycles of conventional IVF/ICSI were carried out using embryos that were frozen and thawed before implantation, but not biopsied at any stage.

They found that the blastocyst survival rate after thawing was similar between the PGD and IVF/ICSI groups (87% versus 88% respectively). There was no significant difference in the implantation and clinical pregnancy rates (35% versus 29% and 34% versus 36% respectively). The overall ongoing pregnancy rate for all frozen cycles (PGD and

IVF/ICSI) was 34%, which compares favourably with the UK national average for frozen cycles (currently 18% live birth rate per thaw).

When the same period was compared with the period before the single embryo transfer policy was introduced for PGD couples, the multiple pregnancy rate in the cycles of fresh PGD dropped from 36% to 10% with no reduction in pregnancy rates.

Dr Khalaf said: "This research suggests that responsible clinical decisions do not have to come at the expense of reducing effectiveness of treatment. You can be responsible and maintain the chances of success for your patients by good clinical judgment and using the appropriate techniques.

"For patients, this provides reassurance that a couple's chance of having a healthy child is not reduced by replacing only one blastocyst and freezing the surplus ones. Those frozen blastocysts do have a very good chance of leading to a healthy pregnancy too, and, therefore, patients will not feel pressurised to have more than one embryo replaced (with the increased risk of multiple pregnancies) in order to make use of their biopsied, unaffected [embryos](#) for which, otherwise, they might have little use. Now, these frozen blastocysts offer them the chance of an additional healthy pregnancy without having to go through the whole treatment cycle again."

The first author of the paper in Human Reproduction, Dr Tarek El-Toukhy, a consultant in [reproductive medicine](#) and PGD at the assisted conception unit at Guy's and St Thomas' Hospital, said: "This study represents a continuation of our efforts to advance IVF and PGD safety through single blastocyst transfer and embryo freezing."

Source: European Society for Human Reproduction and Embryology ([news](#) : [web](#))

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