**Introduction**

Rapid development in the field of molecular biology in recent decades has led to the understanding of the role of hormone in cell growth and the concept of autocrine and paracrine regulation of malignant cells. Approximately 25% of malignant tumours in men and 40% in women have a hormonal basis. Hormonal treatment can result in a dramatic response without toxicity associated with cytotoxic chemotherapy. Recently, there has been a proliferation of new endocrine treatments with greater efficacy and less toxicity.

**Basis of hormonal therapies**

Sex steroid hormones, regulated by pituitary gonadotrophs, are synthesized and secreted by gonads. Adrenal glands are also involved in the synthesis of steroid hormones, which is regulated by adrenocorticotrophic hormone, though it is of more significance in postmenopausal women and castrated men than in young adults. Sex hormones stimulate epithelial proliferation in hormone-responsive tissues, e.g. breasts, prostate, ovaries and endometrium. With repeated cycles of DNA replication, mutations in oncogenes and tumour suppressor genes accumulate and ultimately lead to the transformation into malignant clones. Cancers in breasts, prostate, ovaries and endometrium are recognized as being, in part, related to the patient's previous hormonal exposure. In this paper, the use of hormonal therapy in treatment of advanced breast cancer, prostate cancer, ovarian cancer and endometrial carcinoma will be discussed.

Hormonal therapies for cancer are commonly regarded as cytostatic. The exact mechanism by which responses are mediated is not fully understood. Hormonal therapy is considered to limit tumour growth via deprivation of hormonal growth stimulus. It probably acts through the downregulation of hypothalamic-pituitary-gonadal axis, blockade of hormone receptors, inhibition of adrenal steroidogenesis and inhibition of peripheral conversion of sex hormones.

**Hormonal therapy for breast cancer**

Since 1896, when oophorectomy was found to cause regression of skin metastasis in women with breast cancer, oestrogen-dependent nature of breast cancer has been widely studied. Starting in the 1960s, ablative surgery began to be replaced by pharmacological approaches. The advantages of hormonal therapy are its favorable benefit-toxicity ratio and selective nature of targeting of the estrogen pathway of breast cancer. Response to hormonal therapy requires functional estrogen receptors (ER). About 50% to 60% of patients with positive ER tumour (more than 10% tumour cells stained positively) can benefit from first line hormonal therapy whereas only 5% to 10% of patients with ER negative tumour would respond. Different hormonal therapies are equivalent in terms of efficacy but differ substantially in regard to safety and tolerability.

In treating metastatic breast cancers (MBC), indications for hormonal therapy are long disease progression free interval, metastatic disease restricted in non-visceral sites such as bone and soft tissue, and good response to previous hormonal therapy. The activity of tamoxifen in MBC was first described in the early 1970s. It is a selective oestrogen receptor modulator acting by blocking oestrogenic stimulation of breast cancer cells. Tamoxifen is active in both premenopausal and postmenopausal women and its activity increases with patient's age. Tamoxifen induces a therapeutic response in about a third of patients with MBC. Standard dose is 20mg daily. Hot flashes, nausea and vaginal discharge are common side effects. Excess incidence of serous adverse events including endometrial cancer and thromboembolic events is 5 to 6 events per 1000 patient-years of treatment.\(^1,2\)

Tamoxifen has been regarded as first line treatment of MBC until the emergence of aromatase inhibitors (AI). In postmenopausal women, only small amount of oestrogen secreted from ovaries and the main source is from peripheral aromatase system, e.g. fat, muscle and liver. AI can be grouped