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SYMPOSIUM: FUTURES IN REPRODUCTION REVIEW

Reproductive ageing and conflicting clocks: King Midas' touch




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Irenee Daly, BA, MSc, PhD is a research associate at the Centre for Family Research at the University of Cambridge. In 2012 she finished her PhD entitled 'Misconceptions: women's knowledge of age-related fertility decline in the context of a trend towards older motherhood'. She is interested in older motherhood, how women make decisions to have children, what it means to be ready to have children, and women's understanding of reproductive technologies.

Abstract The population attempting pregnancy and having babies is ageing. Gynaecological and obstetric complications worsen with age. Maternity services are struggling. Increasing rates of infertility and complications are not matched by the marvels in the laboratory. This paper argues that assisted reproduction treatment has had a damaging social impact. Despite its public acclaim, it helps few and fails many more. The assisted reproduction industry could take a new and revolutionary direction towards empowering men to experience pregnancy, producing babies from artificial gametes, with a final goal being the liberation of both women and men from the burdens and dangers of pregnancy through the development of artificial wombs. 

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KEYWORDS: assisted reproduction technology, feminism, IVF, male reproduction, older motherhood

VIDEO LINK: <http://sms.cam.ac.uk/media/1401028>

Introduction

Women are born already experiencing the age-related loss of primordial follicles that started *in utero*. Their fertile pot flourishes cyclically for a limited time before the inevitable demise of reproduction capacity (i.e. replication of offspring) approximately a decade before the menopause. *Pari passu* with the age-related loss of egg numbers and quality are the fall in fertility and rise in miscarriage, captured in **Figures 1 and 2**. The same, rising J-shaped curve

seen for miscarriage is found for virtually all complications of pregnancy, whether ectopic pregnancy (**Figure 3**), pre-eclampsia, Caesarean section, stillbirth and neonatal death (**Figure 4**) or maternal death (**Figure 5**), varying only in incidence and impact on the mother and baby.

A Royal College of Obstetrics and Gynaecology (RCOG) expert study group did not find any pregnancy complications that lessen with age (**Bewley et al., 2009**). As women enter their thirties and forties, the child-bearing population starts to intersect with the early onset of diseases of middle age.

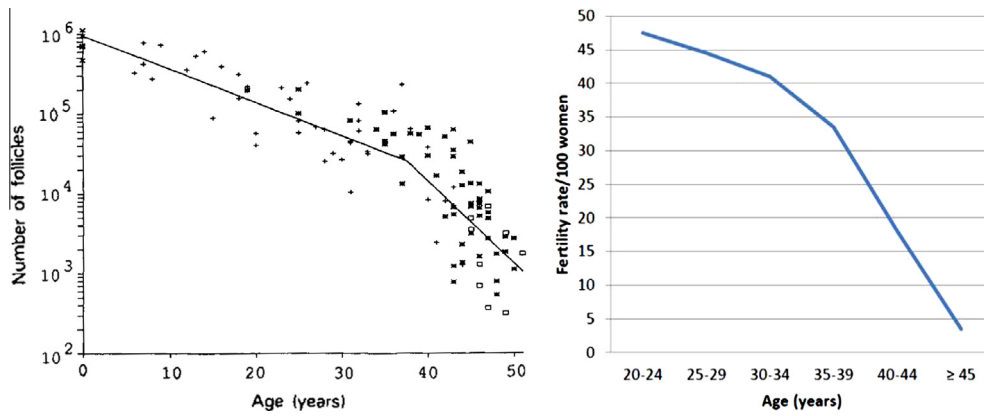


Figure. 1 (A) Age-related loss of primordial follicles (symbols indicate four different sources of data from 1952 onwards; $n = 110$; from Faddy et al., 1992; reproduced with permission). (B) Age-related loss of fertility (from NICE, 2013; reproduced with permission of the Royal College of Obstetricians and Gynaecologists).

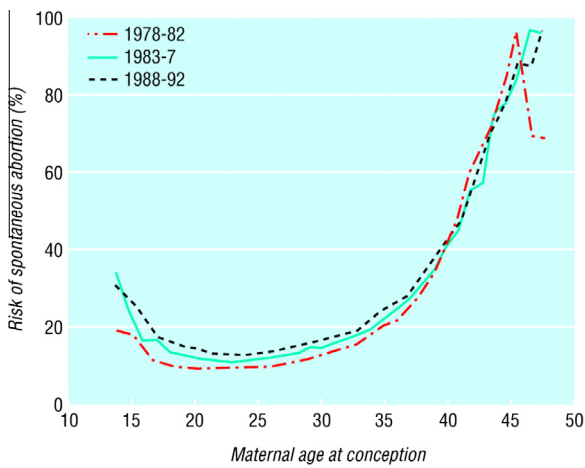


Figure. 2 Age-related rise in miscarriage (from Nybo Anderson et al., 2000; Menken et al., 1986; reproduced with permission).

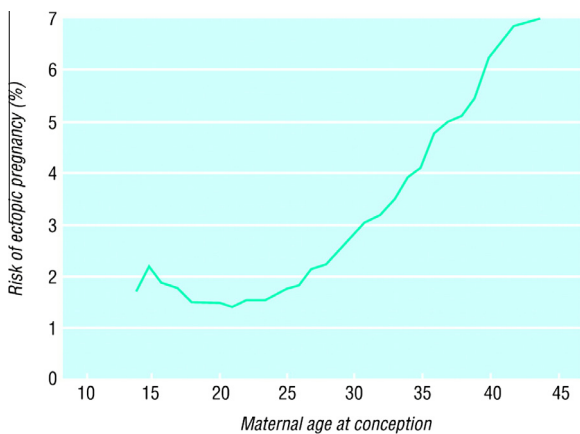


Figure. 3 Effect of age on ectopic pregnancy (from Nybo Anderson et al., 2000; reproduced with permission).

Again, few medical labels disappear with age, and so pregnancies in older women are attended by more medical complexity and complications. Even uterine receptiveness,

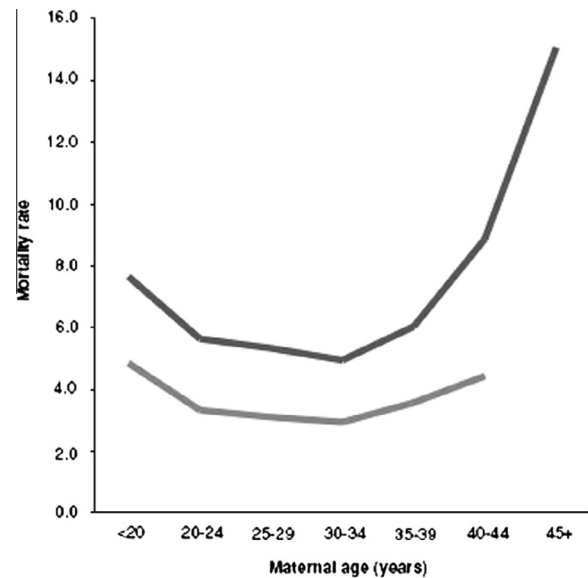


Figure. 4 Effect of maternal age at delivery on stillbirth rate and neonatal mortality rate. Upper line = stillbirth rate per 1000 total births; lower line = neonatal mortality rate per 1000 live births (from CEMACH, 2006; reproduced with permission).

a necessary precursor for older women to receive oocyte donations, declines after the age of 45 (Soares et al., 2005). Overall, age has an impact on the need for maternity services (Figure 6) and drives up costs.

While women should not be bullied into having children if they do not want them or do not feel ready, they should be under no illusion about biological fitness diminishing with age. Unfortunately, this basic fact and its timing is not well known and understood (e.g. see Everywoman, 2013; Johnson and Franklin, 2013). The limited academic literature that has investigated women's, and men's, knowledge of age-related infertility all points to the need for education about the absolute and relative risks and benefits of waiting until one is older to have children (Bretherick et al., 2010; Cooke et al., 2010; Daly 2012; Daniluk and Koert, 2013; Daniluk et al., 2012; Lampi, 2006; Lampic et al., 2006; Maheshwari et al., 2008;

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