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Human Genetics Alert Press Conference: Stop GM Human Embryos!

Statement of Dr Michael Antoniou, gene therapist, Guy's Hospital

Human "somatic" gene therapy attempts to treat the affected part of the body (e.g. muscle in muscular dystrophy, blood in sickle cell disease, lungs in cystic fibrosis) and therefore avoids altering the germ line reproductive cells (sperm, eggs), which may result in new mutant genes being passed on to future generations.

As a gene therapist I am opposed to so called germ line gene therapy, which leads to the intentional manipulation of the reproductive cells (sperm, eggs). This approach is unacceptable from both a technical and ethical/moral standpoint. Firstly, the manipulation of the human germ line is unsafe; in the effort to make amends for an inherited gene mutation, many others in all likelihood will be caused. Secondly, germ line gene therapy is unnecessary since prospective parents who do not want to risk passing on genetic diseases to their children have a whole range of options already in place to draw on to avoid this including gamete (egg/sperm) donation, prenatal diagnosis and in vitro fertilisation (IVF) coupled with genetic analysis of embryos before implantation into the womb ("pre-implantation genetic diagnosis - PGD"). From an ethical standpoint, any technology developed for the manipulation of the human germ line for apparent sound clinical reasons can be readily abused for gene addition for "character enhancement". Such cosmetic eugenics applications are irresponsible and unacceptable.

It is therefore very reassuring to see that Clause 2.51 in the proposed revision of the Human Fertilisation and Embryology Act states that a ban all genetic manipulations of embryos for reproductive purposes will be put in place.

It is therefore somewhat contradictory and surprising to find that Clause 2.52 suggests that genetic manipulation of embryos should be permitted "for research purposes only". Could not this research by default lead to developing germ line reproductive applications? Again, given the availability of alternatives I find it difficult to conceive of a useful application of the type of genetic manipulation of human embryos that is proposed.

I am also concerned that permitting the genetic manipulation of human embryos will tarnish the hard earned, good public image that human somatic gene therapy possesses.

If we really had the good of the patient at heart we would be investing our limited resources in this area to advancing gene therapy in combination with adult stem cell technology, which is already showing great promise in clinical trials.

Notes

Dr Michael Antoniou is Reader in Molecular Genetics, King's College London School of Medicine, Guy's Hospital. He has been head of a research team for the last 12 years studying the control of gene function and the development of human somatic gene therapy applications.