Fertility Society of Australia
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New data raises more questions about water pollution and its effects on human fertility?

Water may be our most precious resource, but rising levels of harmful chemicals in Australia's public water systems may be affecting our fertility.

And, according to Dr Mark Green, the Senior Lecturer in Reproductive Biology at the University of Melbourne, new animal studies indicate the fertility consequences from at least one of these chemicals may be passed from one generation to the next.

Speaking at the annual conference of the Fertility Society of Australia in Melbourne this week, Dr Green raised the spectre of the herbicide atrazine having wider and more serious impacts than simply controlling unwanted weeds in crops, golf courses and playing fields.

Dr Green said over the past 80 years the production and emission of man-made chemicals with hormone disrupting properties had increased dramatically.

"Recent estimates suggest more than 1,400 endocrine disrupting chemicals, or EDCs, can be found in everyday items including plastics, personal care items, food products and in manufacturing, industrial and agricultural processes," he explained.

"Human studies have found individuals, particularly those seeking fertility treatments, have higher levels of EDCs in their blood, urine and reproductive tissues.

"Due to the ability of EDCs to modulate hormones, many of these common chemicals may have negative effects on male and female fertility around the critical time of conception and in the early embryo."

Dr Green said atrazine was one of the most commonly used herbicides in Australia and the United States, which is why it can pollute waterways.

The National Health and Medical Research Council has determined the maximum acceptable atrazine levels in water, beyond which it can pose health risks.

Dr Green told the fertility conference his research involved short *in vitro* exposure of cattle and mice embryos to atrazine at concentrations within the NH&MRC approved safe levels for human drinking water.

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“Data generated from these studies clearly identified that exposure to environmentally relevant atrazine levels had a negative impact on early embryos, with a significant decrease in cell numbers and increased metabolic rate in those embryos,” he said.

“A similar finding was identified when we added atrazine into the water of male laboratory mice from the time they were *in utero* (via their mother) until three months of age.

“We then mated these atrazine-exposed males to unexposed females and found that the resulting embryos also had reduced cell numbers.

“This demonstrated the potential for paternal exposure to atrazine to be passed on to the next generation.

“These outcomes pose questions about the current ‘safe’ atrazine level in drinking water and especially in respect to safeguarding human fertility.

“The implications are that when ‘safe’ levels are being investigated, studies should be conducted at all life stages and for different sexes, as well as looking for more subtle effects, such as those on reproduction.”

Leading fertility specialists from Australia and overseas attended the conference at the Melbourne Convention and Exhibition Centre to explore latest developments to help people experiencing infertility, which is defined as the failure to conceive after a year of unprotected intercourse, or the inability to carry pregnancies to a live birth.

In Australia, an estimated one in six couples experience infertility, the causes of which are equally shared between male and female partners.

Interview: Dr Mark Green is available for interview.
Landline (03) 8344 4346 or mobile 0449 064 800.

Further information, please contact Trevor Gill, FSA Media Relations.
Tel: 0418 821948 or e-mail lighthousepr@adelaide.on.net