

British Fertility Guidelines on Preimplantation Genetic Screening

June 2008

British Fertility Society Factsheet



www.fertility.org.uk

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The British Fertility Society has recently issued new guidelines on the use of preimplantation genetic screening (PGS) in patients seeking fertility treatment. These guidelines follow a thorough review of published research on the safety and success rates of PGS. The British Fertility Society is committed to promoting good clinical practice and working with patients to provide safe and effective fertility treatment.

What is preimplantation genetic screening?

Success in assisted conception is dependent on the quality of the sperm and eggs. Egg quality falls with age, hence one of the strongest predictors of whether an IVF cycle will be successful is the age of the woman. A major cause of this age-related decline is the development of chromosomal abnormalities in the egg as it matures, which can in turn be passed on to the embryo. If the embryo contains chromosomal abnormalities, it is unlikely to be able to develop properly, although at the very early stages before it is replaced in the womb, it may appear normal.

There is therefore much interest in analysing the chromosomes of the embryo, to help choose the best embryo(s) to replace and thus increase the pregnancy rate. This process is known as preimplantation genetic screening (PGS) and involves removing one or two cells from the embryo and looking for chromosomal errors in the cell(s). It differs from preimplantation genetic diagnosis (PGD) which is a focussed test looking for specific genetic disorders relevant to the couple being treated. PGS has been suggested as potentially of value for older women, after several unsuccessful IVF attempts, or when the woman has had several miscarriages. PGS adds to the financial cost of assisted conception, generally borne by the patient.

Does preimplantation genetic screening work?

Before introducing new tests and treatments such as PGS into widespread use, it is important to confirm that they really do work. Often, promising results from early studies with small numbers of patients are not substantiated when larger better designed trials are carried out. There have now been two large randomised controlled trials looking at whether PGS does in reality help increase the pregnancy rate in older women. The first trial involved women who were 37 years or older. In the trial, fewer women in the PGS group had embryos replaced into their wombs than in the control group. This may perhaps be because of damage to the embryos from removing the cells for PGS analysis, as well as because PGS had identified embryos with abnormalities, leading to a reduction in the number of useable embryos; however the final pregnancy rates were similar with or without PGS. In the second trial, which included women aged 35 and older, pregnancy was in fact less likely in women having PGS (25%, compared to 37% in those not having PGS).

What does the British Fertility Society recommend?

The two studies outlined above do not therefore support the use of PGS to increase IVF success in older women. There have been no well-designed studies looking at PGS for recurrent miscarriage, or other indications. It remains possible that PGS may be of benefit under certain circumstances, but the BFS currently recommends that PGS should therefore preferably be offered within the context of well-designed randomised trials performed in suitably experienced centres.

Patients should be made aware that there is no robust evidence that PGS for advanced maternal age improves live birth rate; indeed from the evidence currently available the live birth rate may be significantly reduced following PGS.

Reference

Anderson RA & Pickering S. The current status of pre-implantation genetic screening: British Fertility Society Policy and Practice Guidelines. *Human Fertility*, 2008; **11**: 71-75.