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BRCA-targeting drugs could treat prostate cancer, leading expert says

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A pioneering cancer drug set to become the first to be approved specifically for inherited cancers could also be used much more widely to treat prostate cancer, a world-leading expert said today.

Delegates at the UK's leading annual cancer conference heard that olaparib, which last month was recommended for approval for women with ovarian cancer and inherited BRCA mutations, is also showing promise in advanced prostate cancer.

Professor Johann de Bono, leader of a succession of major international prostate cancer trials, told the National Cancer Research Institute (NCRI) Cancer Conference in Liverpool that the PARP inhibitor olaparib could be effective against prostate tumours that harboured particular gene mutations, even where the damaged genes were not inherited.

Professor de Bono, Professor of Experimental Cancer Therapeutics at The Institute of Cancer Research, London, and Honorary Consultant at The Royal Marsden NHS Foundation Trust, said some patients with advanced, aggressive prostate cancer were having impressive responses to PARP inhibitor treatment.

Olaparib was recommended for approval by the European Medicines Agency only last month for BRCA-mutated patients with platinum-sensitive, relapsed ovarian cancer – a significant ruling and the first of its type for a drug targeted at an inherited genetic fault. Professor de Bono's

team was the first to demonstrate the anti-tumour activity of olaparib in BRCA-mutated patients with ovarian and breast cancers.

But early clinical trials are now also testing olaparib and other PARP inhibitors – which work by exploiting a weakness in cancer cells' DNA repair machinery – in patients with a variety of other advanced cancers. These include patients who have not inherited BRCA mutations, but do carry mutations to DNA repair genes within their tumours.

Professor de Bono said these trials could ultimately expand access to PARP inhibitors to many more patients. He said it was now possible to test for DNA repair mutations in tumours, monitoring patients during the course of treatment to select the patients most likely to respond to treatments like PARP inhibitors based on the genetic profile of their tumour.

The first part of a phase II trial called TO-PARP, led by researchers at The Institute of Cancer Research, London and The Royal Marsden NHS Foundation Trust, has assessed olaparib in advanced prostate cancer.

The first part of the trial, which was funded by Cancer Research UK, Stand Up To Cancer, the Prostate Cancer Foundation, Prostate Cancer UK and the Movember Foundation, has closed and researchers are analysing the results.

Professor Johann de Bono, Professor of Experimental Cancer Medicine at the Institute of Cancer Research, London, and Honorary Consultant at The Royal Marsden NHS Foundation Trust, said:

"Although PARP inhibitors like olaparib have generally been trialled in women with inherited BRCA mutations, these exciting new trials could give them a whole other lease of life in advanced prostate cancer, and other tumours with DNA repair mutations. It is too early to say whether

they will prove to be beneficial in prostate cancer, but the initial results from our preliminary trials have been encouraging.

"A major benefit of using PARP inhibitors is that they preferentially kill cancer cells while sparing normal cells, causing fewer side-effects than traditional chemotherapies. The challenge will now be to bring the 'matching' of drugs depending on the genetic profiles of patients and their tumours – which is already a reality for trials at some research centres like ours – into routine clinical practice."

Provided by Institute of Cancer Research, London