

Endometriosis could be treated with cancer drug, study suggests

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The painful symptoms of endometriosis—a chronic condition which affects millions of women—could potentially be reduced with a drug that had previously been investigated as a cancer treatment.

Researchers found that using dichloroacetate to treat the [cells](#) of women with [endometriosis](#) lowered the production of lactate—a potentially harmful waste product—and stopped abnormal cell growth.

Endometriosis—which affects 176 million women worldwide—is caused by the growth of lesions made up of tissue similar to the lining of the womb in other parts of the body, such as the lining of the pelvis and ovaries.

Researchers from the University of Edinburgh found that cells from the pelvic wall of women with endometriosis have different metabolism compared to women without the disease. The cells produced higher amounts of lactate similar to the behavior of cancer cells.

When the cells from women with endometriosis were treated with dichloroacetate, they were found to return to normal metabolic behavior. The scientists also noted a reduction in lactate and an impact on the growth of endometrial cells grown together with the pelvic cells.

Further tests on a mouse model of endometriosis found, after seven days, a marked reduction in lactate concentrations and the size of lesions.

This research was funded by the charity Wellbeing of Women, and supported by PwC and the Medical Research Council UK.

Currently available treatments for endometriosis are either hormone-based, which can produce unpleasant side effects, or surgery, which in half of cases, results in lesions returning after five years.

The researchers believe these new findings could help alleviate endometriosis in women who cannot—or do not wish to—take hormonal treatments or prevent recurrence after surgery. The team are conducting

an early phase clinical trial to confirm their findings.

This research is published in the *Proceedings of the National Academy of Sciences*.

Wellbeing of Women aims to save and transform the lives of women and give babies the best start in life by finding cures and treatments across the breadth of female reproductive health, including overlooked areas like endometriosis.

Lead Researcher, Professor Andrew Horne, MRC Centre for Reproductive Health at University of Edinburgh, said: "Endometriosis can be a life-changing condition for so many women. Now that we understand better the metabolism of the cells in women that have endometriosis, we can work to develop a non-hormonal treatment. Through a clinical trial with dichloroacetate we should be able to see if the conditions we observed in the lab are replicated in women."

Janet Lindsay, CEO of Wellbeing of Women said: "More than 176 million women suffer from endometriosis yet few people have heard of it and treatment, which can impact fertility, has progressed very little for over 40 years. This is why we are so excited by the findings of this research that Wellbeing of Women has funded and which could lay the basis for the first new non-hormonal treatment offering women a life-changing option. We are delighted that Professor Andrew Horne's new treatment going to clinical trial could hugely impact so many [women's](#) lives."

More information: Andrew W. Horne et al., "Repurposing dichloroacetate for the treatment of women with endometriosis," *PNAS* (2019). www.pnas.org/cgi/doi/10.1073/pnas.1916144116

Provided by University of Edinburgh

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