1.Could you please tell readers what PGS and PGD is about ?

Preimplantation genetic diagnosis (PGD) is a clinically feasible technology to prevent the transmission of monogenic inherited disorders in families afflicted the diseases to the future offsprings

preimplantation genetic screening (PGS) screens embryo with aneuploidy and was also known as PGD-A (A denotes aneuploidy) in order to enhance the implantation rates as well as livebirth rates.

Many people believe that because life begins at conception, the destruction of an embryo is the destruction of a person.

While PGD helps reduce the chances of conceiving a child with a genetic disorder, it cannot completely eliminate this risk. In some cases, further testing is needed during pregnancy to ascertain if a genetic factor is still possible.

Although genetically present, some diseases only generate symptoms when carriers reach middle age. The probability of disorder development should be a topic of discussion with the healthcare provider.

Keep in mind that preimplantation genetic diagnosis does not replace the recommendation for prenatal testing.

2. Why has this become important ?

It has become important these days to avoid the abnormalities , and inheritance of few disorders which can be prevented in the offsprings

PGD can test for more than 100 different genetic conditions.

To date, an increasing number of life threatening and debilitating genetic diseases may be screened before embryo transfer. It also changes reproductive options for families at risk

3 . What kind of problems does it detect ?

PGD is used primarily for genetic disease prevention, by selecting only those embryos that do not have a known genetic disorder. PGD may also be used to increase chances of successful pregnancy, to match a sibling in HLA type in order to be a donor, to have less cancer predisposition,

The most frequently diagnosed autosomal recessive disorders are cystic fibrosis, Beta-thalassemia, sickle cell disease and spinal muscular atrophy type 1. The most common dominant diseases are myotonic dystrophy, Huntington's disease and Charcot–Marie–Tooth disease; and in the case of the X-linked diseases, most of the cycles are performed for fragile X syndrome, haemophilia A and Duchenne muscular dystrophy.

Women experiencing recurrent pregnancy loss

Women with more than one failed fertility treatment

4. What does the test involve - does taking a cell from the embryo harm it in any way ? When do results arrive ? Cost ? Is it recommended for older mothers or couples with family history of genetic problems specifically ?

Preimplantation genetic diagnosis begins with the normal process of in vitro fertilization that includes egg retrieval and fertilization in a laboratory. Over the next three to five days, the embryos are formed .

Procedure

First, a couple/few cells are microsurgically with the help of biopsy are removed from the embryos, which are about 5 days developed. After this cell collection, the embryos are safely frozen.

The DNA (genetic screening) of the cells is then evaluated to determine if the inheritance of a problematic gene is present in each embryo. This process takes at least 15 days

Once PGD has identified embryos free of genetic problems, the embryo(s) will be placed in the uterus (usually by an IVF procedure), and the wait for implantation and pregnancy tests through blood tests are done after 14 days of Implantation

Any additional embryos that are free of genetic problems are kept frozen for possible later use while embryos with the problematic gene(s) are destroyed. This full process takes few weeks

So patients have to be aware of the time frame involved in IVf with pgd

Preimplantation genetic diagnosis can benefit any couple at risk for passing on a genetic disease or condition.