

# PARP inhibitors in breast cancer treatment

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## **1. What are PARP inhibitors?**

PARP inhibitors are a type of targeted (biological) therapy.

PARP stands for poly-ADP ribose polymerase. It's a protein that helps cells repair themselves if they become damaged. PARP inhibitors stop the PARP from repairing cancer cells.

Two inherited altered genes that increase the risk of breast cancer developing are called BRCA1 and BRCA2. Cancer cells with faulty BRCA genes are already less able to repair themselves if they become damaged. Adding PARP inhibitors blocks another way cancer cells can repair themselves and causes them to become too damaged to survive.

## **2. Who may be offered PARP inhibitors?**

PARP inhibitors are given to people with HER2 negative, secondary breast cancer and an altered BRCA gene. They are usually only available on the NHS as part of a clinical trial.

Research is looking into their role in treating people with HER2 negative, primary breast cancer and an altered BRCA gene and also people with triple negative breast cancer.

### **3. When are PARP inhibitors given?**

PARP inhibitors can be given on their own or alongside chemotherapy or other targeted (biological) therapies.

They're given as tablets or capsules taken once or twice a day depending on what drug you're having.

### **4. PARP inhibitor drugs**

The most widely used PARP inhibitor is currently olaparib (Lynparza).

Other PARP inhibitors you may hear about include:

- talazoparib (Talzenna)
- rucaparib (Rubraca)
- veliparib
- niraparib

[Read more about how olaparib was developed.](#)

### **5. Side effects of PARP inhibitors**

Like any drugs, PARP inhibitors can cause side effects and different ones will have varying effects. Everyone reacts differently to drugs and some people have more side effects than others. The side effects of PARP inhibitors can usually be controlled or reduced and those described here will not affect everyone.

This information does not list all the possible side effects. If you have any questions about side effects, whether they are listed below or not, talk to your treatment team.

Because PARP inhibitors may be given alongside other drugs, you may also experience side effects from these. It's sometimes difficult to know which drug causes which side effect because of this.

#### **Common side effects of PARP inhibitors**

##### **Nausea and vomiting**

This is usually mild but if you're suffering from nausea (feeling sick) or vomiting (being sick), your specialist or GP can prescribe anti-sickness drugs to help relieve it.

## **Fatigue**

It's common to feel extremely tired during your treatment. There are different ways of coping with and managing fatigue.

## **Anaemia**

Having too few red blood cells is called anaemia. If you feel particularly tired, breathless or dizzy, let your treatment team know. A blood transfusion may be needed during your treatment if the number of red blood cells falls significantly.

## **Diarrhoea**

This is usually mild. Tell your specialist or GP if you have diarrhoea as they can prescribe drugs to help. Contact your treatment team if you have four or more episodes of diarrhoea within a 24-hour period. Drink plenty of fluids to avoid getting dehydrated.

## **Headaches**

These are usually mild. Your specialist or GP can suggest drugs to help relieve symptoms.

## **Less common side effects of PARP inhibitors**

### **Risk of infection**

When the white blood cells fall below a certain level, it's known as neutropenia. Not having enough white blood cells can increase the risk of getting an infection.

Contact your hospital immediately if:

- you have a high temperature (over 37.5°C) or low temperature (under 36°C), or whatever your treatment team has advised
- you suddenly feel unwell, even with a normal temperature
- you have any symptoms of an infection, for example a sore throat, a cough, a need to pass urine frequently or feeling cold and/or shivery

### **Bruising and bleeding**

PARP inhibitors can reduce the number of platelets, which help the blood to clot. You may bruise more easily, have nosebleeds or your gums may bleed when brushing your teeth. Tell your treatment team if you have any of these symptoms.

## **Liver and kidney changes**

PARP inhibitors can affect how the liver and kidneys work. Your treatment team will arrange regular blood tests while you're having treatment to check for this.

## **Sore mouth**

This is usually mild, but your mouth and gums can become sore. Your treatment team can suggest suitable mouthwashes.

## **6. Further support**

If you'd like any further information and support about breast cancer or just want to talk things through, you can speak to one of our experts by calling our free [Helpline](#) on 0808 800 6000.

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