Centre for Reproduction Research Seminar Series

Wednesday 16 May 2018, 12 – 1.30, Edith Murphy House 4.08

Professor Joyce Harper, University College London

'The current status and future of reproductive genetics: is GATTACA here?'

As places are limited, please email CRR@dmu.ac.uk if you wish to attend to secure your place.

Abstract

There are thousands of genetic diseases that can be transmitted by a couple to their children. In these cases, the couple have several reproductive options. They may wish to not have children, not have any genetic testing, have preimplantation genetic testing (PGT) or prenatal diagnosis, use a gamete donor or adopt.

For many decades, carrier screening has been used for high-risk populations who are at risk of transmitting a genetic disease, such as sickle cell for African populations. In some countries, genetic testing is mandatory before marriage.

Now expanded carrier screening using panels for a number of genetic diseases can be used for any couple wishing to have children. Data from the USA shows that 2% of couples found they were carrying a genetic disease that they did not know about. If they had not had expanded carrier screening, they could have had a child with a genetic condition.

For PGT, patients have to go through IVF procedures to generate embryos in the laboratory. Embryonic cells can be biopsied from the zygote, cleavage or blastocyst stage embryo and used for genetic testing. PGT is allowed in the UK for serious genetic conditions. However, in some countries it has been used for gender selection because the couple desire a child of a particular gender. And with the development of genome sequencing, we will soon be able to know the full genetic code of a preimplantation embryo. We also now have technology that can edit the genome of the embryo. This has the potential to be used to edit out genetic disease but also for genetic enhancements.

This seminar will provide an overview of recent developments and of the current state of reproductive genetics. It will assess the importance of this field for reproductive decision making, and discuss the opportunities it offers and implications; and asks 'what next' for the future of reproductive genetics.

Speaker biography

Joyce Harper is Professor of Human Genetics and Embryology at University College London in the Institute for Women's Health where she is head of the Reproductive Health Department, Principal Investigator of the Embryology, IVF and Reproductive Genetics Group, Director of Education and Director of the Centre for Reproductive Health. She is a Director of the Embryology and PGD

Academy which she established with Alpesh Doshi in 2014 and founder of Global Women Connected.

Joyce has worked on fertility and reproductive genetics for 30 years, originally working as a clinical embryologist and then working on preimplantation genetic testing. She is currently working on the social, ethical and legal aspects of fertility treatment, concentrating on social egg freezing and reproductive genetics. Joyce has published over 170 scientific papers and written two text books.

Joyce is passionate about public engagement to discuss all aspects of women's health, including wellbeing. She has established a public engagement group with daily posts – www.globalwomenconnected.com and has just written a book covering women's health from birth to death called 'what every woman should know'.

In 2016 Joyce was one of the founders of the UK Fertility Education Initiative which aims to help people understand fertility, modern families and reproductive science.

For further information see www.joyceharper.com, twitter: @ProfJoyceHarper.