

Evolving ovarian cancer cells 'dodge' treatment with chemotherapy

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(Medical Xpress) -- Cancer Research UK scientists have discovered that the commonest type of ovarian cancer evolves at a startling rate, which may allow cancer cells to 'dodge' the current standard treatment, reveals research in [The Journal of Pathology](#) today.

The researchers at Cancer Research UK's Cambridge Research Institute examined cells from high-grade serous [ovarian cancer](#) that had returned after initial platinum chemotherapy, and were resistant to further [treatment](#) with these drugs.

They compared these cells with those taken from the original tissue, before treatment.

The team discovered that the resistant cells continued to evolve, acquiring many genetic mistakes, some of which may have caused the cells to stop responding to chemotherapy.

Resistance to platinum therapy is the greatest clinical problem in managing this type of ovarian cancer. Some 80 per cent of patients with the disease initially benefit from therapy but cancer returns in the majority of cases.

The reasons cells stop responding is poorly understood. There are no tests to predict how patients will respond, nor which patients may relapse after treatment.

Lead author, Dr. James Brenton, a research clinician at Cancer Research UK's Cambridge Research Institute, said: "These intriguing results show for the first time how some ovarian cancer cells evolve quickly and acquire changes in their genetic makeup, which may help them evade treatment with platinum chemotherapy.

"In effect, drugs that would normally home in on and attack a distinct genetic weak spot in cells are now presented with a constantly changing target -

"Unravelling the secrets of how these ovarian [cancer cells](#) accumulate these genetic errors may allow scientists to target these vulnerabilities with new drugs. The next stage is to investigate if drugs can be developed to target these genetic faults."

There are more than 6,500 new cases of ovarian cancer diagnosed each year in the UK - around 126 women every week. Of these about 70 per cent are high-grade serous ovarian cancer.

Dr. Julie Sharp, Cancer Research UK's senior science information manager, said: "Thanks to the generosity of our supporters we've been at the heart of research that has played a vital role in transforming treatment for ovarian cancer and improving survival. A third of women diagnosed with ovarian cancer are now likely to survive their disease for at least 10 years. But relapse is a very real problem.

"This exciting research shines light onto why the most common type of ovarian cancer can become resistant to standard treatment - providing new avenues of research to benefit patients and ultimately increasing survival from this disease."

More information: Ng et al. The role of tandem duplicator phenotype in tumour evolution in high-grade serous ovarian cancer. *The Journal of Pathology* (2011).

Provided by Cancer Research UK

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