

General Endocrine (Anti-hormonal) therapy advice

Endocrine, or anti-hormonal therapy is a form of systemic anti-cancer therapy used to treat breast cancers that express the Estrogen Receptor. This means that it is a treatment that gets into your circulation, and goes everywhere in your body. In this breast cancer subtype, circulating estrogen in the body binds to the estrogen receptor on the cancer cells, driving tumour growth. Endocrine therapy therefore blocks this pathway that the growth of cancer is dependent on. The aim of endocrine therapy in early stage breast cancer is to eliminate any potential rogue cancer cells that may have escaped the breast and deposited elsewhere in the body. In advanced breast cancer, the aim of endocrine therapy is to control the growth of and shrink the tumour. Endocrine therapy is usually administered orally, and occasionally, can be given as an injection. There are many types of endocrine therapy, and you will be given a separate patient information sheet about the specific therapy and side effects that you will receive.

For patients with Early stage breast cancer, these include

1. *Tamoxifen*. This is a tablet that should be taken daily. Both pre and post-menopausal women can use it. It acts by plugging the Estrogen Receptor.
2. *Aromatase Inhibitors*. This class of drugs include letrozole (Femara[®]), anastrozole (Arimidex[®]) and exemestane (Aromasin[®]). These acts by inhibiting the enzyme aromatase, which is found in the fat. This enzyme is responsible for converting testosterone to estrogen. Aromatase inhibitors can only be used in women whose ovaries do not produce estrogen (*post menopausal women, and in women who have their ovaries suppressed or removed*).
3. *Ovarian Suppression*. This may be achieved medically through a monthly subcutaneous injection (Goserlin/Zoladex) or surgically through removal of the ovaries.

For patients with Advanced breast cancer, these include

1. All of the above plus
2. *Fulvestrant (Faslodex[®])*. This acts by degrading the Estrogen Receptor, and is given as a monthly intramuscular injection. This is only given in women with advanced breast cancer. This is not reimbursed by the PBS.

For patients with advanced ER+ breast cancer, endocrine therapy may also be combined either together or with therapies that target other pathways that the cancer is dependent on. These include

1. *Everolimus (Affinitor[®])*. This acts by inhibiting mTOR, which is another pathway that is commonly aberrant in ER+ breast cancer. This is given in combination with aromatase inhibitors.
2. *CDK4/6 inhibitors*. This class of drugs include palbociclib (Ibrance[®]), ribociclib (Kisqali[®]) and abemaciclib (Versenio[®]). These acts by inhibiting CDK4 and CDK6, enzymes that are involved in the control of the cell cycle. This is given in combination with aromatase inhibitors and fulvestrant, and is not currently reimbursed by PBS.

Common side effects of endocrine therapy are menopausal symptoms such as hot flushes, night sweats, vaginal dryness, and altered mood. Some patients also note a change in weight, and altered frequency of menses in premenopausal women. It may take some time for the body to get accustomed to these medications, and in most cases, patients get used to the side effects. Should these symptoms persist, do bring this up during follow up visits, and options at that time include a discussion around management strategies such as medication, a referral to a menopausal clinic, or a change in endocrine therapy.

In regards to more serious side effects, Tamoxifen is associated with a small increase in risk of uterine cancer and deep venous thrombosis. Aromatase inhibitors on the other hand, have the specific side effects of joint stiffness, occasionally joint pain, and osteoporosis.

Bone Health

Bone management is key in the management of patients on aromatase inhibitors and patients who have ovarian suppression. A baseline Bone Mineral Density would be performed at the start of therapy, and again after about 12 months of treatment. All patients are encouraged to take Vitamin D supplementation, and Calcium supplementation if it is lacking in their diet. Weight bearing exercises is also advised. For women with low bone mineral density, this does not preclude the use of Aromatase inhibitors, and bone-modifying therapies may be given concurrently to strengthen the bones and reduce the risk of fractures. We work closely with the Endocrinology team at St Vincent's Hospital to optimize your bone health. You can also participate in our research projects in this area.

Research and Clinical Trials in ER+ breast cancer.

We are research leaders in the field of endocrine therapy for breast cancer, and have a number of research projects in this area. A major focus of the Connie Johnson Breast Cancer Laboratory is to determine the mechanisms of resistance to conventional endocrine therapies, and find novel ways to overcome this. We also have a number of clinical trials that you may potentially be eligible for. We will discuss these options with you during your visit.