The Ethical Implications of Pre-implantation Genetic Diagnosis

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What is Pre-implantation Genetic Diagnosis-PGD?

- Step 1: create embryos through in vitro fertilization
- Step 2: remove 1-2 cells after a few days
- Step 3: amplify DNA through PCR and analyze to see which embryos have genetic defects
- Step 4: only healthy embryos injected into uterus
- Step 5: healthy baby!
Ethical Issues

I. Destruction of pre-natal life

II. Who pays?

III. Uses of PGD
   - Disease Prevention: limiting use of PGD depending on condition?
   - Gender Selection
   - Designer Babies: Germ Line Gene Therapy and Genetic enhancement
I. Destruction of Pre-natal Life

- The Catholic View- “the body of a human being, from the very first stages of its existence, can never be reduced merely to a group of cells.”
- Counter-moral status conferred by cognitive traits
- PGD may reduce incidence of Abortion-Lesser of Two evils?
II. Who Pays?

• The Government?
• Individuals?
• Will PGD become a luxury of the rich? What would it mean to have equality of genetic diagnosis?
III. Uses of PGD: Disease Prevention

- Mendelian Diseases: Tay Sachs, Muscular dystrophy, CF, Sickle cell
- Susceptibility Conditions-BRCA1-2
- Late Onset Diseases-Alzheimer’s Disease, Huntington Disease
Limiting Prevention-Where to Draw the Line

- Option 1) Procreative liberty with no limitations
- Option 2) Minor/susceptibility/late onset conditions do not justify testing:
  - Future medical advancement, importance of particular mutations unknown
  - Detrimental to disabled falling below line-intolerance
Gender Selection

- Two Groups: First Born Child Selection, Already have child of one gender and want other
- Controversies:
  - Disparity in sex ratio of population
  - Sexism
Germ Line Gene-Therapy and Genetic Enhancement

- Germ Line Gene Therapy - insert new genetic material in place of mutated gene
- PGD used prior/after to identify suitable embryo

Used to eliminate disease instead of PGD if:
- couple opposed to discarding embryos
- both parents homozygous recessive

- Also used to genetically enhance offspring
Designer Babies - problems of perfection

Should we all have the same:
- intelligence
- sexual orientation
- hearing ability
- physical attributes
- memory
- muscular capabilities
Thank you!
References

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