Simplifying access to gene testing for women with ovarian cancer

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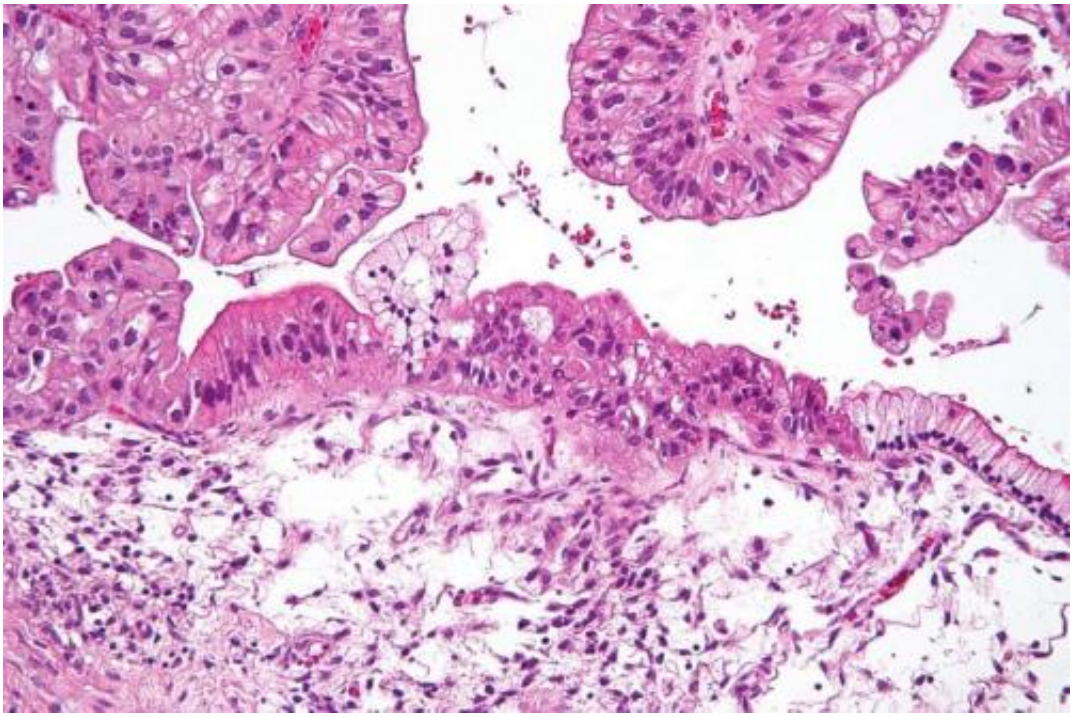

Intermediate magnification micrograph of a low malignant potential (LMP) mucinous ovarian tumour. H&E stain. The micrograph shows: Simple mucinous epithelium (right) and mucinous epithelium that pseudo-stratifies (left - diagnostic of a LMP tumour). Epithelium in a frond-like architecture is seen at the top of image. Credit: Nephron /Wikipedia. CC BY-SA 3.0

A new streamlined approach to genetic testing for women with ovarian cancer provides testing rapidly and affordably, allowing many more patients to benefit from personalised cancer management and their

relatives to benefit from cancer prevention strategies.

The new approach offers cancer patients the opportunity to get gene testing at one of their routine cancer clinic appointments instead of having to be referred to a separate genetic testing clinic.

As well as offering a more streamlined patient journey, the pathway is less resource intensive for health systems and could save the NHS millions of pounds per year, if implemented nationally.

The new testing pathway was developed by researchers at The Institute of Cancer Research, London, as part of the Wellcome Trust-funded Mainstreaming Cancer Genetics programme.

It was piloted for BRCA gene testing in 207 women with ovarian cancer at The Royal Marsden NHS Foundation Trust, in a study supported by the NIHR Biomedical Research Centre at The Royal Marsden and The Institute of Cancer Research (ICR).

The study, published today (Wednesday) in the journal *Scientific Reports*, showed the new testing approach was welcomed by patients; all 207 ovarian cancer patients accepted the offer of BRCA gene testing and the post-test feedback was very positive.

The new testing pathway reduced hospital visits for patients and substantially reduced the time taken for testing to be completed, ensuring the results were able to be incorporated into clinical decision making.

The test results were useful in deciding medical management of four-fifths of the patients who were receiving cancer treatment. This included 32 women found to have a BRCA mutation, many of whom became eligible for new precision medicines only suitable for women with

BRCA-related ovarian cancer.

In the new pathway cancer patients gave consent for testing by a cancer doctor or nurse who completed a 30-minute online training module designed by the research team. All patients found to have a BRCA mutation automatically get an appointment with the genetics team to discuss the implications for themselves and their families in detail.

For each patient identified with a BRCA mutation, on average three family members also decided to see a geneticist to discuss the implications for them. BRCA mutations increase the risk of breast and ovarian cancer occurring and testing in the relatives allowed individualised cancer risk information to be given to them. Relatives that also have a BRCA mutation have various options available to them to improve early detection or prevention of cancer.

The new testing pathway has now become standard at The Royal Marsden and is being adopted by other hospitals in the UK and internationally. Many more women with ovarian cancer have received BRCA testing as a result.

Almost all ovarian cancer patients are eligible for BRCA testing under current national recommendations, but provision of testing has been patchy across the NHS. It is estimated that less than a third of ovarian cancer patients have actually been getting testing.

The simplicity and efficiency of the new testing approach would, the researchers believe, make it practical for all eligible ovarian cancer patients across the UK to be offered testing within existing resources. The researchers estimate that rolling out the new pathway across the NHS would save £2.6M per year compared with the current standard process.

A companion study led by the same researchers in collaboration with DRG Abacus and Astra Zeneca found that the new approach to testing was extremely cost-effective, because many healthy relatives at high risk of cancer make choices that reduce their chance of developing the disease.

If all 7,000 women diagnosed with epithelial ovarian cancer in the UK each year were offered testing, just a single year's testing is likely, over time, to prevent hundreds of breast and ovarian cancers and dozens of deaths in their relatives, the study found.

The researchers showed that national implementation for all ovarian cancer patients would cost £4,339 per quality-adjusted life year - far below the £20,000 threshold that is used to decide what tests and treatments the NHS should offer.

Study leader Professor Nazneen Rahman, Head of Cancer Genetics at The Institute of Cancer Research, London, and The Royal Marsden NHS Foundation Trust, said:

"We know BRCA gene testing can be greatly beneficial for women with ovarian cancer, allowing their care to be tailored to their individual genetic information, and improving the cancer risk information we can provide to their families.

"Our new gene testing pathway is faster, simpler and better designed for cancer patients' needs than the standard NHS process. Our study has shown that it is not only a feasible way of providing BRCA testing to all eligible women with ovarian cancer, but could also prevent cancers and save the NHS millions of pounds a year."

Professor Martin Gore, Consultant Medical Oncologist at The Royal Marsden NHS Foundation Trust, said:

"The new genetic testing pathway has been a huge success in the clinic. It all runs very smoothly and I know that patients and their families are really most appreciative."

Preeti Dudakia, 49, an ovarian cancer patient at The Royal Marsden who took part in the study said:

"My cancer team explained why the test was useful very clearly and when it came back positive I was able to have a treatment only given to women with a BRCA mutation. If my mother had been able to have this testing when she got ovarian cancer I would have known I was at risk sooner. My situation could have been completely different."

Professor Paul Workman, Chief Executive of The Institute of Cancer Research, London, said:

"Twenty years ago the BRCA2 gene was identified at the ICR. This study is an excellent example of how science such as this can be turned into something very practical that can improve the patient care and save lives. We hope the new model for genetic testing will be rolled out across the NHS."

Provided by Institute of Cancer Research