# Preimplantation Genetic Testing

## Part I

Previously, individuals with hereditary medical conditions had little to do to prevent such conditions from being passed to their offspring. However, advancement in science technology has made it possible for parents with severe genetic disorders to prevent passing their condition to their young ones. The case of Emily Brooks depicts such a situation where her father had been diagnosed with Huntington’s disease. Huntington’s disease is a severe hereditary disorder that destroys brain cells leading to frail physical and mental ability (Penn Medicine, 2017). Individuals experiencing the condition live for an average period of 10-25 years. Moreover, an affected parent has 50-50 chances of passing Huntington’s disease to the offspring.

However, through preimplantation genetic testing, it is possible to determine whether chromosomal and genetic disorders are present in an embryo (Zhorov, 2017). Preimplantation genetic diagnosis depicts a medical technique for screening embryos before implementation to identify genetic defects in embryos created through in vitro fertilization (IVF) (Zhorov, 2017). Conversely, prenatal genetic testing involves testing of the fetus during pregnancy to detect any form of genetic disorder if one or both of the biological parents have a genetic predisposition.

However, prenatal diagnostic testing detects abnormalities when pregnancy is at its advanced stages while preimplantation genetic testing detects abnormalities before implantation of the embryo into the fetus (Zhorov, 2017). Therefore, prenatal diagnostic testing causes distress to a pregnant woman. Both of the techniques can misdiagnose a condition due to allele drop-out leading to embryo discard. Moreover, both of the techniques may fail to detect the abnormality completely leading to a child with a genetic disorder. Preimplantation genetic diagnosis poses a risk to a female with twin or multiple pregnancies (Penn Medicine, 2017). Pelvic infection is also possible while using the prenatal diagnostic testing.

## Part II

### Support for Preimplantation Genetic Diagnosis

Ideally, preimplantation genetic diagnosis has been used in more than 3000 clinical situations, and more than 700 children have been born as a result (Harper et al., 2008). The preimplantation genetic diagnosis has played a major in helping parents detect genetic and chromosomal abnormalities and prevent them from being transferred into children whose parents are experiencing the condition (Harper et al., 2008). Therefore, individuals or couples with serious inherited disorders can have children without worry of passing the condition to their children. Some of the hereditary disorders like Huntington’s disease do not have a cure hence one is saved from incurring a high financial burden (Penn Medicine, 2017). Moreover, PGD helps to reduce multiple pregnancy risks through implantation of only healthy embryos into the uterus (Verlinsky et al., 2000). The technique allows identification of pregnancies that are at the risk of not developing to maturity.

## Part III

### Why Preimplantation Genetic Diagnosis is Wrong

Use of preimplantation diagnostic testing would encourage choosing children of certain gender at the expense of others. The issues of selecting embryo on a gender scale have become commonplace in preimplantation diagnostic testing (Zhorov, 2017). Destruction of the embryo that is healthy but does not conform to the needs of the parent is unethical and results in the death of several innocent lives (Zhorov, 2017). Additionally, the preimplantation diagnostic testing kills the natural genetic diversity that exists in the society. Loss of genetic diversity in the society by choosing children with the superior and flawless genes exposes the human race into unforeseen risks lives (Wang, & Hui, 2009). Moreover, families that cannot afford IVF services are disadvantaged as they cannot protect their children against genetic disorders. Furthermore, preimplantation diagnostic testing disregards giddiness of natural pregnancy and the natural way of fertilization.

## Part IV

Several circumstances can influence an individual to seek genetic testing. Factors such as family history, pregnancy issues, consanguinity cases and couples that feel to be at an increased risk of a genetic disorder may deem it necessary to seek genetic testing. For instance, maternal health problems such as advanced paternal age at the time of conception, cases of miscarriage and infertility and others might necessitate one to seek genetic testing to solve the problems.

Genetic testing is necessary if one learns that he or she has chances of suffering a condition such as Huntington’s disease. When one is aware of the condition, it is possible to take the right measures such as preimplantation genetic diagnosis to avoid the condition from spreading to children.

It is unethical to terminate the pregnancy of an embryo with a genetic disorder after learning of the condition during pregnancy. Terminating such a pregnancy would amount to taking the child’s life without its consent. Probably, the condition may change upon discovery of a treatment.

I would choose traits of my children if technologies that make that possible were available. Selecting children with superior features would help them efficiently fit in the environment and overcome challenges associated with inferior genetic qualities. The children would impose their preeminence to compete and overcome competition leading to a superior life.

Everyone should have equal access to technology to avoid social inequalities that are created by monopoly in ownership of technology. The government should make policies that ensure technology is available to all individuals.

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