Gene helps predict which ovarian cancer sufferers will benefit most from chemotherapy

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(Medical Xpress)—Researchers from the University of Dundee have discovered that measuring how active a gene is could predict which women with ovarian cancer will benefit from platinum-based chemotherapy drugs - a common treatment for the disease.

The team, based at the University's School of Medicine, have found that a gene called FGF1 is highly active in aggressive, advanced ovarian cancers, and it is found at higher levels in cancer cells that are resistant to platinum chemotherapy treatments, such as carboplatin and cisplatin.

As a result, women with high levels of FGF1 are less likely to respond to these drugs and have a poorer prognosis. The research, funded by Cancer Research UK and the Scottish Funding Council, is published online in the British Journal of Cancer on Wednesday, September 19.

The researchers also found that FGF1 activity increases after ovarian cancer cells become drug resistant. By blocking FGF1 in ovarian cancer cells resistant to platinum drugs, the scientists were able to make them sensitive to chemotherapy again.

Dr Gillian Smith, one of the researchers involved in the study, said, "We're excited by these results because they identify potential ways that ovarian cancer builds resistance to common chemotherapy drugs over time.

"Our study paves the way for the development of new tests to determine if chemotherapy will work and suggests that drugs targeting FGF1 could be effective new treatments for a group of women with a type of ovarian cancer that is difficult to treat successfully."

The researchers measured amounts of a variety of genes in 187 ovarian cancer patients and found each cancer had a unique range of active genes. But, FGF1 appeared to playing the greatest role in determining how cancers behave.

The FGF1 gene encourages cancers to grow a blood supply, helping to fuel the tumour's growth.

Dr Julie Sharp, senior science information manager at Cancer Research UK, said, "Ovarian cancer is frequently diagnosed at an advanced stage where surgery is difficult and the disease has spread.

"The current approaches to treatment are limited - not all women

respond to chemotherapy and there is no way of telling who will benefit most. This research is a step towards addressing the urgent need to develop tests that can tell us more about each woman's ovarian cancer and help personalise treatment to save more lives."

More information: Smith G., et al Individuality in FGF1 expression significantly influences platinum resistance and progression free survival in ovarian cancer (2012) *British Journal of Cancer*.

Provided by University of Dundee