Tumor molecular profiling could reduce endometrial cancer therapy by 20%

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A retrospective study conducted by scientists from the Comprehensive Cancer Center (CCC) of MedUni Vienna and Vienna General Hospital found that compiling a tumor molecular profile can result in better risk stratification and hence to better treatment decisions in endometrial cancer. The use of so-called "integrated molecular risk classification" could reduce the use of chemo- and radiotherapies aimed at preventing metastases following hysterectomy by up to 20%. The researchers were also able to demonstrate the feasibility of compiling this tumor molecular profile as part of the clinical routine.

With around 1,000 new cases every year, endometrial cancer is the second most common gynecological cancer in Austria, after breast cancer. It predominantly affects post-menopausal women. The prognosis in this disease is relatively good, since the cancer is usually detected at an early stage. The standard treatment is complete surgical removal of the uterus and ovaries, frequently followed by adjuvant chemotherapy or radiotherapy to prevent any recurrence.

New risk classification

For a long time now, the decision to give adjuvant treatment or not has been taken by classifying patients according to conventional clinical and pathological criteria. Based on this classification system, it is likely that some of the patients will have been "overtreated," that is to say will have undergone unnecessary treatment. However, a new system of classification based on molecular pathological criteria was recently released. Moreover, additional molecular pathological risk factors have been identified, such as mutations in specific genes and the extent to which the cancer invades blood or lymphatic vessels (lymphovascular space invasion). The incorporation of these factors gives rise to a new type of integrated molecular risk stratification. Using this, it is possible to assess risk more accurately and to develop a personalized treatment strategy.

First investigation ever

The present study was conducted by scientists led by principal investigator Richard Schwameis, Department of Obstetrics and Gynecology of MedUni Vienna and Vienna General Hospital and member of the Gynecologic Cancer Unit of the CCC. It was the first study ever to investigate the clinical feasibility of carrying out post-operative tissue analyses in accordance with this integrated molecular risk stratification system. Background: there is a maximum time window of eight weeks following surgery in which to administer adjuvant treatment if it is to be fully effective and prevent metastases. The researchers demonstrated that it is feasible to compile a tumor molecular profile within this critical period. Schwameis explains: "In the context of the study we developed a strategy that allowed molecular pathological processing of the specimens to be done quickly enough, that is to say in around four weeks. This meant that there was still enough time left to plan any adjuvant treatment that might be required within the

necessary timeframe. This means that so-called tumor profiling could be established as part of the clinical routine."

The scientists analyzed tumor specimens from patients with endometrial cancer who had been treated in accordance with the established guidelines for a period of one year, looking at the treatment decisions that had been taken at the time and the outcomes associated with these decisions. They then assessed the specimens using the new integrated molecular risk stratification system. A comparison of the results shows that the new system would have eliminated up to 20% of the adjuvant treatments. In a few cases, however, the new classification would have resulted in more intensive treatment being recommended, because of the extremely high risk of recurrence. Tumor profiling in endometrial cancer could therefore change treatment decisions and improve the quality of treatment. Schwameis explains: "This finding could lead to a change in the current guidelines. Although the data are highly promising, they still need to be confirmed by a prospective study."

Provided by Medical University of Vienna

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