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# Optimising therapeutic options for women's cancers

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The treatment of women's cancers is rapidly evolving as molecular-targeted therapy emerges from a growing understanding of pathogenesis. Breast cancer in particular has been recognised as a disease that can be sub-classified based on gene/protein profiling, and the choice of treatment is increasingly incorporating the biological features of breast cancer in addition to the prognostic, anatomical stage. Similarly, the overall survival of metastatic breast cancer (MBC) patients has continued to improve, with targeted therapies playing major roles. With the introduction of trastuzumab, HER2-positive patients with MBC have the longest survival, followed by oestrogen-receptor-positive patients, while basal-like breast cancers have the poorest survival, with bevacizumab only recently having been found to improve the natural history of this sub-type.

Cervical carcinoma is the second most common cancer in women, for which treatment efficacy in recent years has advanced. For instance, combining chemotherapy with radiation has proved superior to either treatment alone. Importantly, the recent regulatory approval in several countries of a vaccine that protects against up to four strains of human papillomavirus (HPV) – the leading cause of cervical cancer – promises to dramatically reduce worldwide cervical cancer morbidity and mortality by preventing the disease. However, it should be made clear that HPV prevention vaccinations should not decrease the screening endeavours, as the effects of currently available vaccinations will not reduce the incidence of cervical cancer over the next 10 years and will not prevent all cervical cancers.

Ovarian cancer mortality is high, being the fourth-highest cause of cancer death in women. While

debulking surgery is still the current standard of care, use of neoadjuvant chemotherapeutics might become more popular once trial results have confirmed their efficacy. Furthermore, combination chemotherapy is proving to be more effective than monotherapy, and trials are under way examining various combination regimens, including molecular-targeted agents.

## 1. Scope of the supplement

This supplement to the *European Journal of Cancer* describes current standards of care for three important women's cancers, and discusses the application and integration of new drugs, novel therapeutic approaches and targeted agents in their treatment. It reviews ongoing research studies and summarises early data from recently reported trials.

In the first article, Dr O'Shaughnessy discusses the latest developments in the treatment of early-stage breast cancer, including the use of oestrogen and progesterone receptor expression to predict benefit from adjuvant therapies. Breast cancer sub-typing is increasingly being incorporated into clinical trial designs so that specific treatments can be recommended for patients based on predictive factors for benefit rather than prognostic factors such as staging.

In the second article, Dr Conte and colleagues discuss the treatment of patients with metastatic breast cancer, reviewing the options for patients previously treated with adjuvant anthracycline and taxane therapy. Novel cytotoxic agents and targeted therapies are described and their clinical use discussed. They describe how the possibility of cure for MBC patients with oligometastases should be investigated, especially in view of the increasingly effective therapies available for biological subsets of patients.

The next article, by Dr Zielinski, focusses on the optimisation of gemcitabine plus taxane combinations for the first-line treatment of MBC. It reviews the efficacy

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and toxicity of these combinations, and strategies for improving current regimens, including modifications in doses and schedules, and combining gemcitabine plus taxane with molecular-targeting agents. The patient populations who may most benefit from gemcitabine plus taxane combination therapies are also discussed.

Dr Vergote and colleagues discuss outcomes in advanced ovarian cancer with various therapies and modes of delivery, e.g., the use of intraperitoneal delivery as part of first-line chemotherapy. The effectiveness of triplet and sequential doublet combinations are also investigated, as are the findings related to the use of maintenance therapy following standard chemotherapy. Current trials are reviewed, particularly those examining tyrosine kinase inhibitors, vascular endothelial growth factor inhibitors and other novel multi-targeted biological agents.

The article by Dr Poveda examines recurrent ovarian cancer and the prognostic implications of platinum

sensitivity and resistance. Treatment regimens available to these patient subsets are reviewed, with particular attention paid to toxicity and chemotherapy benefit across patient groups.

The final article, by Dr Dueñas-González and colleagues, examines the use of gemcitabine for treating advanced cervical cancer. It reviews the current standard of care and describes results from trials that incorporated gemcitabine, either alone or in combination with cisplatin, as treatment for metastatic and recurrent disease. It also discusses the use of radiation and cisplatin for locally advanced disease and gemcitabine as a radiosensitiser.

This supplement provides an overview of currently available and investigational treatment regimens in these women's cancers, emphasizing the progress and hope that accompany the intensive efforts under way to match therapeutic options with the appropriate patients, based on tumour biology.