

Comments and Critique

Surgical Treatment for Early Breast Cancer: Should the Patient Decide?

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Conservative surgery followed by a course of radiotherapy has been shown to be as effective as mastectomy in terms of survival and disease-free interval. This has led to an increase in the number of surgeons who undertake conservative surgery for early breast cancer. However, some studies have shown that, when offered a choice of surgery, some women elect mastectomy. Such results highlight the need for patients to be fully involved in the decision made about surgery, especially in the circumstances where there is more than one surgical option and a choice of surgery can be offered.

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INTRODUCTION

BREAST CANCER is the commonest cancer in women and is the leading cause of death in women aged 35-55. Approximately 1 in 12 women develop this disease at some stage during their lifetime, and there are around 26 000 new cases diagnosed and over 16 000 deaths annually in England and Wales [1]. For many years, breast cancer was treated by mastectomy and was usually undertaken by general surgeons with no special interest in breast disease. However, research has shown that wide excision of the tumour (ensuring that the margins are free of tumour) followed by radiotherapy to the breast is as effective as mastectomy in terms of survival and disease-free interval in stage I or II tumours (less than 4 cm in size: early breast cancer) [2]. This 8-year follow-up study of 1843 women showed that the results from segmental breast resection (wide excision) with or without irradiation of the breast were not significantly different to those observed after total mastectomy in terms of disease-free survival (58% compared with 54%), distant disease-free survival (65 and 62%), and overall survival (71% for both groups). These results were regardless of whether the margins were free of tumour. In the women with specimen margins histologically free of tumour, radiotherapy to the breast after segmental resection was shown to decrease the likelihood of tumour recurrence in the ipsilateral breast for both node-negative and node-positive women ($P < 0.001$). This study has been seminal in influencing the surgical management of patients with early breast cancer. In general, surgeons can treat early breast cancer by undertaking either simple mastectomy or wide excision followed by radiotherapy.

CHOICE OF SURGERY FOR EARLY BREAST CANCER

Noting the results from clinical trials which have demonstrated the equivalence of conservative surgery followed by radiotherapy and mastectomy in terms of survival and disease-free interval, it is to be expected that studies of the surgical management of patients with early breast cancer have shown a shift towards conservative surgery. One study indicated that in

1991 significantly more surgeons would undertake conservative surgery for early breast cancer than surgeons operating in 1986 [3]. Additionally, a study of the treatment of breast cancer in two teaching hospitals in London reported that lumpectomy was more common than mastectomy for stage I and II cases (69% compared with 18%) [4]. These results can be compared with those from a survey undertaken in 1983 which revealed that the majority of surgeons would treat patients with primary operable breast cancer with mastectomy [5]. The conclusion of a consensus conference held in the U.S.A. was that breast conservation treatment is preferable to mastectomy because survival rates are equivalent to those following total mastectomy [6]. With regard to differences in psychosocial outcome between the two types of surgery, Ganz *et al.* [7] investigated differences using quality of life as the major outcome variable, rather than relying solely on psychosocial distress, body image and psychosexual adaption as in other studies. As might be expected, patients undergoing mastectomy reported greater difficulty with body image and the practicalities of clothing. This did not, however, influence mood, quality of life and performance status where no significant differences were reported between patients undergoing mastectomy and those undergoing breast conserving surgery during the first year following surgery.

On first consideration of these issues, those involved with either treating patients with early breast cancer, or in specifying contracts for the purchase of such services, might assume that breast conserving surgery should be undertaken wherever possible. However, two studies of patients in England who were offered a choice of surgery have indicated that approximately 25-30% of patients elected mastectomy [8, 9] and in a third study the majority (65%) chose mastectomy [10]. These results are consistent with the findings from a study undertaken in the U.S.A. which showed that 51% of 110 patients eligible to be offered a choice of surgery chose mastectomy [11].

It is only possible to speculate upon the reasons for the differences in the percentages of women who elected mastectomy in the studies cited above. One of the reasons for women choosing mastectomy was that "... they were unhappy that there was no guarantee that they would not need a mastectomy" [10]. In this study, two 10-min tape-slide presentations were available to patients to help them decide and to provide standard-

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ised information. In one of the other two studies, the women had treatment options explained to them by the surgeon and were then counselled by a breast specialist nurse [9]. Thus, it may be that the way in which a choice of surgery was offered influenced the final decision.

Although it may be argued that firm conclusions cannot be drawn from such a limited number of studies, such results highlight the fact that some patients prefer to undergo mastectomy. Whilst this may appear to be counterintuitive, other reasons given for electing mastectomy included a desire to avoid radiotherapy, and the wish to have the whole area containing the cancer removed. The latter highlights the importance of exploring how the patient feels about having cancer and what is expected in terms of treatment outcome, rather than clinicians making assumptions.

One of the disadvantages of relying upon surgeons to make decisions is that non-clinical and non-patient factors may influence the choice of treatment. Nattinger *et al.* [12] reported geographical variation in the use of breast conserving surgery, as well as variation according to hospital characteristics. Factors found to be independent predictors of greater use of breast conserving surgery included teaching status, size of the hospital (500 beds or more), and urban location. Ganz *et al.* also reported that significantly more patients received breast conserving surgery in university hospitals than other places of care [7]. Fallowfield *et al.* described three types of surgeons according to their stated primary surgical policy for treating patients with early breast cancer: those who favoured mastectomy, those who favoured breast conservation, and those who offered a choice [8]. These findings, together with the fact that many patients with breast cancer are treated by general surgeons with no special interest in breast disease [3], suggest that patients should be offered a choice of surgery when this is possible clinically.

Some doctors may argue that offering patients a choice of treatment places an additional burden upon their patients at a time of stress, and that the patients may feel that such a process is an abdication of responsibility by the attending clinician. However, in the study undertaken by Wilson *et al.*, it was stated that "most women treated in this unit for primary breast cancer welcomed the opportunity to choose between mastectomy and conservation treatment" [10]. Other studies showed that offering a choice of surgery did not have any adverse effects upon patients and that those offered a choice of surgery experienced less anxiety and depression postoperatively than those patients who were not offered a choice [8, 13]. Significantly more patients not offered a choice of surgery exhibited clinical levels of anxiety and depression preoperatively and 2–3 months postoperatively (there were no differences between the patients who chose mastectomy and those who chose wide excision). In addition, significantly more patients offered a choice of surgery felt positive about the future 10 months postoperatively (independent of type of surgery elected) than those not offered a choice [13]. Furthermore, there was an increase in concern about disease recurrence in patients not offered a choice of surgery whereas the patients who chose mastectomy were the least concerned. This suggests that the type of surgery may not be as influential as beliefs about the nature of cancer. This hypothesis is supported to some extent by the results from a study reported by Lasry and Margolese [14] which indicated that patients who underwent mastectomy did not express less fear of cancer recurrence than those who underwent breast conserving surgery (with or without radiotherapy).

RECOMMENDATIONS

The results from these studies and the surgeon survey [3] are of relevance to the national breast screening programme [15] as well as the management of patients with early breast cancer in general. The breast screening programme is likely to result in an increase in the number of small tumours being detected [16]. Whilst there is no definitive approach to the management of early breast cancer, there is a case for advocating that patients should be given the opportunity to decide.

There will always be some women who want the decision about surgery to be made for them, and in these cases surgeons could discuss the treatment options which are available, and also attempt to consider psychosocial as well as clinical factors before making the decision. In particular, it would be useful to explore how patients feel about a diagnosis of cancer, what is understood about the tumour and the outcome of the different types of surgery, and what this may mean to them in the context of family and other relationships. Some surgeons may be unused to discussing such issues with their patients and, in consequence, decisions about surgery may be made purely on clinical grounds (or non-clinical, as highlighted earlier), with psychosocial issues remaining unexplored.

Offering patients a choice of surgery is not, however, a simple matter and it is recommended that verbal information about treatment options is supported by written (or tape-recorded) information. Such information can then be taken home, and the issues discussed with family, friends and the patient's general practitioner. The importance of providing information is emphasised by Fallowfield *et al.* [8] who reported that patients who believed they had been poorly informed were twice as likely to be depressed or anxious 12 months following surgery than patients who felt they had been adequately informed. It is also recommended that patients are given sufficient time in which to digest the impact of the diagnosis and the relative advantages and disadvantages of treatment options in order to make an informed decision.

As highlighted by Fallowfield *et al.* [8], a potential problem with offering a choice of treatment is that patients may assume responsibility for the outcome of the treatment they have chosen. Patients who develop recurrences locally may feel they made the wrong decision, and those who elected mastectomy may in the longer term wish they had undergone breast conserving surgery. Results are needed from prospective studies to indicate whether such dilemmas arise and the extent to which psychological adaptation is impaired. The issue does emphasise further the need to provide detailed information about the available options. In the study reported by Wolberg *et al.* [11], patients offered the choice of surgery were told that the tumour could recur locally in 2% of mastectomy-treated breasts, and in 15% of breasts treated by wide excision and radiotherapy. Patients were also informed that mastectomy would be required should the breast tumour recur, but that overall survival would not be adversely affected. In addition, patients were shown a videotape which explained treatment alternatives. Regarding psychosocial issues, whilst there is evidence to suggest patients undergoing mastectomy experience most problems with body image, it is important to recognise that such differences do not necessarily have an adverse effect upon mood, physical functioning and overall quality of life [7]. Furthermore, the possibility of breast reconstruction at the time of surgery or later, should help minimise the magnitude of such difficulties.

To conclude, the comments made by a 34-year-old patient in response to her experiences when faced with the prospect of

surgery for breast cancer are relevant: "I am pleased that I was able to cope and that I did get a choice, but I should not have had to fight for this . . .". Approaches to breast cancer should not vary so much from one hospital to another, nor should treatment be dependent on the opinion of one surgeon. It should not be, as one doctor put it, "a kind of lucky dip . . . I hope that in future all women will be given the opportunity to choose the most appropriate form of treatment on the basis of clearly presented information. Until there is a clear consensus that one form of treatment is better than all others in terms of survival the patient must be able to participate in any decision about what is to be done with her body" [17].

The statement from the King's Fund Forum on the treatment of primary breast cancer included a recommendation that ". . . if the woman is fully involved in decisions about her own care without feeling patronised she is most likely to feel positive about the treatment she elects, however distasteful it may be; if she is free to refuse treatment, frank discussion of her reasons for refusal will minimise resentment on either side and a relationship of trust will be established, making it easier for both parties should problems occur" [18].

It is hoped that this paper will encourage further work to be undertaken in this area so that standards can be set and guidelines written for managing patients with early breast cancer so that they can be offered a choice of treatment. Within the context of the purchaser-provider division, it is important that contract specifications are developed to allow consideration of issues other than those relating to cost-effectiveness.

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Facilitating Phase I Trials of Products of Recombinant DNA Technology

RECOMBINANT DNA technology has opened the way for the investigation of a vast range of new proteins and peptides with potential for cancer therapy. The initial use of this technology to produce human hormones and cytokines has been greatly extended by advances in protein engineering which make it possible to design and produce proteins and peptides which do not occur naturally. Improved knowledge of cancer biology creates many opportunities for exploiting this technology.

The novel engineered molecules are being exploited to control growth of cancer cells, to target cancer-related antigens, for catalytic activity and to activate or avoid recognition by the immune system. Fusion proteins in which two or more functions are combined in the same recombinant molecule provide remarkable opportunities for the design of novel therapeutic agents. Molecules which combine antitumour antibody with cytokine

or enzyme functions are early examples of applications of fusion proteins to tumour targeting of the cytokine or enzyme.

The ability to genetically engineer proteins combined with the practicality of producing useful quantities of the novel agents in eukaryotic or prokaryotic cells is established. Many are being produced in universities and research institutes without direct involvement of the pharmaceutical industry. How are these products which present new questions about safety, quality and efficacy to be exploited in the diagnosis and therapy of cancer?

It is recognised that the requirements of the licensing authority with regard to physicians undertaking a limited trial of a drug on their own responsibility, are less demanding than those required of a drug company seeking a clinical trial certificate, for which requirements have already been defined. Careful preclinical testing is still essential but it is appropriate that the costs of production and toxicology are not prohibitive and destructive to the venture. The value of animal testing is limited