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New hormone treatment shows potential to reverse infertility

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Twice weekly injections of the hormone kisspeptin may provide a new treatment to restore fertility in some women according to a study supported by the Medical Research Council (MRC).

The research, presented at the Society for Endocrinology's conference, shows that twice-weekly injections of kisspeptin can successfully increase the levels of sex hormones, which control the menstrual cycle.

This is the first study to show this effect can be maintained over the long term and it may lead to new therapies for women whose infertility is due to low sex hormone levels. The findings now need to be confirmed in large-scale randomised trials, before any treatments can be brought into clinical practice.

Researcher Dr Waljit Dhillon of Imperial College London, who led the study said:

"Infertility is a highly distressing condition and affects up to one in seven couples in the UK. It is important to emphasise that this is only a small study and we need to carry out further work before our findings can be brought into clinical practice. Our next step is to perform a much bigger clinical study with a larger number of participants to see if kisspeptin administration can enable women with hypothalamic amenorrhoea to regain fertility."

Dr Catherine Elliott, Head of Experimental Medicine at the MRC said:

"Experimental medicine is an area the MRC is actively supporting. It's very exciting to see this early stage clinical trial, delivering promising outcomes that will hopefully lead, through larger trials, to benefits for women with fertility problems."

"Bringing the benefits of medical research to people more quickly is a key part of the MRC's strategic plan and achieving our ultimate aim of improving human health."

The research team studied a group of 10 women with a condition called hypothalamic amenorrhoea, where a deficiency in sex hormone levels prevents menstruation, resulting in infertility. This affects several thousand women in the UK each year.

Over eight weeks, the women were either given twice-weekly injections of kisspeptin or twice-weekly injections of saline as a control. Blood samples were then taken at regular intervals to measure their levels of luteinising hormone and follicle stimulating hormone, two sex hormones essential for ovulation and fertility. Women demonstrated a large increase in circulating sex hormones on day 0, which was halved on day 14. However, after day 14, their responsiveness to the kisspeptin treatment remained steady. On the last day of the trial, women who had been given kisspeptin injections showed a 16-fold increase in their hormonal response, compared to the saline controls.

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In a previous study supported with a £149,000 grant from the MRC, Dr Dhillon's group found that a one-off injection of kisspeptin caused an increase in sex hormone production in these women, but further daily administration was not effective as the system stopped responding. The present study aimed to examine kisspeptin's potential as a fertility treatment by finding a dose regimen that would maintain sex hormone production over a sustained period of time.

This is the first long term clinical study to examine the effectiveness of kisspeptin treatment. Kisspeptin is a product of the KISS-1 gene and is a key regulator of reproductive function. Animals and humans lacking kisspeptin function do not go through puberty and remain sexually immature.

The abstract for this work is reproduced at: www.endocrine-abstracts.org .

More information on the MRC's experimental medicine research is available at: www.mrc.ac.uk/Ourresearch/ResearchInitiatives.

Ends

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