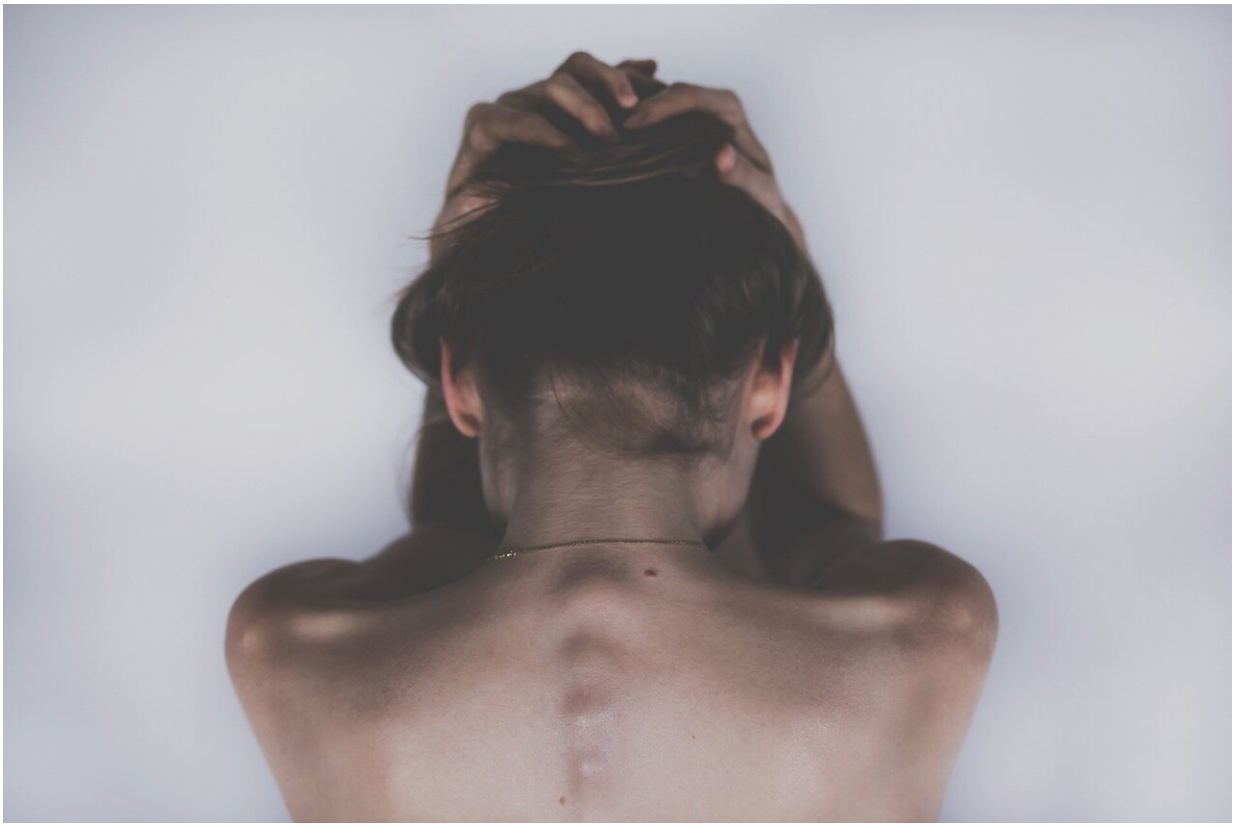
Scientists report new endometriosis findings

May 21 2019



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Endometriosis is a disease that affects 10 to 15 percent of all reproductive-aged women. Although no cure has been found, researchers seek to determine why some women develop endometriosis and in order to develop effective treatments. Researchers from Tartu have completed a study toward explaining the causes of endometriosis.

Endometriosis is a disorder in which tissue that lines the inside of the uterus, the endometrium, grows and develops lesions outside the uterine cavity. Inflammation causes chronic pelvic pain, painful intercourse and pain with urination and bowel movements, and often causes infertility.

According to researcher Merli Saare, nobody actually knows how many women suffer from the disease, because it is not easy to diagnose. So far, there is no method for identifying endometriosis from a blood sample. "Today, the disease is mainly diagnosed surgically. In general, patients have to undergo a laparoscopic procedure in which lesions are surgically removed from the abdominal cavity. Small pieces of this tissue are taken for histological analysis that helps to confirm the diagnosis," explained Saare.

Surgical removal of lesions relieves symptoms, but does not cure the disease, which tends to recur. In addition to the fact that there is no effective treatment for endometriosis, researchers still do not know exactly which factors support the development of the disease or why some women have it and others do not.

The causes of endometriosis are studied by analysing the uterine mucosa and the tissue that grows in the abdominal cavity. Like any other endometrium-related diseases, menstrual cycle factors have to be considered while studying endometriosis. Women usually inform doctors of the day of their menstrual cycle when they go to surgery. However, this may not be accurate enough for determining the exact phase of the menstrual cycle, as Saare and her colleagues report in their research paper, published in the journal *Biology of Reproduction*.

Their study, which is based on the analysis of endometrium samples taken from about 80 women, confirm that the day of the menstrual cycle reported by the women themselves and the molecular profile of their endometrium were often incompatible. Therefore, molecular tools are

needed for more accurate classification of samples. By analysing RNA from the endometrium, researchers can assign exact dates to tissue samples and improve the quality of future research. "Our study helps to precisely determine the phase of the biopsy samples taken from the endometrium. This way, we can avoid examining the endometrium in different phases of the cycle," said Saare.

She is convinced that a breakthrough in establishing the causes of endometriosis is only a question of time, considering the modern technological potential. "All small steps and discoveries take us closer. If our studies become more precise and we are able to eliminate side factors, it is much easier to find causal changes of the disease."

In their study, the researchers used an advanced molecular tool called beREADY, which provides clinics with information to select the most appropriate day for embryo implantation. Research has shown that the test can also be beneficial in the molecular studies of the endometrium.

More information: Merli Saare et al, A molecular tool for menstrual cycle phase dating of endometrial samples in endometriosis transcriptome studies, *Biology of Reproduction* (2019). DOI: 10.1093/biolre/ioz072

Provided by Estonian Research Council