Introduction

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Endocrine therapy of breast cancer is an integral component of the medical effort to reduce recurrence and mortality after surgery, and of the attempt to improve the survival time after the occurrence of metastasis. Approximately three quarters of all patients with invasive breast cancer are categorised as having responsive disease, i.e., tumour cells express either estrogen receptors (ER) or progesterone receptors (PR), or both.

In the following four articles, all aspects of endocrine therapy are discussed.

Johnston describes our present knowledge of the molecular mechanisms of estrogen-induced growth regulation; here with special consideration of the development of endocrine resistance.

Jonat and Hilpert discuss the different possibilities of endocrine therapy for advanced metastatic breast cancer. Treatment options for postmenopausal patients include the third generation aromatase inhibitors (AIs; anastrozole, letrozole, and exemestane) and antiestrogenes such as tamoxifen and the new estrogen receptor antagonist, fulvestrant. Older treatment, such as progestines (megestrol acetate and medroxyprogestrone acetate), high-dose estrogens and androgens (fluoximestron) may be useful after progression. For premenopausal women, ovarian ablation with ovarectomy, radiotherapy or use of LHRH analogues are options. Different treatment options and sequences are discussed. Today, nearly all tumour patients with endocrine-responsive breast cancer will receive endocrine treatment procedures following surgical treatment. Thus, nearly all patients with advanced disease will have had some option of endocrine therapy. This creates a complex situation that involves different treatment strategies. The optimal sequence can lead, thereby, to an extension of life with an acceptable quality in comparison to chemotherapy.

Strasser-Weipel and Goss summarise the present status of adjuvant endocrine treatment in both premenopausal and postmenopausal women in the light of ongoing clinical trials and emerging new data. A special view is set on the adjuvant treatment with AIs. The use of AIs in the upfront situation, as switching therapy after initial tamoxifen therapy, or extended therapy after five years of tamoxifen use are discussed.

Dowsett identifies the most recent advances in our molecular understanding of estrogen signalling and interactive pathways in breast cancer cells. The knowledge of these pathways for clinical response and resistance helps us to identify individual treatment strategies with combination therapies and the optimal use of hormone agents in sequence. Finally, a view of the near future allows us expect combination therapies with hormone agents and new targeted therapies.