A promising new drug may be able to treat more types of cancer than first thought.

PARP inhibitors have shown early promise for treating cancers linked to BRCA gene mutations, including some breast and ovarian cancers.
But Breakthrough Breast Cancer research suggests they might also kill cancer cells with a faulty PTEN gene, found in some skin, womb and colon tumours.
The study appears in the journal EMBO Molecular Medicine.

" This new class of drugs could potentially make a big difference for many thousands of cancer patients, including some with very limited treatment options "
Dr Chris Lord Breakthrough Breast Cancer Research Centre
Scientists found that cells with faulty PTEN genes were up to 25 times more sensitive to PARP inhibitors than cells with normal PTEN.
Faults in the PTEN gene account for 30%-80% of breast, prostate, melanoma (skin), womb and colon cancers.
Professor Alan Ashworth, director of the Breakthrough Breast Cancer Research Centre at the Institute of Cancer Research, said: "These results are exciting because they show that PARP inhibitors are potentially a powerful targeted treatment with few side effects which may help a broad range of cancer patients.
"Clinical trials have already shown the potential of PARP inhibitors for patients with tumours caused by faulty BRCA genes.

"We now need to test whether the promising results from this study can be matched in the much larger group of patients with PTEN-related tumours."

Synthetic lethality

The use of PARP inhibitors is part of a new approach to cancer therapy called synthetic lethality.

A cell with a PTEN fault relies on a protein called PARP to keep its DNA undamaged.

PARP inhibitors work by blocking PARP, and when combined with defective PTEN, causes the cancer cell to die.

This means the tumour should either stop growing or get smaller.

Because the drug has a precise method of action it only affects cancer cells, leaving healthy cells unaffected, and minimising the risk of side effects.

PARP inhibitors have already produced impressive results when tested on patients with advanced breast, ovarian and prostate cancer caused by defects in the BRCA1 and BRCA2 genes.

In a recent clinical trial more than half of the patients' tumours shrank or stabilised, despite the fact that they had not responded well to standard therapies.

One of the first patients to be given the treatment is still in remission after two years.

Lead researcher Dr Chris Lord said: "This new class of drugs could potentially make a big difference for many thousands of cancer patients, including some with very limited treatment options."

Story from BBC NEWS.

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