

Introduction

The optimal approach to early breast cancer

Lynda Wyld *

University of Sheffield, Academic Unit of Surgical Oncology, Royal Hallamshire Hospital, UK

Breast cancer outcomes continue to improve, with 5-year survival rates having increased from 50% in the 1970s to nearly 80% today. The reasons for the improvement are multifactorial, with major contributions made by the advent of screening and improved systemic therapies such as anti-oestrogens, chemotherapy and trastuzumab. Running alongside this improvement in breast-cancer-specific survival has been an increasing realisation that preservation of the breast, without compromise on rates of local control, is important for quality of life. This has led to progress in techniques of breast reconstruction and breast conservation, with oncoplastic techniques to reshape the breast, minimising distortion and asymmetry and increasing the use of primary systemic therapy to enhance rates of conservation. Whilst surgery to the breast itself is becoming more complex, surgery to the axilla is becoming less extensive as there is an increasing realisation that the main value of identifying axillary disease is not to enhance survival, or even local control, but to give prognostic information to guide adjuvant therapies. This drive has seen a move away from axillary clearance to sentinel-node biopsy, and perhaps eventually only axillary imaging assessment, with the development of increasingly sensitive tests such as magnetic resonance imaging (MRI) and positron emission tomography (PET) [1].

The changes to practice have been driven by research evidence, and the overarching theme is that of individualised therapy. This is true of all the disciplines in the breast care team. Surgery is now tailored to the woman's disease, breast shape and size and personal preferences, and in most cases women may be offered surgery that will retain, restore or even enhance her breasts should she so wish. Radiotherapy is increasingly targeted to maximise the dose to the breast whilst reducing the dose to the surrounding tissues using highly complex computed-tomography-guided planning (tomotherapy and intensity-modulated radiation therapy, IMRT). Perhaps the most complex area of all is the interplay

between the molecular pathology of the tumour and the systemic therapy which is offered. Tumour stage, grade and oestrogen receptor status have now been supplemented with Her2 status, and increasingly the proliferation index, Ki67, resulting in a new classification (luminal A, B, Her2⁺ and basal-like) [2] which guides prognosis and predicts treatment response. More detailed recurrence risk assessments may be provided by multigene arrays such as Oncotype Dx™ (Genomic Health, United States of America (USA)) [3] and MammaPrint™ (Agendia BV, The Netherlands) [4] which may further aid decisions about chemotherapy benefits.

The future for breast cancer treatment will hold even more individualised treatment plans than the complex schedules on offer today. Next-generation sequencing opens up the possibilities for identification of even more complex gene signatures [5], which may permit customised therapies with some of the bewildering array of targeted molecular therapies under development. Increasing rates of complete pathological responses to primary systemic therapy may lead to 'no surgery' options: something which is currently being trialled in respect of both the axilla and the breast.

Central to all of the above is the close working relationship of the breast multidisciplinary team. Each must have not only expertise in their own discipline but awareness of what their colleagues can (and cannot) achieve, so that every patient receives an individualised treatment plan that fits together like a perfect jigsaw, with every piece complementing the others.

The following articles have been written by some of the world leaders in the field of breast care, and exemplify these principles of individualised care and multidisciplinary.

Conflict of interest statement

None declared.

* Tel.: +44 114 2268640.

E-mail address: l.wyld@sheffield.ac.uk.

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<http://dx.doi.org/10.1016/j.ejcsup.2013.07.026>

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