

Older sperm donors reduce pregnancy success

October 4 2013, by Rebecca Graham

The increasing amount of sperm donors over the age of 45 years appears to be adversely affecting the clinical pregnancy success rates of women undergoing donor insemination (DI).

The finding was uncovered in research by UWA School of Anatomy, Physiology and Human Biology PhD candidate Su-Ann Koh, who was interested in investigating the effect of paternal [age](#) on fertility.

Since the introduction of an open-identity program in WA in December 2004, sperm donors in the 40–45 year age group have been steadily increasing.

"While there is strong evidence that open-identity donor programmes are beneficial for donor families, the consequences of an ageing [sperm donor](#) cohort, in terms of pregnancy success, have not been identified until now," Ms Koh says.

"Given that previous research suggests male age may adversely affect fertility, we postulated that when controlling for female age, older sperm donors would be associated with a decreased pregnancy rate per cycle undertaken.

"[We also hypothesised] it would take a greater number of cycles to achieve a clinical pregnancy with recipients."

The researchers analysed 2142 DI cycles from 181 male donors and 456

female recipients collected at Concept Fertility Centre, Perth, between 1994 and 2011.

Females were less than 40 years-old with no known fertility problems, while all male donors had to satisfy the World Health Organisation's standards for semen quality, including motility and concentration.

Older male donors aged 45 years and over (50 being the cut off age) were significantly associated with decreased DI success rates in women less than 40 years.

This was observed both in clinical [pregnancy rate](#) per cycle (defined as a fetal heartbeat 6–7 weeks post fertilisation), and also time to achieve pregnancy.

"There appears to be a threshold effect of [paternal age](#) ... [and this impact] was not solely mediated via an age-related decrease in sperm concentration or motility, which are known to be predictive measures of DI success," Ms Koh says.

"This suggests that sperm quality in older men is compromised via some other mechanism, ultimately affecting clinical pregnancy."

In light of results, Ms Koh suggests encouraging recruitment of younger sperm donors given the increasing trend of older donor cohorts in open-identity systems like WA.

She recommends further investigation of "other mechanisms that could be mediating the age-related decrease in DI pregnancy success, [such as] oxidative stress and sperm DNA damage".

"Future studies should also consider longer-term outcome measures such as live birth rates and the health of any live born children."

More information: www.ncbi.nlm.nih.gov/pubmed/23768621%20

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