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**KEEP ALL MEDICINE OUT OF THE SIGHT AND REACH OF CHILDREN**

## **What are hormones?**

Hormones are natural substances made by glands in our bodies. The network of glands that make hormones is called the endocrine system. Hormones are carried in our bloodstream and act as messengers between one part of our body and another. They have lots of effects and one of these is controlling the growth and activity of certain cells and organs.

## **How hormone therapy works**

Some cancers use hormones to grow. These cancers are called hormone sensitive or hormone dependent. Hormone therapy uses drugs that either stop the body producing hormones or prevent hormones from making the cancer cells grow and divide. Cancers that can be hormone sensitive include breast, prostate, womb and kidney cancers.

## **Breast cancer hormone therapy**

- The female hormones oestrogen and progesterone affect some breast cancers. Doctors describe these cancers as oestrogen receptor positive (ER+) or progesterone receptor positive (PR+) or both. Hormone treatment for breast cancer works by stopping these hormones getting to the breast cancer cells. There are different types of hormone therapies for breast cancer, such as Tamoxifen, Aromatase inhibitors and Luteinising hormone (LH) blockers.
- You may have more than one type of hormone therapy to treat breast cancer. For early breast cancer, to try to stop the cancer coming back, you may have tamoxifen for 2 or 3 years. Then you may switch to an aromatase inhibitor, depending on whether you have been through the menopause.
- We know from research that sometimes having another hormone therapy can work better than having tamoxifen alone. There is research being done to find out how long someone needs to take tamoxifen, to get the most benefit. There is more information about this in the section about hormone therapy for breast cancer.
- **Tamoxifen**  
Tamoxifen is one of the most common hormone therapies used for breast cancer. Both premenopausal women and postmenopausal women can take tamoxifen. It works by stopping the hormone oestrogen from reaching cancer cells. Some breast cancer cells have areas called receptors. When oestrogen locks onto the receptors, it can encourage the breast cancer cells to divide so that the cancer grows. Tamoxifen blocks these receptors.
- **Aromatase inhibitors**  
You may have an aromatase inhibitor if you have been through the menopause. After menopause, your ovaries stop producing oestrogen. But your body still makes a small amount by changing other hormones (called androgens) into oestrogen. We need an enzyme called aromatase to make this change happen. Aromatase inhibitors block this enzyme so that it can't change androgens into oestrogen.  
There are a few different types of aromatase inhibitor. We have detailed information about aromatase inhibitors, including anastrozole (Arimidex), exemestane (Aromasin) and letrozole (Femara).
- **Luteinising hormone (LH) blockers**



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A gland in the brain, called the pituitary gland, controls the amount of sex hormones made by the ovaries. In women, LH blockers are drugs that stop the ovaries making oestrogen or progesterone. They do this by blocking the signal from the pituitary gland to the ovaries.

You will only have this treatment if you haven't yet had your menopause. After menopause, your ovaries don't produce hormones so this type of drug won't help. One LH blocker used for breast cancer is goserelin (Zoladex).

### **Prostate cancer hormone therapy**

Prostate cancer depends on the male hormone testosterone for its growth. Hormone therapy aims to reduce or stop the body making testosterone to slow down or stop the growth of the cancer. There are different types of hormone therapy, including luteinising hormone (LH) blockers, anti androgens and gonadotrophin releasing hormone (GnRH) blockers.

- **Luteinising hormone (LH) blockers**

A gland in the brain called the pituitary gland produces luteinising hormone (LH) that controls the amount of testosterone made by the testicles. LH blockers are drugs that stop the production of luteinising hormone. So the testicles stop making testosterone.

LH blockers for prostate cancer include goserelin (Zoladex), leuprorelin (Prostap) and triptorelin (Decapetyl).

- **Anti androgens**

Prostate cancer cells have areas called receptors. Testosterone attaches to these receptors and that can encourage the cells to divide so that the cancer grows. Anti androgen drugs work by attaching themselves to these receptors. So these drugs stop testosterone reaching prostate cancer cells. There are a few different types of anti androgen, including bicalutamide (Casodex), cyproterone acetate (Cyprostat) and flutamide (Drogenil). Click on the links in the previous sentence to go to information about these drugs.

- **Gonadotrophin releasing hormone (GnRH) blocker**

Gonadotrophin releasing hormone (GnRH) blockers stop messages from a part of the brain called the hypothalamus that tell the pituitary gland to produce luteinising hormone. Luteinising hormone tells the testicles to produce testosterone. So blocking GnRH stops the testicles producing testosterone. There is currently only one GnRH blocker and it is called degarelix (Firmagon).

### **Womb cancer hormone therapy**

The female hormones oestrogen and progesterone affect the growth and activity of the cells that line the womb. Doctors give the hormone progesterone to help shrink larger womb cancers. Or it can treat womb cancers that have come back.

There are different types of progesterone treatment, including medroxyprogesterone acetate (Provera) and megestrol (Megace).

### **Ovarian cancer hormone therapy**

Some ovarian cancers have oestrogen receptors. It is thought that tamoxifen might be useful as a treatment for these cancers. But it is not yet known whether hormone therapy is suitable for ovarian cancer. Doctors are doing research with tamoxifen and letrozole.



DR. JACKIE THOMSON INC.  
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**HORMONAL  
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**Kidney cancer hormone therapy**

Sometimes when kidney cancer comes back, hormone therapy tablets called medroxyprogesterone (Provera) can control it for a while. Medroxyprogesterone is a man made version of the hormone progesterone. It is not used very often now for kidney cancer because other treatments such as biological therapies often work better. But it may be suitable if you can't have other treatments for some reason.