

**ROYAL AUSTRALASIAN COLLEGE OF
SURGEONS**

SECTION OF BREAST SURGERY IN NEW ZEALAND

**GUIDELINES FOR THE SURGICAL
MANAGEMENT OF BREAST
CANCER**

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FOREWORD

Breast cancer is an important and common disease and the subject of extensive research. In the last few years many changes in management have taken place as a result of this research effort. New approaches to diagnosis have become established and many questions about treatment have been answered. Despite these advances uncertainties remain about aspects of management and clinical decision-making is often difficult. Evidence-based clinical practice guidelines can be valuable in assisting clinicians in their decision-making and can contribute to improved outcomes for their patients.

These College guidelines for the surgical management of breast cancer have been produced with these general aims in view. They consist of systematically developed statements about selected key issues in breast cancer. They have been developed by surgeons, with extensive input from other specialists involved in the management of breast cancer, and from consumers. Although they are primarily for surgeons they may also be of value to others involved in breast cancer management and to their patients. They are based on the best available evidence at the time of publication.

It is important to stress that these guidelines are not intended to lead to a rigid or dogmatic approach to management, but aim to provide information upon which best management decisions can be based. Patients differ greatly in their spectrum of disease and in their preferences for different treatment options. Local practice may also differ in different geographical areas. These guidelines recognise the need for flexibility to accommodate these variables when managing women with breast cancer. They provide a general guide, subject to the medical practitioner's judgement in each individual case. As new information is published, modification of these guidelines will be necessary and a full revision is planned within three years.

John Collins & John Simpson
Editors

This document is a general guide to appropriate practice, to be followed only subject to the clinician's judgement in each individual case.

The guidelines are designed to provide information to assist decision making and are based on the best information available at the date of publication.

INTRODUCTION

Background and Aims

One thousand six hundred new cases of breast cancer are diagnosed annually in New Zealand and almost six hundred women die each year of this disease. Uncertainty still exists about a number of aspects of its diagnosis and treatment despite the large volume of literature published each year. Variations in the management of breast cancer have been reported in the United Kingdom and the United States with associated differences in outcome. Clinical practice guidelines, based on systematic literature review, are an important means of minimising these variations in management and should improve a range of health outcomes. These guidelines have been developed with the aim of supporting surgeons involved in the management of breast cancer including those who work in metropolitan or rural areas and in private or public practice. They are intended to be an aid to decision-making and not to be prescriptive or rigid and are not a threat to clinical freedom within limits set by good practice.

Development of the Guidelines

In the latter part of 1995 detailed discussions began about the development of guidelines for the management of breast cancer by New Zealand surgeons. A small advisory group identified problem areas in management and sought the support and participation of a number of surgeons identified as having a particular interest in breast cancer. These surgeons were then asked to prepare an evidence-based paper on a specific topic. A number of specialists in fields other than breast or general surgery were invited to join a multidisciplinary panel to develop the guidelines. They included representatives from Plastic and Reconstructive Surgery, Pathology, Radiation Oncology, Medical Oncology, Radiology, General Practice and Breast Care Nursing. Following editing and circulation of the draft document a workshop was held in February 1996 to discuss each of the draft guidelines and to achieve an evidence-based consensus. Mr. Colin Furnival participated in the workshop as a representative of the Section of Breast Surgery in Australia and as a participant in the development of the Australian NHMRC Guidelines. Consumer involvement in the development process began with the participation in the workshop of five women with a range of contributions to make to the process. Based on the discussions and further literature review draft guidelines were produced and sent to all participants who attended the workshop and their feedback was sought.

The final draft document was sent to all General Surgeons in New Zealand for their comments and approval, and discussed at the New Zealand Association of General Surgeons Annual Scientific Meeting in February 1997. After incorporating their comments the revised final draft was sent to members of the Executive of the Section of Breast Surgery for their input. The Executive of the Section and the New Zealand Committee of the Royal Australasian College of Surgeons have given their unanimous support to the guidelines and their helpful suggestions have been included. The Council of the Royal Australasian College of Surgeons endorsed these guidelines in July, 1997.

About this guidelines document

The document has been divided into five sections which are seen as the logical subdivisions of breast cancer surgery. Within each section a number of topics have been identified. They are the topics that the consultation process has identified as being the key ones. Each topic is introduced with a "General Principle" which is intended to be a non-contentious statement that summarises the topic. This is then followed by a series of "Guidelines" which aim to highlight the areas of that topic judged to be the most important. These guidelines are as far as possible related to the practical issues met in surgical practice and are based on the best evidence available. Within each guideline a number of "Key Points" have been listed and many of them are accompanied by references which should be readily available. Each key point relates to the guideline either as evidence supporting the guideline or as an explanatory comment relating to that guideline.

At the end of each topic a clinical comment has been added which attempts to relate that topic to practice in New Zealand. This comment is very much an opinion and is not directly evidence-based in the way that the individual guidelines attempt to be. Following this is a recommendation about practice relating to that topic. This is a short statement which picks out the one or two most important aspects of that topic. It is accompanied by an indication of the level of evidence for that particular recommendation. The three levels of evidence used are:

Level A: VERY STRONG EVIDENCE

Based on evidence from well designed, prospective, randomised controlled clinical trials.

Level B: FAIRLY STRONG EVIDENCE

Based on evidence from case-control or cohort studies or clinical trials lacking one or more of the above features.

Level C: WEAK EVIDENCE OR FIRMLY HELD OPINION

Based on evidence from published case reports, well written reviews or consensus by surgeons.

At the end of each topic a list of key cited references is given.

Strategies for implementation, evaluation and review

The guidelines document will be circulated to all doctors in New Zealand in August 1997 and discussed at the forthcoming New Zealand Annual Scientific Meeting in September 1997. The guidelines will be revised within three years after evaluating their impact on the practice of breast surgery and reviewing the most recently published literature on breast cancer management.

Acknowledgements

The editors wish to acknowledge the help and support from clinicians, surgeons and non-surgeons and from consumers in the preparation of this document. We would also like to acknowledge Jenny Collins for her secretarial services, The Royal Australasian College of Surgeons, The Cancer Society of New Zealand (Wellington & Waikato Divisions), Roche Ltd., and Pharmacia Ltd. for their financial support. The New Zealand National Health Committee must also be acknowledged for providing the opportunity for John Collins and John Simpson to attend a workshop in Seattle in September 1996 in Guideline Development and Implementation. This workshop was invaluable in the process of developing these guidelines.

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Contributors to the development of these Guidelines

1.0 BREAST CANCER

1.1 Breast Cancer in New Zealand

General Principle

Breast cancer is a major health issue for New Zealand women.

Guideline 1

Breast cancer in New Zealand is a common disease affecting all races with evidence of a steadily increasing incidence.

Key Points:

- In keeping with other developed countries it is the most common malignancy in women.
- The annual incidence of new cases is approximately 1600 and of deaths is between 550-600 (New Zealand Health Information Services 1995).
- This relates to a lifetime cumulative risk estimate of 8.3% or 1 in 12 (Cox 1995) for New Zealand women of all races, with a mean age at diagnosis of 60 years (Newman et al 1992).
- In Auckland, based on a 1976-1985 time period, the lifetime cumulative incidence for Europeans is 6.4% (1 in 16), for Maori is 9.1% (1 in 11) and for Pacific Islanders 4.8 % (1 in 21) (Newman et al 1992).
- Pacific Island women present with larger tumours than the other racial groups and Maori women more frequently have node positive tumours (Lethaby et al 1992).
- National statistics have not shown a significant difference in the incidence for Maori and non-Maori women although the crude incidence rates appear slightly lower in Maori women.
- Cancer of the breast is the leading cause of death in New Zealand women aged 30-50 years. However 84% of all breast cancer deaths occur in women 50 years and over (New Zealand Public Health Commission 1994).
- Breast cancer is the leading cause of death from cancer in non-Maori women and the second after lung cancer in Maori women.
- The incidence of the disease appears to be increasing steadily, with a 17% increase over the period 1982-1991 and a prediction that this trend will continue (Cox 1995).

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1.2 Communication and Support

General Principle

Effective communication and appropriate support are essential components of the care of a woman with breast cancer and can influence her quality of life in the diagnostic and treatment phases and during follow-up.

Guideline 1

The early development of a successful partnership between the woman with breast cancer and involved health professionals is an essential component of good care.

Key Points:

- Factors contributing to effective partnership include:
 1. Employing an open friendly approach
 2. Telling the truth at all times
 3. Cultivating a positive attitude towards the problem
 4. Acknowledging the emotional impact of breast cancer (Girgis & Foot 1995)
 5. Allowing adequate consultation time.

Guideline 2

An important consequence of establishing effective communication is for the woman to experience a sense of choice and control.

Key Points:

- Every effort should be made to avoid the barriers to effective communication which have been identified by women with breast cancer (Women's Perspective Sub-group Review. NHMRC 1994). These include:
 1. Lack of continuity of care particularly in public hospital settings
 2. Lack of time for adjustment between diagnosis and treatment
 3. Lack of information or inconsistent information
 4. Discussion in front of students
 5. Discussion while lying down or undressed.
- Adequate time should be allowed for explanations and discussion and this may require more than one consultation.
- Clear options should be identified.
- The woman should be encouraged to make a choice when she feels adequately informed. (Fallowfield et al 1994, Roberts et al 1994).
- A nurse or counsellor with suitable skills should be available to talk to the woman (Maguire 1994).
- The special needs of Maori women should be recognised.
- The needs of women from different cultures and whose first language is other than English should be recognised.

Guideline 3

The provision of adequate information about breast cancer and its treatment is an essential part of good care.

Key Points:

- Communication of information is often aided by the presence of a supporter(s) or whanau and should be encouraged.
- Information should be given in the context of a woman's needs and preferences.
- "Core" information to be provided verbally includes (Meredith et al 1996):
 1. The basis on which the diagnosis has been made and its reliability
 2. Acceptable alternative treatment plans
 3. The risks, complications and emotional implications of these treatments
 4. The likely time scale of treatment and reassurance that immediate surgery is not necessary
 5. Options for where treatment can take place with likely costs involved (where applicable)
 6. Appearances after surgery and the availability of reconstruction and/or prostheses (NHMRC Clinical Practice Guidelines 1995).
- A support person from voluntary agencies such as the Breast Cancer Support Services (BCSS) can be of assistance before surgery, as well as later, by sharing information and providing evidence of full recovery including return to normal activities.
- Additional information may be provided by pamphlets, books, audio and video tapes (usually available from the local Cancer Society) and also from the Internet.
- A second opinion should be encouraged with the woman's general practitioner being involved in this process.
- Women should be alerted to the possibility of hearing different opinions and advice from well-meaning friends.
- Informed consent for treatment and for participation in research trials must be obtained in a way that is both meaningful and meets statutory requirements (Williamson 1996; Code of Rights for Consumers of Health and Disability Services 1996).

Guideline 4

Breaking bad news to a woman about her breast cancer is a difficult task which should be the responsibility of a senior clinician and take place in circumstances that are best for that woman.

Key Points:

- The occasion may be the worst moment in a woman's life. It is highly desirable to have a supporter present and this should be suggested and encouraged. It should take place in a quiet comfortable environment.
- Communication of results by telephone is associated with some hazards and should only be done under carefully defined circumstances.
- Provision of adequate support following receipt of bad news is vital.

Guideline 5

The need for ongoing support should be assessed and appropriate arrangements made.

Key Points:

- Provision of appropriate and timely support is likely to aid psycho-social adjustment (NHMRC Clinical Practice Guidelines 1995).
- Appropriate counselling can improve quality of life (Greer et al 1992).
- Support usually comes from family and close friends, health professionals including the woman's GP, the surgeon, nursing staff, other health workers and from voluntary agencies such as the Breast Cancer Support Service (BCSS). Individual and group support is important.
- Factors indicating an increased likelihood of impaired psycho-social adjustment include:
 1. a stated need for help
 2. lack of personal support
 3. multiple concurrent stresses

4. a history of psychiatric illness.
- If these risk factors are present, the clinical team should be alerted to the early provision of additional help in the form of one or more of the following:
 1. Counselling
 2. Psychotherapy
 3. Group therapy
 4. Medication
 - The woman's family and close supporters may themselves require support.

Guideline 6

There is much evidence that poor communication is a major cause of many of the complaints made by women with breast cancer about their doctors.

Key Points:

- Problems relating to breast cancer management are now a leading cause of litigation against the medical profession and of complaints to medical disciplinary authorities.
- Accurate records of the clinical information obtained and of the management plans discussed are an essential part of avoiding medico-legal problems.

Clinical Comment

The psycho-social impact of the diagnosis and treatment of breast cancer is well documented. This effect is inevitable to some degree but can be reduced by a suitable approach to communication by the health professionals caring for the woman. Each woman requires assessment of her particular needs for support. This assessment may be carried out by different members of the clinical team and a breast nurse is ideally placed to coordinate provision of such support.

Recommendation

Effective communication, provision of information and appropriate support should be regarded as a central part of breast cancer management. (Level C).

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1.3 Multidisciplinary Management of Breast Cancer

General Principle

Breast cancer is a complex disease requiring the collaboration of a number of health disciplines for its diagnosis, treatment and follow-up.

Guideline 1

Multidisciplinary care involving a close liaison and consultation between appropriate medical practitioners is recommended and leads to consistent and effective management. This can be achieved in a number of different ways.

Key Points:

- Multidisciplinary management can be achieved by the development of a multi-specialist clinic or by effective liaison within a clinical group which consults and discusses patient problems on a more informal basis.
- This is an issue which can be particularly difficult for those working away from the main centres.
- Use of modern technology such as televideo linkage and on-line communication may help to overcome the problems of communication and access to the opinions of professional colleagues for those working in smaller centres.
- Agreed guidelines are an important basis for consistent multidisciplinary management.

Guideline 2

The diagnostic process for a woman with breast cancer requires the participation of the general practitioner, pathologist and radiologist as well as the surgeon.

Key Points:

- The general or breast surgeon is the clinician most likely to be referred a woman with possible breast cancer and management is therefore initially by a surgeon.
- Trained and experienced cytopathologists and histopathologists are essential members of the diagnostic team.
- Trained and experienced radiologists and medical radiation technologists are also essential members of the diagnostic team.
- There is some evidence that a specialist breast clinic improves the efficiency of the diagnostic work-up (Basnett et al 1992).

Guideline 3

Regular review of patient data by the surgeon, the radiologist and the pathologist is important for decision-making about diagnosis and patient management.

Key Points:

- Patient review meetings aid clinical decision-making and serve an important educational role.
- Concerns about the adequacy of clinical information on request forms and unsatisfactory presentation of tissue specimens to the laboratory can be discussed at such meetings.
- Problems relating to pathology or radiology reports can also be discussed and resolved.

Guideline 4

After the diagnosis of breast cancer has been made, the appropriate involvement of radiation and medical oncologists is an essential part of multidisciplinary management.

Key Points:

- Radiation therapy and adjuvant systemic therapy have been shown to reduce the incidence of loco-regional and distant recurrence respectively.
- Radiation and adjuvant chemotherapy should be supervised by oncologists with an interest in breast cancer.
- There is evidence from the UK of variations in practice between hospitals with regard to important aspects of management. Examples are differences in the use of axillary dissection and in the use of adjuvant chemotherapy in premenopausal node-positive women (Richards et al 1996).

Guideline 5

The inclusion of a nurse with an interest and training in breast cancer in the patient care team has important advantages.

Key Points:

- The involvement before and after surgery of a breast care nurse has been shown to improve the quality of life of the woman (McArdle et al 1996).
- Specialist nurses have been shown to reduce psychiatric morbidity (Maguire et al 1980).
- The breast nurse should have a broad knowledge of the diagnostic and treatment process.
- Training in counselling skills is an important requirement for a breast nurse.

Guideline 6

A multidisciplinary approach to management can lead to improved outcomes.

Key Points:

- The key issues appear to be better selection of patients for breast conserving surgery and the appropriate use of adjuvant radiation and systemic therapy.
- There is evidence from the UK that lack of a multidisciplinary approach to breast cancer management adversely affects outcome (Sainsbury et al 1995, Gillis & Hole 1996).
- The importance of volume of cases treated each year remains controversial and there is no evidence relating to practice in Australia and New Zealand.
- There is evidence from the UK and Italy linking long-term outcomes with subspecialisation and annual case volumes (Boffetta et al 1993, Sainsbury et al 1995, Gillis & Hole 1996, Selby et al 1996).

Clinical Comment

The multidisciplinary management of breast cancer can be achieved in a variety of ways depending on the circumstances in a particular centre. This will vary from a formally constituted team that meets together on a regular basis and manages patient care as a group to much less formal arrangements that bring together a range of specialist skills. The key feature is that consultation should occur between the appropriate group of specialists and that they work within the framework of agreed guidelines.

Recommendation

Breast cancer management should be multidisciplinary and involve consultation and the key speciality groups. (Level C).

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2.0 RISK OF DEVELOPING BREAST CANCER

2.1 Assessment of Risk

General Principle

Risk assessment is an important aspect of the clinical evaluation of a woman with symptomatic breast disease and for giving appropriate advice about strategies for the prevention and early detection of breast cancer. Many risk factors have been identified, but those of greatest practical importance are: family history, a history of biopsy proven invasive or in situ carcinoma, or of atypical hyperplasia.

Guideline 1

It is important to be aware of the "normal" risk for defined groups of women. It is then possible to predict this risk for those women with additional "risk factors".

Key Points

- Communication of the level of risk should be based upon credible evidence, openness and sharing of uncertainty (Calman 1996).
- Risk factors may be described in terms of risk expressed as relative risk (RR) or absolute risk (Calman 1996).
- Relative risk expresses as a ratio the risk for a person with the particular variable compared with the risk for the general population without this risk factor. Absolute risk expresses the risk as the percentage chance of that person developing the disease in a given period of time.
- For the general population examples of absolute risk of developing breast cancer during a particular age interval are (Seidman et al 1985): age 20-40 = 0.5%, 35-55 = 2.5%, 50-70 = 4.7%, 65-85 = 5.5%.

Guideline 2

Well documented risk factors may be grouped according to the level of relative risk.

Key Points

- For summary of risk factors see Bilimoria & Morrow (1995)
- Major increase in risk (RR >4.0)
 1. Strong family history
 2. Atypical hyperplasia on previous biopsy
 3. Past history of invasive cancer or of ductal or lobular carcinoma in situ
- Moderate increase in risk (RR 2.0-4.0)
 1. Nulliparity
 2. First birth after age 35
- Minor increase in risk (RR < 2.0)
 1. Early menopause
 2. Late menarche
 3. Proliferative benign breast disease without atypia (Page & Jensen 1994)

Guideline 3

A family history of breast cancer is associated with a variable increase in the level of risk depending on the details of the family history.

Key Points

- Women with a first-degree relative with breast cancer have a lifetime relative risk of 1.5 to 2 times that of a woman without such a family history but this risk will vary depending upon the age at which a relative developed the disease.

- In women with two first-degree relatives affected this relative risk is increased 4.6 times.
- The risk of developing breast cancer is higher when such relatives developed the disease before the age of 50 or when it was bilateral.
- A family history should be carefully documented in order to assess the possibility of a breast cancer susceptibility gene being present (McPherson et al 1995).

Guideline 4

Highly penetrant breast cancer susceptibility genes can be associated with a very high lifelong risk and are estimated to be the cause of 5% of breast cancers.

Key Points

For guidelines on inherited breast cancer see Section 2.2.

Guideline 5

A woman with previous invasive breast cancer or carcinoma in situ is at increased risk of developing a further breast cancer during her lifetime.

Key Points

- Age at first diagnosis is the principal determinant of the incidence of a metachronous contralateral primary cancer.
- An overall relative risk of 2.4 has been reported with a higher risk (9.9) in those women whose first breast cancer was diagnosed before age 50 (Adami et al 1985).
- The risk is greater if the initial cancer was of lobular type (Broet et al 1995).
- One-third of women with high-grade ductal carcinoma in situ, treated by excision biopsy have been shown to develop further disease in that breast, half of which is invasive cancer (Lagios 1995, Page et al 1995).
- Lobular carcinoma in situ is associated with a long-term 20-30% risk of invasive breast cancer (Rosen et al 1978).

Guideline 6

The risk of developing breast cancer is increased in a woman in whom a previous breast biopsy has shown atypical ductal hyperplasia. This risk is further increased in those women with a family history of breast cancer.

Key Points

- Atypical hyperplasia is a reliable marker of increased risk of breast cancer (Dupont et al 1993).
- In the 10 years after diagnosis of atypical ductal hyperplasia the risk of breast cancer is increased fivefold in women without a family history of breast cancer and elevenfold in those with a family history (Dupont & Page 1985).
- The risk associated with atypical ductal hyperplasia is greater in premenopausal (RR 5.9) than in postmenopausal (RR 2.3) women (London et al 1992).
- The risk falls substantially after 10 years (Dupont & Page 1989).

Guideline 7

Women who seek risk information should be informed of their estimated level of risk and be advised about ways of minimising it.

Key Points

- Many women do not make an accurate assessment of their risk of developing breast cancer (Evans et al 1993).
- Referral to an appropriate specialist or clinic enables the risk to be defined and advice given on the significance of the risk, prevention and early detection.
- A strategy for each woman including advice about clinical breast examination and mammography should be defined.

Clinical Comment

Risk assessment is becoming progressively more important with greater public awareness of breast cancer risk, new information about the genetics of breast cancer and debate about screening of younger women.

All women presenting with a breast problem should have an assessment as to whether they are at normal or increased risk of breast cancer. This assessment should include as a minimum, inquiry about previous breast biopsy and about close family members with breast cancer.

Recommendation

All women presenting with a breast problem should have an assessment as to whether they are at normal or increased risk of breast cancer. This assessment should include as a minimum, inquiry about previous breast biopsy and about close family members with breast cancer.

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2.2 The Management of those Women with a Genetically Determined High Risk of Breast Cancer

General Principle

A woman who has one of the specific breast cancer susceptibility genes has a very high lifelong risk of breast cancer and requires a management plan relating to this risk.

Guideline 1

The high risk genes are uncommon and are responsible for an estimated 5% of all breast cancer but with a higher proportion in young women.

Key points

- The frequency of dominant inherited breast cancer-related mutations in the general population is estimated to be 0.33% and to account for approximately 5% of all breast cancers (Claus et al 1991).
- BRCA1 was the first breast cancer susceptibility gene to be localised (Hall et al 1990) and its isolation (Miki et al 1994) has enabled screening for this mutation to take place.
- BRCA2 was localised in 1994 (Wooster et al) and isolated in 1995 (Wooster et al).
- BRCA1 mutations probably account for 2% of all breast cancers, 8% of breast cancers before age 30, 5% of breast cancers before age 50 and 1% of those after age 50 years.
- Women with BRCA1 mutations are estimated to have a lifetime risk of breast cancer of 20% by 40 years, 51% by 50 years and 87% by 70 years (Ford & Easton 1995).
- However, the same mutations in the BRCA genes may behave differently, in varying groups of women. A lower risk of 56% for breast cancer by age 70 has recently been reported in Ashkenazi Jews (Struewing et al 1997).
- The median age of the diagnosis of breast cancer in a woman with BRCA1 mutations is generally less than 45 years (Hall et al 1990).
- Women with breast cancer and an inherited BRCA1 mutation have a 64% risk of contralateral breast cancer and a 44-63% risk of ovarian cancer. The latter risk may have practical implications when considering adjuvant treatment (Eeles et al 1996).
- BRCA1 mutations carry an increased risk of other cancers including ovarian cancer (23% by age 50, 63% by age 70), colon cancer (6% by age 70) and prostate cancer (8% by age 70) (Ford & Easton 1995).
- Over 100 distinct mutations in the BRCA1 gene have been described in different families but it is still unclear whether they all carry an increased cancer risk and whether that risk is the same.
- BRCA2 mutations account for some families with an increased risk of breast cancer and 6% of men with BRCA2 mutations get breast cancer.
- Male breast cancer is rare in families with BRCA1 mutations (Stratton et al 1994).
- A small proportion of inherited breast cancer may be associated with other genetic mutations including Li-Fraumeni syndrome, Cowden's disease, Muir-Torre syndrome, Peutz-Jeghers syndrome and ataxia-telangiectasia (Hoskins et al 1995, Radford & Zehnbauer 1996, Bebb et al 1997).

Guideline 2

Testing for specific gene mutations is now available but should only be done when the woman concerned can have detailed counselling about the test and its implications, prior to and after it being performed.

Key points

- It is now possible to test for the presence of the breast cancer susceptibility gene mutations BRCA1, BRCA2 and p53.
- Appropriate counselling before and after the test is essential and those tested must have a clear understanding of the implications of a negative or positive result.

- Ethical and legal implications of testing family members are significant and include privacy and informed consent issues, threats to obtaining insurance and to employment.
- Current techniques may only detect 70% of mutations for BRCA1 and of those detected some may represent polymorphism and not be clinically significant, i.e. false negative and false positive results are possible (Kirk & Tucker 1996).
- The complexity of identifying a specific BRCA1 mutation in the initially identified woman cannot be underestimated.
- An affected family member should be tested first to identify the mutation responsible for her cancer before unaffected family members are considered for testing (Kirk & Tucker 1996).
- Once a specific BRCA1 mutation has been identified within a family, screening of interested family members is technically straightforward.
- Before testing is undertaken there should be a reasonable probability of a mutation being found based on a detailed family pedigree and this should be arranged through a department of clinical genetics. Because of uncertainties in the interpretation of results it is still too early to use BRCA gene testing in every day clinical practice (Healy 1997).
- A detailed family pedigree of three generations should be created using reported family history of affected and non-affected members, supported by data from hospital records, pathology reports, cancer registries and public records of births, marriages and deaths.
- The probability of finding a breast cancer susceptibility gene mutation is higher among women from families with a history of both breast and ovarian cancer and when the breast cancer among family members was diagnosed before age 55. A recent report indicates no association with bilateral disease or the numbers of breast cancers in a family (Couch et al 1997).
- The relationship of affected family members to one another is an important predictor of BRCA1 mutations (Easton et al 1993).
- Inheritance may be via the paternal or maternal lines and a generation may be skipped as a result of a male carrier or a female carrier who is not affected.

Guideline 3

Every woman confirmed to have a high risk gene mutation requires an explanation of her options for prevention and early detection and possible prophylactic surgery.

Key Points

- A woman with a positive test result must have a detailed explanation of her level of risk of cancer and be offered appropriate counselling and support.
- The manner in which this information is presented to the woman may profoundly affect her future adherence to surveillance activities.
- There are no Australasian data on which to base advice concerning surveillance but a recently reported American consensus (Burke et al 1997) suggests the following:
 1. Monthly breast self-examination commencing in early adult life (18-21).
 2. Twice yearly clinical breast examination and annual mammography beginning at age 25-35.
 3. Annual or semi-annual pelvic examination using a transvaginal ultrasound and serum CA-125 levels beginning at age 25-35 years.
- Participation in a chemo-prevention study such as the IBIS (tamoxifen) trial should be encouraged for those who are eligible.

Guideline 4

Prophylactic mastectomy remains a controversial measure with unclear benefits and should only be performed after a detailed explanation of risks and benefits and a clear acceptance of the uncertainties.

Key Points

- The degree of protection given by prophylactic mastectomy remains uncertain despite a recent report based on a theoretical model, predicting a gain in life expectancy from 2.9 to 5.3 years (Schrag et al 1997).
- Prophylactic mastectomy does not remove all breast tissue (Eldar et al 1984, Temple et al 1991) and hence a persistent risk remains.

- Discussion of these cases at a multidisciplinary breast management conference is recommended (Lopez & Porter 1996).
- The psycho-social consequences of bilateral mastectomy should be carefully considered.
- Women considering this procedure should be informed that no mastectomy is 100% prophylactic, encouraged to take time over the decision and where appropriate seek a further opinion.

Clinical Comment

This is a relatively new area of clinical and laboratory medicine and, as yet, there are many unanswered questions. As testing becomes more widely available, specific guidelines for selection of women to be tested are being developed. It is inevitable that initially the families judged most suitable for testing will be those with multiple affected members with young age and the presence of ovarian cancer as key additional risk factors. The availability of suitable counselling before and after testing is vital in dealing with the many practical, moral and ethical problems which are now becoming evident. There are no clear answers about the value of measures to reduce the mortality in women with BRCA1 and other susceptibility genes. The sensible approach at this time seems to be to advocate all possible measures for early detection and to regard prophylactic mastectomy as of unproven value in risk reduction.

Testing for gene mutations on high risk women should be undertaken through a Clinical Genetics Department only after careful risk assessment and counselling. Prophylactic surgery is of unproven value and should be undertaken only after extensive discussion and a full explanation of its limitations. (Level C).

Recommendation

Testing for gene mutations on high risk women should be undertaken through a Clinical Genetics Department only after careful risk assessment and counseling. Prophylactic surgery is of unproven value and should be undertaken only after extensive discussion and a full explanation of its limitations. (Level C).

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3.0 DIAGNOSIS OF BREAST CANCER

3.1 Primary Referral

General Principle

Appropriate referral by the general practitioner is a key step in the assessment and ongoing care of a woman with a possible breast cancer.

Guideline 1

The general practitioner is the principle source of initial advice for a woman with a breast problem and will assess the need for appropriate surgical referral.

Key Points

- The need for referral is a matter of judgment but well recognised criteria for referral include (Austoker et al 1995):
 1. A discreet breast mass.
 2. Asymmetrical thickening which persists at review after the next menstrual period or after 4-6 weeks in a woman who is no longer menstruating.
 3. Nipple discharge that persists in those over 50.
 4. Blood stained or serous discharge or a persistent discharge which comes from a single duct in a women of any age.
 5. Recent nipple changes including nipple retraction or distortion, and eczema which does not respond rapidly and completely to treatment.
 6. Skin dimpling over the breast other than that associated with a surgical scar.
 7. Breast pain that interferes significantly with enjoyment of life and which does not respond to reassurance and simple measures.
 8. Request for further assessment by a woman who remains worried despite reassurance.
 9. A strong family history of breast cancer suggestive of an inherited genetic abnormality.

Guideline 2

Management by the general practitioner is appropriate, at least initially, for women with "low risk" breast problems.

Key Points

- The following problems are most unlikely to be breast cancer related and management by the general practitioner may produce less anxiety than referral to a specialist:
 1. Young women with tender lumpy breasts.
 2. Older women with symmetrical lumpiness without any dominant nodules.
 3. Women with mild or moderate breast pain who do not have any palpable discrete lesions.
 4. Women under 50 with nipple discharge which comes from multiple ducts and is not blood stained (Dixon and Mansel 1994).

Guideline 3

Women referred by their general practitioner with a significant breast problem should be seen without undue delay by a surgeon with training and experience in the management of breast disease.

Key Points

- GPs should be informed of how rapid assessment can be obtained.

- A woman referred to a surgeon experienced in breast disease can expect a rapid assessment which may include input from other disciplines including radiology, pathology and cytology. (Guidelines for Surgeons 1995).
- There is some evidence from the UK that survival of patients with breast cancer may be improved if they are treated by specialists experienced in this field and who have access to a full range of treatment options (Sainsbury et al 1995, Gillis & Hole 1996).

Guideline 4

Effective communication is essential between the GP and the specialists involved if management is to be of the highest quality.

Key Points

- Communication is essential between all clinicians involved in the patient's care using all standard means and needs to be two-way, prompt, comprehensive, and accurate.
- The referral letter from the GP should contain an indication of the presenting problem, past family, social and drug history and details of adverse drug reactions. The GP should also provide examination findings and results of any investigations.
- The GP should similarly be informed by the specialist of the results and interpretations of clinical findings and investigations and this information should preferably be provided in the context of a full management plan.
- Women frequently consult their general practitioner soon after a surgical consultation and the absence of information from the surgeon reduces the GP's effectiveness in this situation.

Clinical Comment

The relationship between the general practitioner and the specialist is clearly the key to good practice in many areas of medicine. Within this relationship patterns of referral which work well may already be established and should remain intact. The use of referral guidelines is seen as an aid to those who seek a more formal framework for referral or who are establishing a referral relationship.

Recommendation

Good communication and effective liaison over referrals between the general surgeon are essential for the highest standard of care for a woman with breast cancer. (Level C).

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3.2 The Diagnostic Process for Women with Breast Symptoms or Signs

General Principle

The aim of the diagnostic process is to determine if breast cancer is present whilst reassuring, as rapidly as possible, those without malignant disease.

Guideline 1

The combination of clinical examination, breast imaging and cytological or other tissue diagnosis (triple assessment) achieves a high level of diagnostic accuracy.

Key Points

- There is strong evidence that the use of clinical examination, breast imaging and FNAC together (triple assessment) provides a more accurate diagnosis than the use of less than all three modalities (Osuch 1996).
- It is appropriate to limit assessment to clinical examination in some younger women without risk factors, without a dominant mass and who have a low level of anxiety.
- If all components of triple assessment are positive the likelihood of the woman having breast cancer is >99% (Layfield et al 1989).
- There is evidence that use of triple assessment speeds the diagnostic process (Gui et al 1995).
- There is evidence that triple assessment reduces the open biopsy rate (Green et al 1995).
- Clinical examination should be the initial mode of assessment and be carried out by a clinician with training and experience in diseases of the breast.

Guideline 2

Appropriate use of breast imaging is an essential part of the diagnostic process for breast cancer.

Key Points

- A normal mammogram, particularly in a pre-menopausal woman with breast symptoms or signs, should not be regarded as excluding breast cancer. Cancers may be obscured in a woman with dense breasts at any age.
- Diagnostic mammography is seldom indicated in women under the age of 30 even with breast symptoms or signs.
- Ultrasound has an important role in the diagnosis of breast cancer especially in younger women. It may also help to identify those women requiring FNAC.

Guideline 3

Fine needle aspiration cytology (FNAC) from a palpable breast lesion can provide an accurate and rapid diagnosis.

Key Points

- FNAC is a simple and accurate means of obtaining a tissue diagnosis with an accuracy rate of >90% (Giard & Herman 1992).
- It should be performed by those with training and experience in this technique and reported by an experienced cytopathologist.
- The surgeon should ensure that the FNAC specimen is prepared, preserved and presented to the local cytopathology service in line with the agreed requirements for that laboratory.
- Reliable reporting on which definitive treatment will be based requires a cytopathologist who has appropriate training and experience in this field.
- False positives are rare (<1%) and may occur with cellular fibroadenomas or some proliferative lesions, particularly those occurring during pregnancy or hormonal therapy.

- False negatives (up to 15%) may be due to sampling error, through missing the tumour, or failing to obtain malignant cells in some well differentiated tumours such as tubular carcinomas or in carcinomas containing few epithelial cells.
- A negative FNAC result should be interpreted in the light of data from the other components of the diagnostic assessment and a repeat FNAC may be required.
- A further FNAC or different biopsy technique should be used when doubt persists.
- The distinction between in situ and invasive carcinomas cannot be made reliably on FNAC specimens.

Guideline 4

Core biopsy of a palpable breast abnormality may be performed with or without image guidance and usually provides a reliable histological diagnosis.

Key Points

- Core biopsy provides a valuable alternative to FNAC for obtaining a tissue diagnosis and is of particular importance when cytopathology services are not available.
- Core biopsy may be the diagnostic technique of choice when FNAC provides an equivocal result.
- False negatives can occur particularly with small and exceptionally hard tumours.
- A distinction between in situ and invasive carcinoma can frequently be made by core biopsy.
- A core containing ductal carcinoma in situ (DCIS) does not, however, exclude the presence of an invasive carcinoma in the adjoining breast tissue.
- Similarly a core biopsy containing atypical ductal hyperplasia does not exclude carcinoma and its presence is a strong indication for surgical biopsy due to the high prevalence of ductal carcinoma both in situ and invasive in association with such findings (Lieberman et al 1995).
- Assessment of grade, type and receptor status can be made on core biopsy specimens.
- When FNAC and/or core biopsy fail to provide a conclusive result open biopsy will be required.

Clinical Comment

The diagnostic reliability of triple assessment is very high and must be regarded as the optimal method for diagnosis. Core biopsy and FNAC have largely replaced open biopsy in the diagnosis of palpable abnormalities but open biopsy still has a limited place.

Recommendation

Triple assessment should be used as the method of choice for the diagnosis of any palpable abnormalities of the breast. (Level C).

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3.3 The Diagnostic Process for Women with Screen Detected Breast Abnormalities

General Principle

The assessment of a suspicious abnormality detected mammographically is an integral part of the screening process and must involve the surgeon.

Guideline 1

Women who are recalled for assessment after detection of an abnormality on mammographic screening require a careful explanation, a prompt diagnosis and appropriate support.

Key Points

- Women undergoing mammographic screening for breast cancer are well women and recall usually causes marked anxiety and necessitates timely and appropriate management (Lerman et al 1991).
- The woman should be informed about the need for recall in an appropriate and sensitive manner.
- The presence of a breast nurse with counselling skills at the assessment clinic is highly desirable.
- In order to provide an efficient diagnostic process it is important to have the appropriate specialist staff and equipment readily available at the assessment clinic.

Guideline 2

The breast screening process requires a surgeon as a regular participant in the assessment clinic.

Key Points

- The role of the surgeon commences during the assessment phase and continues through treatment and follow-up.
- All women who require an FNAC, image guided biopsy or open biopsy should be examined by a surgeon prior to this being performed.
- Surgeons involved with the screening programme should have training and experience in the management of symptomatic and asymptomatic breast disease.
- Mammographic screening produces a number of problems not commonly found in symptomatic women and requires surgeons with skills relating to this aspect of breast disease.
- A surgeon involved in the screening process should participate in regular multidisciplinary review meetings which will include radiologists, pathologists, oncologists and breast care nurses.
- A regular audit of the outcome of the diagnostic process is required to ensure that defined quality standards are being met (New Zealand's Breast Cancer Screening: Interim National Quality Standards 1996).
- Surgeons involved in breast screening should participate in CME programmes and should meet the other requirements for recertification of the Royal Australasian College of Surgeons (Recertification: Information Manual 1994).

Guideline 3

If a woman with a screen detected abnormality has a corresponding palpable lesion she should be managed in the same way as a woman presenting with a palpable lump.

Key Points

- It is vital that the surgeon ensures that the palpable lesion and the screen detected lesion are one and the same.
- Triple assessment is the basis for management of palpable abnormalities.

Guideline 4

A high proportion of suspicious screen detected abnormalities are impalpable and require tissue diagnosis by image-guided fine needle aspiration, core biopsy or by localisation and surgical excision.

Key points

- An image-guided FNAC or core biopsy should be obtained whenever possible on a suspicious impalpable lesion.
- The use of image-guided biopsy should take place after clinical assessment by the surgeon because of the effects of a possible haematoma on the clinical examination.
- Where possible five cores should be taken and in one study this yielded an overall diagnostic accuracy of 97% (Brenner et al 1996).
- The New Zealand Breast Cancer Screening Programme performance target is for >70% of screen detected cancers to be diagnosed by FNAC or core biopsy pre-operatively (New Zealand's Breast Cancer Screening Programme. Interim National Quality Standards 1996).
- Palpable abnormalities and impalpable "mass" lesions, detectable by ultrasound are suitable for biopsy or localisation using ultrasound for guidance.
- Most microcalcifications, some architectural distortions and some stellate lesions are not detectable by ultrasound and will require stereotactic biopsy or localisation and excision.
- Localisation and surgical excision will be required if doubt exists following image-guided FNAC or core biopsy.
- Techniques for localisation prior to surgical excision include placement of a hookwire adjacent to the lesion or carbon tracking of the route from the skin to the lesion.
- At the time of image-guided FNAC or core biopsy carbon tracking may be carried out to enable subsequent identification of the site of the lesion if surgical excision is necessary (Langlois & Carter 1991).

Guideline 5

Open biopsy may be performed following the localisation of a mammographically detected abnormality, or for a palpable lesion where doubt exists after FNAC or core biopsy, or at the request of the woman.

Key Points

- Diagnostic open biopsy is now used less frequently due to the convenience and reliability of FNAC and core biopsy.
- When dealing with a small lesion complete local excision should be the aim.
- Frozen section should generally be avoided on mammographically detected impalpable lesions but may be applicable, after consultation with the pathologist, where a woman expresses a preference to proceed directly to definitive treatment.
- The amount of tissue removed should be kept to the minimum compatible with the goals of the procedure, including implications for cancer treatment, in order to minimise cosmetic deformity (Quality Assurance Guidelines 1994).
- Tissue removed by open biopsy should be x-rayed to confirm removal of the mammographic abnormality, and oriented appropriately to assist with the assessment of margins.

Guideline 6

Discussion of the results of key investigations should take place in a multidisciplinary context and an agreed plan of management established and documented.

Key Points

- The woman should be rapidly informed of the results of investigations and the recommended management plan discussed. Only in exceptional circumstances should this take place by telephone.
- The woman's general practitioner should be notified promptly regarding assessment results and future management.

Clinical Comment

The surgeon is an essential member of the assessment team and provides expertise in the area of clinical assessment and must participate in decisions about performance of a biopsy. The surgeon should ensure that surgical quality standards are being met in the performance of surgical procedures in relation to breast screening.

Recommendation

The surgeon should participate in the assessment process and ensure that all women guided or open biopsy are assessed surgically prior to these being performed.

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3.4 Histopathological Examination

General Principle

Optimum management of breast cancer depends on the availability of a high quality histopathological service and the appropriate use of it by the surgeon.

Guideline 1

Contemporary management of breast cancer is dependent upon a detailed and accurate assessment by the pathologist. The surgeon should present the pathologist with a specimen of suitable quality which is clearly oriented and accompanied by adequate clinical details.

Key Points

- Diathermy damage to the specimen should be avoided as it may make it difficult to assess the margins histologically.
- The specimen should not be cut into as this is likely to compromise the histological assessment of its margins.
- Orientation of the specimen using a technique agreed to by the surgeon and pathologist should enable each margin to be assessed and to identify any that are involved by tumour. Assessment of margins of excision is difficult, time consuming and imperfect (MacMillan et al 1996).

- The placing of sutures, with attached metal clips, on the edges of the specimen is a recommended method of orientation. One suggested system is to use anteriorly placed sutures with different numbers of attached clips towards the nipple, the medial surface and the axilla.
- Specimens removed after localisation biopsy should be x-rayed prior to histopathological assessment to ensure the lesion has been excised and to assist the pathologist in identifying the lesion within the specimen. A copy of the x-ray should accompany the specimen to the laboratory (New Zealand's Breast Cancer Screening Programme. Interim National Quality Standards 1996).

Guideline 2

The surgeon can expect from the histopathologist: a diagnosis, an assessment of the completeness of excision and information on important prognostic variables including hormone receptor status.

Key Points

- The specimen should be processed according to the guidelines described by the quality assurance requirements of New Zealand's Breast Cancer Screening Programme (Interim National Quality Standards 1996).
- A structured (synoptic) report is favoured by surgeons and should be the norm (Wijetunga et al 1996), providing standardised information on all breast cancers (Bilous et al 1995). This should include size, histological type and grade, margins or excision, vascular invasion and changes in adjacent breast tissue (The Pathology Reporting of Breast Cancer 1997).
- The histopathological grading of cancers and the subtyping of invasive and in situ lesions should follow internationally recognised nomenclature.
- The report should comment on those factors recognised to be of prognostic importance, i.e. tumour size, tumour grade, stage of disease (Galea et al 1992).
- The number of lymph nodes examined should be recorded as well as their status in terms of tumour involvement.
- A regular meeting between pathologists, surgeons and radiologists is important to review the breast tissue sent for histopathology.

Guideline 3

Tumour tissue from invasive breast cancers should be assessed routinely for oestrogen and progesterone receptor status.

Key Points

- Oestrogen (ER) and progesterone (PR) receptor status is important in decision-making about adjuvant systemic therapy and/or treatment of recurrent disease.
- ER and PR status are valuable in predicting the natural history of the tumour and the likelihood of response to ovarian ablation and tamoxifen (Elledge & Osborne 1997).
- Hormone receptor status can be determined by either the dextran coated charcoal cytosol assay or by immunocytochemical methods.
- Immunocytochemical techniques do not require fresh tissue and can be done on archival tissue and on very small specimens including those from core biopsies.

Clinical Comment

The importance of close liaison with the histopathologist is considerable. The precise diagnosis, information about adequacy of excision and prognostic data on which adjuvant therapy decisions depend come from histopathological reporting. It is therefore vitally important that the specimen and accompanying clinical information meet the requirements of the laboratory. The laboratory should in turn provide the clinician with the appropriate data in the report issued.

Recommendation

Agreement should be reached between the surgeon and the histopathologist about presentation and the style and content of reporting. (Level C).

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4.0 SURGICAL TREATMENT OF BREAST CANCER

4.1 Pre-operative Staging and Assessment for Surgery

General Principle

Staging is a process used to describe the extent of the disease and is an important aid to treatment planning.

Guideline 1

All patients with breast cancer should undergo clinical staging prior to surgery.

Key Points

- Clinical staging defines the anatomical extent of the disease and helps in planning management.
- The TNM (describing tumour-nodes-metastases) classification is the most commonly used system.
- The tumour size and the presence or absence of fixity should be recorded.
- The presence or absence of palpable axillary and supraclavicular lymph nodes and their mobility should be documented.
- After surgery, pathological information is incorporated into the TNM staging (Manual for Staging of Cancer/American Joint Committee on Cancer 1992).

Guideline 2

Women with suspected or confirmed breast cancer should have bilateral mammography performed prior to surgery.

Key Points

- Mammography may aid in the diagnosis of a lump of uncertain nature.
- Mammography in a patient with a breast cancer will help to establish the size and extent of the tumour, the presence or absence of multifocal invasive disease and/or DCIS in that breast.
- Mammography of the other breast is essential to screen for contralateral breast cancer.
- Pre-operative bilateral mammography provides a baseline record for future reference.

Guideline 3

Each woman should be assessed prior to surgery for evidence of metastatic disease and fitness for anaesthesia.

Key Points

- A standard pre-operative assessment for surgery and anaesthesia is required.
- All patients with breast cancer should undergo chest x-ray, a full blood count, electrolytes and liver function tests prior to operation.
- In T1 or T2 tumours without indicators of metastatic bone disease, a bone scan is rarely positive and is therefore unlikely to influence clinical decision making (Herbert 1992).
- Liver imaging by ultrasound or CT scanning is not indicated as a routine measure and should be reserved for patients in whom there is evidence of liver dysfunction.

Clinical Comment

Staging is essential for treatment planning, audit, and participation in clinical trials. The use of pre-operative investigations other than mammography is somewhat controversial but there is no evidence that outcome is improved by the routine use of investigations such as bone scanning or liver imaging.

Recommendation

Staging incorporating clinical and histopathological data should be a routine part of the pre- operative and postoperative assessment. (Level C).

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4.2 Timing of Surgery

General principle

Improved outcomes have been reported if surgery for breast cancer is performed during the luteal phase of the menstrual cycle. The relevance of this to clinical practice remains uncertain.

Guideline 1

There is considerable debate and no clear conclusion about the timing of surgery in relation to the menstrual cycle and its impact on prognosis. There are many confounding variables and much conflicting data.

Key Points

- It has been reported that women treated surgically for breast cancer in the luteal phase rather than earlier in the menstrual cycle have fewer recurrences (Hrushesky et al 1989).
- Other reports have suggested benefit from surgery in the follicular phase (Sainsbury et al 1991) or of no difference in either direction.
- Reported data indicate a worse prognosis only for node-positive patients with tumour excision performed in the follicular phase compared with the luteal phase (Senie et al 1991).
- A meta-analysis combining data from 10 reports concluded that that there was a significant effect in favour of surgery in the luteal phase (Gregory et al 1992) but the methodology of this work has been challenged.
- There are many variables including the possible significance of needle biopsies, and data from prospective studies are required before a definitive decision can be made.
- Most clinicians are not timing surgery according to a particular phase of the menstrual cycle (Senie & Kinne 1994).

Clinical Comment

This is a difficult issue in breast cancer surgery. Quite large differences in short-term survival have been reported but the data are conflicting and open to different interpretations. Prospective studies are required but it will be several years before mature data becomes available.

Recommendation

No recommendation can be currently made about the timing of surgery. (Level C).

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4.3 Surgery for Invasive Breast Cancer

General Principle

The surgical treatment of invasive breast cancer should be part of an overall management plan which includes the primary tumour(s), the regional lymph nodes and adjuvant therapy.

Guideline 1

The principle goals of surgery for early breast cancer are to achieve loco-regional control, and to provide appropriate tissue for pathological assessment.

Key Points

- Complete excision of the primary tumour is the minimum requirement.
- Prognosis and decisions about adjuvant treatment depend upon the pathological staging of the primary tumour and regional lymph nodes.

Guideline 2

The goals of surgery can be fulfilled by complete local excision and axillary dissection as part of breast conserving treatment (BCT) or by total mastectomy and axillary dissection.

Key Points

- There is no difference in survival between those treated by BCT and mastectomy (Fisher et al 1995, Veronesi et al 1990 & 1993, Abrams et al 1994, Jacobson et al 1995).
- There is marked regional variation in the use of BCT in the USA (Nattinger et al 1992) but no data are available on this issue for New Zealand.
- Between 50-60% of breast cancers treated in Australian centres are estimated to have BCT but a rate of 80% or more could be attained within a breast screening programme (Furnival 1997).

- Postoperative radiation therapy significantly lowers the local recurrence rate after complete local excision (lumpectomy) (Fisher et al 1995, Veronesi et al 1993) and is a standard part of this option.

4.3.1 Breast Conserving Treatment

General Principle

Breast conserving treatment (BCT) involves the use of excisional surgery and radiation therapy to retain a breast that is acceptable in appearance. Careful patient selection, adequate excision and appropriate radiation therapy are required for a satisfactory outcome.

Guideline 1

The selection of women suitable for breast conserving treatment (BCT) includes a prediction of the risk of local recurrence and an acceptance of this risk.

Key Points

- A woman who chooses BCT must understand that further surgery may be necessary if complete excision has not been achieved, and expect that adjuvant radiation therapy will be required.
- The size of the tumour relevant to the breast size must be small enough to allow clear excision margins to be obtained and an acceptable cosmetic result to be achieved.
- Smaller tumours up to 2-3cms. are generally considered most suitable for BCT although larger tumours are sometimes appropriate depending on the size of the breast.
- A centrally placed tumour is regarded as suitable for BCT although the cosmetic results may vary.
- The presence of more than one primary cancer within the affected breast (multicentric disease) is widely regarded as a contraindication to BCT due to the increased risk of local recurrence (Kurtz et al 1990).
- Breast conserving surgery should similarly not be offered to women with widespread malignant microcalcification involving more than one quadrant.
- A first or second trimester pregnancy is a contraindication to BCT.
- Previous radiation to that breast is a contraindication to BCT (Winchester & Cox 1992).
- Steroid dependent collagen vascular disease is a contraindication to BCT due to the poor cosmetic results after adjuvant radiation therapy in these patients (Moore et al 1994).
- Many women choose mastectomy even when BCT is feasible for a variety of reasons including geographical access to a radiation therapy unit.

Guideline 2

Surgery for breast conserving treatment involves the complete removal of the primary tumour with an area of surrounding normal tissue and axillary dissection.

Key Points

- The primary tumour should usually be removed in a specimen of tissue extending from the skin to the underlying muscle, except possibly for a small tumour in a large breast where a clear excision margin can readily be achieved without a full thickness excision.
- For accurate assessment of margins the excised specimen should not be damaged by diathermy or incised and should be oriented appropriately.
- Ideally the specimen should be presented as one piece but if further tissue is excised it must be carefully orientated in relation to the first.
- Specimen radiology in two planes may be helpful in assessing the completeness of excision at the time of surgery.
- A policy should be developed with the radiation oncologist for the appropriate marking of the excision cavity by metal clips.
- Axillary dissection should be performed as part of BCT to stage the disease and to aid in planning of adjuvant systemic therapy.

Guideline 3

After wide local excision the completeness of excision and the likely behaviour of the tumour should be considered in planning further management.

Key Points

- A key feature of BCT is complete excision of the primary tumour with histologically confirmed clear margins.
- Appropriate presentation of the specimen and a close liaison with the pathologist should ensure maximum reliability in reporting on specimen margins.
- The completeness of excision is a strong predictor of the risk of local recurrence (Smit et al 1995).
- Definitions of complete excision vary but a clear margin of 5mms. is a reasonable aim.
- The presence of an extensive intraduct component (EIC) within and around the tumour has been proposed as a risk factor for local recurrence after breast conserving treatment (Schnitt et al 1984, Holland et al 1990, Veronesi et al 1995).
- Apart from excision margins and EIC, local recurrence is related to patient's age, tumour size and grade, lymphatic vessel invasion, and axillary nodal status (Fisher et al 1991, Guerther et al 1996, MacMillan et al 1996).

Guideline 4

Further surgery to the breast in the form of re-excision or mastectomy will be required if microscopic evidence of invasive cancer or DCIS is found at the margins.

Key Points

- Re-excision of the walls of the cavity after tumour excision, paying particular attention to the area of concern, is an acceptable method of management unless the positive margins are superficial (skin) or adjoining muscle when the need for further breast excision is unnecessary.
- Re-excision should not be attempted if the cosmetic result will not be acceptable.
- Inadequate margins together with other risk factors for local breast recurrence may be best treated by mastectomy.
- A woman may choose mastectomy rather than re-excision when she cannot be assured that a second local excision will be complete.

Adjuvant radiation therapy is an essential component of breast conserving treatment (see Section 5.1).

4.3.2 Total Mastectomy

General Principle

The goals of total mastectomy are similar to those of breast conserving surgery, namely to achieve loco-regional control and provide tumour tissue for histological assessment.

Guideline 1

Total mastectomy is indicated when breast conserving treatment is not advisable or has failed or when it is a woman's preference.

Key Points

- Mastectomy is known to have significant psycho-social implications for many women (Maguire 1994).
- The use of immediate or delayed breast reconstruction is an important means of lessening the impact of mastectomy (see Section 4.5).
- It is uncommon for a woman undergoing mastectomy to be treated with postoperative radiation therapy but it should be considered for women with a high risk of local recurrence (see Section

5.1).

4.3.3 Management of the Axilla

General Principle

The surgical management of the axilla aims to provide important information for staging on which decisions about systemic therapy will be based and to achieve adequate local control of the disease in the axilla.

Guideline 1

Excision of axillary lymph nodes is recommended as an integral part of breast cancer surgery in order to stage the disease and hence the need for adjuvant systemic therapy.

Key Points

- Axillary lymph node status is the most powerful indicator of breast cancer prognosis (Fisher & Slack 1970).
- Clinical assessment of the axilla is associated with false-negative and false-positive results and is too inaccurate to be used as the basis for decisions about systemic therapy.
- Histopathological nodal status is accepted as a key factor in decision-making about systemic therapy.
- Operations varying from limited node sampling to near total lymph node clearance have been promoted.

Guideline 2

The extent of axillary dissection required to assess nodal status satisfactorily remains controversial.

Key Points

- A level 2 axillary dissection is considered to be the operation of choice by many surgeons. The yield of nodes is sufficient for staging and the degree of morbidity is less than with level 3 dissection.
- "Sampling" of axillary nodes consists of dissection of the axillary tail of the breast and a search for nodes up to the intercostobrachial nerve in order to identify and remove four nodes (Steele et al 1985).
- Axillary dissection is classified as level 1 (up to the lower border of pectoralis minor), level 2 (up to the upper border of pectoralis minor) and level 3 (above this muscle or to the first rib).
- Positive level 2, nodes when level 1 are clear, are not common with reported rates varying from 1.5% (Veronesi et al 1990) to 29% (Danforth et al 1986).
- It is uncommon (0.2%) for level 3 nodes to be involved when level 1 or 2 nodes are clear (Rosen et al 1983).
- A level 3 dissection is associated with increased morbidity particularly lymphoedema but may be appropriate with gross involvement of level 2 or 3 nodes.
- Axillary sampling has been shown to be associated with a high risk of false-negative results and axillary recurrence (Kissin et al 1982).

Guideline 3

Sentinel node(s) biopsy has been proposed in those women without clinical involvement of the axilla, as a means of avoiding complete axillary dissection but its precise role is as yet unclear.

Key Points

- The sentinel lymph node is defined as the first lymph node(s) draining the primary tumour, in the lymphatic basin.

- The sentinel node can be identified by intra-operative lymphatic mapping after injecting a vital blue dye or a radioactive tracer or a combination of both around the breast tumour (Albertini et al 1996).
- The accuracy of this technique in identifying lymph node metastases was first demonstrated in patients with primary cutaneous malignant melanoma (Morton et al 1992).
- A close correlation has been demonstrated between the histological status of the sentinel node and that of the dissected axilla (Giuliano et al 1995).
- Early reports of the use of this technique to increase the accuracy of axillary staging and reduce the extent of axillary dissection in breast cancer patients have recently been published (Albertini et al 1996, Silverstein 1997, Veronesi et al 1997) but its precise role in clinical practice remains unclear.

Guideline 4

There is ongoing debate about the impact of axillary dissection on survival. Any benefits seem likely to be due to better selection for adjuvant therapy. The need for axillary dissection in very small tumours with a good prognosis is also controversial.

Key Points

- One report suggests that axillary dissection results in no survival benefit (Fisher et al 1980) whilst another showed a small improvement in survival (Harris & Osteen 1985).
- Reports suggest very low rates (3%) of nodal involvement in tumours of 5mm. or less (Silverstein et al 1994) and of 0% in tumours 4mm. or less in size (Shetty & Reiman 1997).

Guideline 5

Axillary dissection results in morbidity especially if combined with axillary radiation.

Key Points

- Numbness and paraesthesia on the inner border of the upper arm is a relatively common and occasionally troublesome complication (Ivens et al 1992).
- Efforts should be made where possible to preserve the intercostobrachial nerve and thereby the sensation of the inner arm.
- Seroma is common but nearly always a short term problem.
- The risk of lymphoedema is reduced by limiting the dissection to level 2 and by preserving the adipose tissue (which contains lymphatics) around the axillary vessels.
- Axillary vein injury or thrombosis and injury to the brachial plexus and its major branches are rare but serious complications.

Clinical Comment

Axillary dissection is an accepted part of breast cancer surgery, even in older patients. It is the key to adjuvant therapy and also plays an important role in local disease control. There is no uniform agreement about which operation should be performed but a level 2 operation (up to the upper border of pectoralis minor) is widely practised.

Recommendation

Axillary dissection should be a standard component of the surgical management of cancer. (Level C).

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4.4 Surgery of Carcinoma in Situ

4.4.1 Ductal carcinoma in situ

General Principle

The widespread use of mammographic screening has resulted in a marked increase in the diagnosis of ductal carcinoma in situ (DCIS). There is considerable controversy about the management of this disease.

Guideline 1

The majority of cases of DCIS are now detected mammographically in asymptomatic women with only a small proportion presenting with a mass, nipple discharge or Paget's disease of the nipple.

Key Points

- The reported overall incidence of DCIS has increased by five times in the past 20 years (Ernster et al 1996). This increase has been associated with the introduction of mammographic screening and the increased recognition of DCIS by pathologists (Fryberg & Bland 1994).
- There has been no increase in the incidence of symptomatic DCIS (Hughes et al 1996).
- Mammographic abnormalities in DCIS are either calcifications (75%), soft tissue abnormalities (10%) or a combination of both (Stomper & Connolly 1992).
- Mammographic assessment of the extent of DCIS frequently underestimates the histological extent of the tumour especially when low grade, micropapillary DCIS is present (Holland et al 1990, Bellamy et al 1993).
- Estimates of size by mammography are more accurate in comedo or high grade DCIS because of the frequent presence of calcification throughout the area of the tumour (Holland et al 1990).

Guideline 2

The natural history of DCIS is of crucial importance in clinical decision-making but is incompletely understood.

Key Points

- DCIS is a heterogeneous disease which ranges from low grade lesions very similar to atypical ductal hyperplasia through to high nuclear-grade DCIS with comedo-type necrosis (Silverstein et al 1995).
- High grade large volume tumours and those with necrosis have a high tendency to recur after local surgery (Lagios et al 1989, Silverstein et al 1995) especially if excised with a narrow margin of clearance (Silverstein et al 1996).
- DCIS typically does not have a multicentric distribution and is generally unifocal (segmental) (Holland et al 1990) but micropapillary DCIS commonly involves more than one segment (Schwartz et al 1989).
- High grade DCIS is frequently present as a single focus without adjacent separate foci or "skip" lesions. Low grade disease is more likely to exhibit such "skip" lesions (Faverley et al 1992).
- The great majority of "skip" lesions are within 5mm. of the main focus (Faverley et al 1992).

Guideline 3

A precise and detailed histopathological report is essential for developing a management plan.

Key Points

- Close collaboration between the surgeon, pathologist and radiologist is required in the management of DCIS (Delaney et al 1997).

- The histopathological report should include data on: size, an assessment of margins of clearance, nuclear grade, architectural pattern, necrosis, calcification and whether there is evidence of invasion (Delaney et al 1997).
- Size of the lesion is important in predicting the likelihood of the presence of "skip" lesions and also the presence of invasion.
- Determination of the margins of clearance is dependent on sampling and therefore may not be scientifically exact (Carter 1986, Silverstein et al 1994).

Guideline 4

Treatment is based on the histological findings and the prediction of the natural history of an individual woman's disease.

Key Points

- Surgical treatment of DCIS varies from local excision achieving clear margins through to total mastectomy.
- Complete excision is regarded as the key feature of treatment and failure to achieve this is the most important cause of local treatment failure (Silverstein 1994).
- Whether complete excision can be achieved without mastectomy depends on the size of the tumour and its histopathological characteristics.
- There is no consensus about the ideal margin of clearance and wider margins are often recommended for low grade disease. Residual disease is less likely with larger margins and a margin of 10mm. is frequently suggested.
- Local recurrence rates are low if all excision margins are clear by 10mm. (Silverstein 1997).
- Complete local excision is a commonly used treatment of small, low grade lesions.
- Mastectomy is appropriate for widespread DCIS and for those tumours with features predicting a high risk of recurrent disease after local excision.
- Local failure after mastectomy is very rare (0.75%) (Fowble et al 1989), whereas reported recurrence rates after local excision vary from 8-43% with approximately 50% of these being invasive recurrences (Morrow et al 1996).
- A prognostic index for DCIS based on histopathological features has been reported (Silverstein et al 1995) and forms a framework for clinical decision-making (Silverstein et al 1996). This index incorporates size, margins, nuclear grade and the presence or absence of necrosis.
- Axillary lymph node dissection is generally considered unnecessary in the treatment of DCIS because of the very low incidence (1-2%) of positive nodes in this disease (Silverstein et al 1991) and even the majority of this 1-2% have been linked with the presence of undetected foci of invasive cancer (Lagios et al 1982, Lagios 1996).
- It has been suggested that a level 1 axillary dissection may be appropriate, in association with mastectomy, for those women who have extensive high grade DCIS (defined as greater than 50mm. in size on mammography) because of a greater risk of occult invasion and hence nodal involvement (up to 7%) (Delaney et al 1997 Part 2).
- If evidence of invasion is found in the excised specimen, management should be as for invasive cancer.
- Consideration should be given for inclusion of patients in current national and international trials.

Radiation therapy has been used in conjunction with tumour excision in the management of ductal carcinoma in situ (DCIS). It may reduce the recurrence rate in this condition (see Section 5.1).

Guideline 5

The follow-up of women treated for DCIS should involve long-term, regular, clinical and mammographic examinations at appropriate intervals.

Key Points

- Most local recurrences are detected by mammography.
- Approximately half of the recurrences are non-invasive and half are invasive.
- Mammography of the breast treated by complete local excision should be performed as soon as is acceptable to the patient after surgery, usually 6 months, to confirm the complete removal of the mammographic abnormality and to serve as a baseline for the future.
- Bilateral mammography should be carried out annually.

- Appropriate management of recurrent disease depends on the nature of the recurrence in each individual (Delaney et al Part 2 1997).

Clinical Comment

DCIS is one of the most difficult areas of breast cancer management because of real uncertainty about the natural history of the disease in its different forms. Close liaison with the histopathologist is crucial for appropriate treatment planning. In general low grade lesions of less than 10-20mms. are adequately treated by local excision and large, high grade lesions are best treated by mastectomy. Those lesions lying between these two extremes are the difficult area and need multidisciplinary input and a detailed discussion of options with the woman. Radiation therapy may play an important role in this intermediate category of DCIS.

Recommendation

DCIS is a heterogeneous group of diseases with quite different natural histories. It requires excision with clear margins and at times this may necessitate mastectomy. (Level C).

4.4.2 Lobular carcinoma in situ

General Principle

Lobular carcinoma in situ (LCIS) is a relatively uncommon finding in tissue removed at breast surgery and is associated with an increased risk of developing breast cancer.

Guideline 1

LCIS cannot be diagnosed by clinical or mammographic means and its presence warrants long-term surveillance for the development of breast cancer.

Key Points

- The term lobular carcinoma in situ is sometimes used interchangeably with lobular neoplasia.
- LCIS has no clinical manifestations, cannot be diagnosed on mammography and is not visible to the naked eye.
- It is an incidental histological finding in approximately 1% of breast biopsies (Page & Anderson 1987).
- It is frequently multifocal and bilateral.
- LCIS is considered to be a marker of future invasive cancer rather than a direct precursor. This is consistent with the finding that the majority of women with LCIS do not develop cancer and in those who do, the cancers may be in either breast and may be of different histopathological types.
- It is usually detected in perimenopausal women (median age 45 years) and diminishes in incidence after the menopause (Haagensen et al 1978).
- The average risk of developing breast cancer for women with LCIS is five times that of the general population, this excess being highest for those diagnosed before age 40 (Bodian et al 1996).
- LCIS is associated with a 20-30% future risk of invasive cancer (Rosen et al 1978).
- 50% of subsequent cancers have been found to develop in the contralateral breast (Carter (1984).
- LCIS may occur in fibroadenomas and accounts for 65% of "cancer" in fibroadenomas (Pick & Iossifides 1984).
- Surveillance of both breasts by regular long-term clinical and mammographic examination is the usual method of management (Frykberg & Bland 1993).
- Surgical management is rarely indicated after the diagnostic biopsy with bilateral mastectomy being an option that is infrequently chosen.

Clinical Comment

There is much uncertainty about the management of LCIS but there is a reasonable consensus that it is not a precursor of invasive cancer but an indicator of bilateral increased risk of both invasive lobular and ductal carcinoma. Logical treatment options are surveillance or bilateral prophylactic mastectomy. The latter is not one to be actively promoted but may be chosen by some women with LCIS particularly those with other risk factors.

Recommendation

LCIS should be regarded as a high-risk rather than a malignant condition and management is usually one of careful surveillance. (Level C).

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4.5 Breast Reconstruction

General Principle

Breast reconstruction is an important option for a woman who has had or is to have a mastectomy.

Guideline 1

Breast reconstruction should be available to women of all age groups and after different types of surgery and can be performed at the time of mastectomy or at any time thereafter.

Key points

- Surgeons performing breast cancer surgery should ensure that breast reconstruction after mastectomy is available to their patients and when treatment options are being discussed reconstruction should be included.
- Reconstruction of some type can usually be carried out regardless of age or the type of mastectomy performed.
- The majority of women undergoing reconstruction are pleased with the result.
- There are no absolute contraindications in a woman who is fit enough for mastectomy, other than her wish not to have a reconstruction.
- Breast reconstruction can be performed at the time of mastectomy (immediate reconstruction) or at any time thereafter (delayed reconstruction).
- Approximately 50% of women offered reconstruction at the time of mastectomy accept, whereas only 20% accept when offered delayed reconstruction (Dean et al 1983).

The results of immediate and delayed reconstruction are comparable and no recommendation about timing is made.

Guideline 2

Breast reconstruction has been shown to have an important role in psychological rehabilitation after breast cancer surgery.

Key Points

- There is evidence that reconstruction may help women to worry less about their health and that there is reduced psycho-social morbidity, in the short and medium term, including less depression and greater self-esteem.
- There is no evidence of long-term benefits for psychological health and body image (O'Gormon & McCrum 1988).
- Women undergoing mastectomy and immediate reconstruction report a poorer body image and less satisfaction compared to women having breast conserving treatment (Nogushi et al 1993).

Guideline 3

A woman undergoing reconstruction should have a realistic expectation of the final cosmetic result.

Key points

- A detailed explanation about all aspects of reconstruction should be given and the use of photographs can be important in informing a woman what to expect.
- The woman cannot expect to have a reconstructed breast that looks the same as the breast that has been removed.
- She can expect reasonable symmetry of shape and size of her breasts when all reconstructive procedures are completed.
- She can expect to look normal when clothed.

Guideline 4

There are a number of techniques for performing reconstruction each of which has advantages, disadvantages and complications. The involvement of a plastic and reconstructive surgeon as part of the multidisciplinary team is highly desirable.

Key Points

- A review of options for reconstruction with a surgeon trained and experienced in this field is likely to be beneficial in choosing the most appropriate technique.
- Techniques employed include the use of pedicle flaps, free flaps, tissue expansion and combinations of these methods. The result achieved by using any one of these methods is influenced by many factors and may vary in quality.
- Pedicle flaps depend on an adequate blood supply and should be used with caution in smokers and those with small vessel disease. A "delay" procedure to improve blood supply may be advisable.
- Free flap reconstruction may be indicated for some patients. Operating time is usually longer and there is a small risk of total flap loss.
- Tissue expansion carries with it the problems of implanted foreign materials including capsular contraction and more than one operation may be necessary to achieve a satisfactory result.
- A reduction mammoplasty on the contralateral breast may help to achieve symmetry. Mammography should be carried out on this breast within 6-12 months as a baseline for subsequent screening.
- Nipple/areolar reconstruction is an important additional option.

Guideline 5

Breast reconstruction does not increase the risk of recurrence nor is there evidence of delay in detecting local recurrence. It can be used in conjunction with radiotherapy and chemotherapy.

Key points

- Radiotherapy and /or chemotherapy are not absolute contraindications to reconstruction.
- Radiotherapy produces tissue changes which make a satisfactory result with tissue expansion less easy to achieve (Carlson 1994).
- Radiotherapy after immediate reconstruction with a flap causes few problems but uncommonly may affect the flap adversely in terms of size and consistency due to fibrosis.
- Chemotherapy induced neutropaenia associated with infection following reconstruction can be life-threatening.
- There is no evidence that a breast reconstruction will "hide" a local recurrence nor is there any evidence of a worse prognosis in women undergoing reconstruction (Mackay & Bostwick 1996).

Guideline 6

There is no evidence of a significant risk to general health caused by the use of implants including those containing silicone gel but they are sometimes associated with local problems.

Key Points

- Debate still exists about the total safety of silicone gel implants but evidence is lacking to support this concern.
- There is no clear evidence to link silicone gel implants with an increased incidence of connective tissue disorders or systemic disease (Gabriel et al 1994).
- Capsular contraction is a moderately frequent local complication and results in a less comfortable and less symmetrical result.
- The safe duration of use of an implant remains uncertain.
- Leakage from silicone gel implants can cause unpleasant local problems and saline filled implants are an alternative.

Clinical Comment

Breast reconstruction is now widely used both at the time of mastectomy and at a later date. Availability is limited in some regions and it seems a matter of high priority to improve this situation. The use of flaps versus tissue expansion is partly a matter of availability, partly based on patient characteristics and partly on the woman's preference.

Recommendation

The option of breast reconstruction should be discussed with women undergoing mastectomy (Level C).

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4.6 Complications of Breast Cancer Surgery

General Principle

The mortality and overall physical morbidity of surgery for breast cancer is low with lymphoedema being the most significant medium and long-term complication.

Guideline 1

Breast cancer surgery is generally safe with a very low operative mortality even for patients over 75 years.

Key Points

- The SEER data on > 10,000 patients reported an operative mortality of 0.33%
- In women >75 years the reported mortality rate is 0.87% (Schneiderman and Axtell 1979).
- Breast cancer surgery can be performed in women at high risk from general anaesthesia using combinations of local and regional anaesthesia and sedation.

Guideline 2

Postoperative wound problems are not uncommon and may include infection, flap necrosis and a poor cosmetic result.

Key Points

- A recent study found an infection rate of 14% after breast conserving treatment and of 11% after mastectomy and axillary dissection (de Feiter et al 1997).
- Early infection is most commonly cellulitis.
- Later infection is likely to be an abscess.

Higher infection rates are reported if a two stage procedure is used (12%) rather than a single operation (5%) (Beatty et al 1983) and with increasing age (de Feiter et al 1997).

- Wound infection rates can be reduced by the use of single dose antibiotic therapy (Platt et al 1993).
- Skin flap necrosis is uncommon and usually related to thinness of the flaps and/or skin closure under tension (Bland et al 1981).

Guideline 3

Seroma is reported to occur in between 26% and 100% of women undergoing axillary dissection and is minimised by closed suction drainage.

Key Points

- Incidence is related to extensive lymph node involvement, obesity and two stage operations (Petrek et al 1991).
- Seroma may lead to delayed wound healing and infection (de Feiter et al 1997).
- Suction drainage until the daily output is minimal is used to reduce the likelihood of seroma.
- Repeated aspiration until the skin flaps seal against the chest wall is the standard method of management of symptomatic seromas.
- A number of measures including immobilising the arm and tacking the skin flaps to the chest wall have been tried without becoming standard practice.

Guideline 4

Lymphoedema is a relatively common and sometimes very troublesome symptom after breast cancer surgery for which prevention is the key word.

Key Points

- Definitions of lymphoedema relate to differences in arm circumference and arm volume. A difference of 20mm. in circumference between the arms is commonly used to diagnose lymphoedema.
- It is important to measure the circumference of the upper and lower arm on each side.
- The reported incidence of objective lymphoedema is about 20% with a range of 16-26% (Kissin et al 1986; Werner et al 1991).
- The incidence is similar after breast conserving surgery and after mastectomy.
- The extent of axillary dissection and the addition of axillary radiation are key factors in lymphoedema development (Larson et al 1986).
- An important aspect of prevention consists of limiting axillary treatment as far as is compatible with other management goals.
- After surgery measures to lessen the risk of lymphoedema are related to two principles - not increasing lymph production (related to blood flow) and not further impeding lymph drainage (Petrek & Learner 1996).
- After surgery all women should be advised to avoid skin trauma which may lead to infection, heat including sunburn and saunas, and exceptionally vigorous arm exercise.
- Precautions should be taken to avoid vaccinations, injections, blood pressure monitoring, blood drawing and intravenous administration in the arm at risk. Meticulous skin, nail and cuticle care and avoidance of infection at these sites is important. Prompt attention to any infection is essential.
- Once lymphoedema is established it is likely to be permanent and may be progressive (Learner & Requena 1986). Early treatment will help to lessen further progression.
- When mild or moderate lymphoedema is present after surgery the following measures are useful:
 - a. avoiding injury to the upper limb which might lead to infection

- b. use of a compression sleeve
- c. limb massage by a trained therapist (Foeldi et al 1985)
- d. use of pneumatic compression devices, especially for more advanced lymphoedema (Richmand et al 1985).
- Drug therapy using coumarin (benzopyrones) has been shown to improve chronic lymphoedema.(Casley-Smith et al 1993).
- No surgical remedy for lymphoedema has become part of established therapy.

Clinical Comment

Mild lymphoedema is a common clinical problem with minimal associated disability whereas severe lymphoedema is uncommon but can have a major impact on quality of life. Combining axillary dissection with axillary radiotherapy is undoubtedly an important cause of lymphoedema and should be avoided wherever possible. An educational programme about preventive measures for women after breast cancer surgery and an active approach to early management of lymphoedema are important aspects of minimising this problem.

Recommendation

Axillary dissection followed by axillary radiation should be avoided wherever possible (Level C). Early treatment using lymphoedema sleeves and limb massage should be initiated as soon as the diagnosis of lymphoedema is made. (Level C).

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5.0 MANAGEMENT AFTER SURGERY

5.1 Referral for Adjuvant Radiation Therapy

General Principle

Radiation therapy (RT) has been shown to be effective in reducing the rate of loco-regional recurrence after surgical treatment for breast cancer but has no clear impact on survival.

Guideline 1

Radiation therapy when used as a component of breast conserving treatment (BCT) reduces the rate of breast recurrence.

Key Points

- There is strong evidence that women treated by BCT including radiation therapy have the same survival and recurrence rates as mastectomy (Fisher et al 1995).
- There is strong evidence from the Oxford Overview to show that radiation therapy reduces the risk of loco-regional recurrence (Early Breast Cancer Trialists Collaborative Group 1995).
- Adjuvant radiation therapy after breast conserving treatment has been shown to reduce the rate of local recurrence from 42% to 12% in women followed up for 12 years (Fisher et al 1995).
- In tumours up to 2cm. (with clear microscopic margins) local recurrence after breast conserving treatment was reduced from 18.4% in those not treated by radiation to 2.3% in those who were (Liljegren et al 1994).
- There is no evidence that survival in women undergoing breast conserving treatment is significantly improved by the use of radiation therapy (Nixon et al 1996).
- There is no agreed basis on which to selectively withhold radiation therapy after complete local excision although trials are in progress to identify such groups of women. Very small tumours and tubular carcinomas are examples of tumours where the local recurrence rate is low and withholding radiation therapy may be reasonable.
- It is recommended that all women undergoing BCT should have a management plan developed in association with a radiation oncologist.
- Routine referral of women undergoing breast conserving treatment to a radiation oncologist is recommended.
- If positive excision margins are reported after BCT, re-excision or mastectomy is recommended to obtain complete tumour excision (see Section 4.3.1).

Guideline 2

Following mastectomy, radiation therapy reduces the loco-regional recurrence rate but does not improve survival. In the light of a generally low local recurrence rate, it is not given routinely but is used selectively in those patients with an increased risk of local recurrence.

Key Points

- There is strong evidence from a number of randomised trials that the addition of radiation therapy to mastectomy significantly improves loco-regional control but does not alter overall survival rates (Early Breast Cancer Trialists Collaborative Group 1995).
- There is some evidence of a small reduction in deaths from breast cancer in women treated with radiation therapy but this must be balanced by an increase in deaths from late radiation effects although this may no longer be the case with contemporary radiation therapy (Cusick et al 1994).
- Histologically positive resection margins in the mastectomy specimen are an indication for radiation therapy.
- Tumour grade and size, lymphatic and vascular invasion and nodal status are histological factors which help to define those at increased risk of local recurrence and who may benefit from radiation therapy.

- Extensive axillary nodal involvement or extranodal spread may be indications for radiation therapy to the axilla after its dissection but it is associated with an increased rate of lymphoedema and is therefore only indicated when the risk of recurrence is high.

Guideline 3

Radiation therapy has been used in conjunction with tumour excision in the management of ductal carcinoma in situ (DCIS). It may reduce the recurrence rate in this condition.

Key Points

- The recurrence rate after local excision in unselected patients was reduced from 18% to 9% by the use of radiation therapy (Hughes et al 1996).
- The heterogeneity of DCIS must be taken into account when considering the need for adjuvant radiation therapy. The Van Nuys Prognostic Index (Silverstein et al 1995) may be of help in planning treatment (Silverstein et al 1996).
- Radiation therapy should be considered when there are doubts about the adequacy of surgical excision and when mastectomy is unacceptable to the patient.
- The precise role of radiation therapy following surgery for DCIS is incompletely defined and is the subject of current clinical trials.

Guideline 4

The timing of radiation therapy must allow time for wound healing but should not be delayed significantly after this.

Key Points

- Treatment should normally commence within six weeks of the completion of surgery although there is no evidence that a delay in treatment beyond this time affects outcome.
- Adjuvant chemotherapy may need to be integrated with the radiation therapy.
- When treatment planning is taking place the social and financial costs should be considered for those women who have to travel long distances for treatment.

Guideline 5

The complications of modern radiation therapy are generally mild and transient and should be discussed with the woman by the radiation oncologist.

Key Points

- Transient local skin reactions are common during and immediately after radiation therapy.
- Radiation therapy to a conserved breast may be associated with some oedema and fibrosis.
- Pulmonary and cardiac toxicity are uncommon but potentially serious adverse effects.

Clinical Comment

The evidence to support the use of radiation therapy in the great majority of women treated with BCT for invasive cancer is overwhelming. Until there is clear identification of a subgroup or groups who do not benefit from radiation therapy, routine referral to a radiation oncologist should be a standard part of management. The objective of BCT is to retain the breast without compromising survival. Radiation therapy, in reducing local recurrence, reduces the need for eventual breast removal. After mastectomy, the general case for radiation therapy is less strong and rests on the perceived risk of local recurrence and the likely impact on the woman's quality of life. Close cooperation between the radiation oncologist and the surgeon should ensure an appropriate local policy.

Recommendation

Radiation therapy reduces the risk of local recurrence after complete local excision of the tumour and should normally be used as part of BCT. (Level A)

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5.2 Referral for Adjuvant Systemic Therapy

Summary

There is very strong evidence that adjuvant systemic therapy (either combination chemotherapy or hormone therapy) improves survival rates for women with breast cancer (Early Breast Cancer Trialists' Collaborative Group 1992). Its applicability depends on the individual risk of tumour recurrence, the prospects that a particular therapy will be effective and the predicted treatment toxicity. Discussion of these aspects is an important part of presenting options to a woman with breast cancer. Some women may require time to accept that adjuvant chemotherapy is advisable.

5.2.1 Adjuvant Chemotherapy

General Principle

Adjuvant chemotherapy using a combination of drugs reduces the risk of recurrence and death when used after surgical treatment for breast cancer.

Guideline 1

Adjuvant chemotherapy reduces the annual risk of death from breast cancer, the greatest absolute benefit being in those with the highest risk of recurrence.

Key Points

- Combination chemotherapy reduces on average the risk of death from breast cancer by 20% after 10 years (Hortobagyi and Buzbar 1995).

- The benefit is proportionally the same for all women with breast cancer but since some women start with a higher risk of death than others the absolute benefit will vary.
- The benefits of chemotherapy apply equally to women with node-positive and node-negative disease but due to the very different levels of risk associated with nodal status, the absolute benefit at 10 years will be different.
- A woman over the age of 50 with involved lymph nodes will have an average risk of death at 10 years of about 50% (Shapiro and Henderson 1994). Chemotherapy will reduce this risk by 20% thus the absolute reduction in risk will be 20% of 50% (10%). The overall 10 year mortality would therefore be reduced from 50% to 40%.
- The risk of death by 10 years for a woman with node-negative disease varies between 10 and 40% depending on which risk factors are present. For these women a 20% reduction in mortality would mean an absolute benefit of as little as 2% (20% of 10%) or as much as 8% (20% of 40%).
- Women under the age of 50 have a greater reduction in the risk of death than do older women (27% reduction vs 14%) (Gelber et al 1993).

Guideline 2

Assessment of the risk of recurrence or death is an essential part of the process of estimating the benefits and costs of adjuvant chemotherapy.

Key Points

- This assessment is usually based on prognostic factors relating to the histopathology of the tumour and regional lymph nodes.
- Nodal status remains the most important overall predictor of recurrence (Rubens 1992).
- Tumour size is the most significant risk factor in women with negative nodes (Quiet et al 1995).
- Receptor status, tumour type and grade are other prognostic variables for risk of recurrence.
- The less common tumour types (pure tubular, papillary, colloid and medullary carcinomas) have very low recurrence rates (Rosen et al 1989). Adjuvant systemic therapy may not be indicated for these tumour types.

Guideline 3

The rationale for adjuvant systemic chemotherapy and its benefits and risks should be explained to women with breast cancer as part of an overall treatment strategy.

Key Points

- All women with breast cancer should have relevant therapeutic options explained to them.
- The magnitude of benefit and information about potential side-effects of possible treatments should be explained to the woman.
- Some women may require time to accept that adjuvant chemotherapy is advisable.

Guideline 4

An evidence-based policy about referral for adjuvant systemic therapy should be developed between surgeons and oncologists.

Key Points

- Premenopausal women with positive axillary nodes should be referred for consideration of adjuvant systemic therapy. A reduction in the risk of relapse and death can be expected in these women (Bonadonna et al 1995).
- Premenopausal women with negative nodes may be considered for adjuvant chemotherapy if they have adverse prognostic features such as a tumour which is >20mm, or high grade or receptor-negative (Glick et al 1993).
- Postmenopausal women may be considered for adjuvant chemotherapy if their tumours are receptor-negative or if other adverse prognostic features are present.
- An International Consensus panel concluded that "patients having less than 10% mortality at 10 years would not be candidates for receiving routine adjuvant systemic therapy" (Goldhirsch et al 1995). All other patients should be considered.

- Women should be referred for an oncological opinion as soon as possible after surgery in order that chemotherapy can begin within 3-4 weeks of the operation.

Guideline 5

Chemotherapy with its well documented potential toxicity should be administered by clinicians trained and experienced in its use.

Key Points

- A woman receiving adjuvant chemotherapy should be under the supervision of an oncologist.
- The oncologist will advise on the most suitable chemotherapy regimen and duration of treatment.
- > The impact of side effects such as nausea, vomiting, anorexia, alopecia, mucositis, leukopaenia, thrombocytopaenia and infection can be minimised by careful management.
- Younger women require explanation about amenorrhoea, possible early menopause and loss of fertility. Menstruation will often recommence in women aged < 40. In older women amenorrhoea is frequently permanent (Cobleigh et al 1994).

Clinical Comment

The value of adjuvant chemotherapy has been assessed by many clinical trials and the clear conclusion is that it reduces the risk of recurrence and death. These benefits are greater for younger women but older women also experience a survival advantage and should not be excluded from consideration of chemotherapy. The benefits must be weighed against the costs in terms of drug toxicity and disruption of life for a period lasting several months. In general, women with a high risk of recurrence are the most obvious candidates but it may be applicable to a number of those at lower risk as well. These issues should be discussed with an oncologist so that the opportunity to reduce the risk of recurrence and death is not missed. The final decision whether to proceed will rest with the women.

Recommendation

There should be close liaison between the surgeon treating breast cancer and an with experience in chemotherapy for this disease. A referral policy should be developed so that chemotherapy is made available to those women who are likely to benefit from it. At the present there is clear evidence (Level A) to support the use of adjuvant chemotherapy in premenopausal women with node positive disease. Women in other groups also benefit although the magnitude is less.

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5.2.2 Adjuvant Hormone Therapy

General Principle

Adjuvant hormone therapy has been shown to be beneficial in improving survival after surgical treatment for breast cancer.

Guideline 1

When used as adjuvant therapy, ovarian ablation and tamoxifen have been shown to be effective in reducing the risk of death from breast cancer.

Key Points

- Ovarian ablation used in women <50 years of age reduces the annual risk of death by 24% (Early Breast Cancer Trialists' Collaborative Group 1996).
- Tamoxifen reduced the risk of death by 16% in all women and by 20% in those aged >50 years (Early Breast Cancer Trialists' Collaborative Group 1992).

Guideline 2

Adjuvant ovarian ablation improves long-term survival in premenopausal women.

Key Points

- For premenopausal women ovarian ablation can be achieved by surgical oophorectomy (open or laparoscopic technique), by irradiation of the ovaries or by the use of lutenising hormone releasing hormone (LH-RH) agonists to suppress ovarian activity.
- It is unclear which method of ovarian ablation is most appropriate in this context.
- Ovarian ablation is only beneficial in women aged less than 50 years (premenopausal) (Early Breast Cancer Trialists' Collaborative Group 1996).
- Ovarian ablation improves both recurrence-free and overall survival in both node-positive and node-negative premenopausal women.
- Ovarian ablation is likely to be most effective in those with receptor positive tumours although evidence is lacking about the precise relationship between receptor status and adjuvant ovarian ablation.
- The relative merits of adjuvant ovarian ablation and adjuvant chemotherapy are uncertain.

Guideline 3

Adjuvant tamoxifen is a widely used and effective treatment in postmenopausal women.

Key Points

- Tamoxifen is a synthetic hormonal agent with both oestrogen antagonist and agonist properties (Wakeling et al 1991).

- Tamoxifen has its greatest benefit in women over the age of 50 with oestrogen receptor-positive tumours.
- Postmenopausal women may benefit from tamoxifen even if their breast cancer is hormone receptor-negative (NATO Steering Committee 1988, Breast Cancer Trials Committee, Scottish Cancer Trials Office 1987).
- Tamoxifen reduces the incidence of contralateral breast cancer by 30-50% (Early Breast Cancer Trialists Collaborative Group 1992) in postmenopausal women but not in premenopausal women (Baum et al 1992).
- There is a trend for the benefits from adjuvant tamoxifen to increase with age (Osborne et al 1995).

Guideline 4

Tamoxifen should probably be given for five years and certainly for a minimum of two years.

Key Points

- Tamoxifen is usually given as 20mgs. daily for 2-5 years.
- There is evidence that treatment for > 2 years is superior to < 2 years (Early Breast Cancer Trialists Collaborative Group 1992).
- There is evidence that 5 years therapy is superior to 2 years (Swedish Breast Cancer Cooperative Group 1996).
- Treatment for 5 years is widely recommended but the benefits of continuing tamoxifen beyond this period are uncertain.
- Ongoing trials are in progress looking at the optimum duration of treatment.

Guideline 5

Advice regarding adjuvant hormone therapy, whether ovarian ablation or tamoxifen, should include a discussion of side effects.

Key Points

- Patients undergoing ovarian ablation must be forewarned of possible side effects including acute menopausal symptoms and the possible long-term effects of early menopause especially cardiovascular morbidity and osteoporosis.
- Tamoxifen therapy may be associated with the following side effects: hot flushes, vaginal discharge, vaginal dryness and itching, loss of libido, gastrointestinal upsets and weight gain. These side effects are usually mild and transient.
- An increased incidence (twofold) of endometrial cancer has been reported in postmenopausal women taking adjuvant tamoxifen (Van Leeuwen et al 1994) although the apparent frequency may be elevated by the more active investigation of women on tamoxifen (Baum & Cuzick 1996).
- Postmenopausal women who develop vaginal bleeding during or after treatment must be investigated for possible endometrial cancer.
- Tamoxifen may be associated with beneficial effects on bone density, serum cholesterol and cardiovascular morbidity.
- Tamoxifen enhances the action of Warfarin.

Guideline 6

Hormone replacement therapy (HRT) while generally contraindicated after breast cancer treatment may be justified for disabling menopausal symptoms.

Key Points

- The safety of HRT using oestrogen or oestrogen/progesterone combinations after breast cancer treatment has not been established beyond reasonable doubt but the risk, if any, appears likely to be small (Sands et al 1995).
- Its use may be justified in women whose symptoms are severe and who are prepared to accept a small measure of risk (Cobleigh et al 1994).
- The decision to use HRT must be based on a detailed discussion of the current understanding of the risks and benefits of this therapy (Davidson 1995).

Clinical Comment

Clinical trials have demonstrated that ovarian ablation and tamoxifen, used as adjuvant therapy, can reduce breast cancer mortality. Tamoxifen is a widely used and accepted adjuvant therapy for postmenopausal women. Available evidence suggests that it is effective in both ER+ and ER- disease but that the effect is greater in the former. In premenopausal women its beneficial effects are limited to ER+ tumours. Premenopausal women with ER+ disease also benefit from ovarian ablation and this benefit is comparable to that achieved with adjuvant chemotherapy. Ovarian ablation is an alternative to chemotherapy in premenopausal women with ER+ disease. It is not free of adverse effects and the decision about its use must depend on a discussion of risks and benefits, with each woman.

Recommendation

Tamoxifen should be considered as adjuvant therapy for postmenopausal women regardless of ER status. (Level A). Ovarian ablation should be considered in premenopausal women with ER+ tumours. (Level A).

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5.3 Follow-up

General Principle

After treatment for breast cancer, there should be a follow-up programme developed for each woman which takes into account the nature of her disease and treatment and her individual needs.

Guideline 1

The provision of routine specialist follow-up after treatment of primary breast cancer is demanding of resources and its value is being challenged.

Key Points

- It has been standard practice to provide routine follow-up for 10 years or longer after primary treatment but this practice is now the subject of much debate (Schapira and Urban 1991).
- The effects on cost and on the provision of new patient services of providing a comprehensive follow-up service must be recognised.
- Follow-up by general practitioners has been shown not to be associated with delay in diagnosis of recurrence and may be more convenient for some women (Grunfeld et al 1996).
- The preference by some women for specialist follow-up should be acknowledged.

Guideline 2

Follow-up should aim to detect recurrent disease or new primary tumours, manage treatment related problems, provide support and reassurance and supply data for audit purposes.

Key Points

- The early detection of breast cancer recurrence after breast conserving treatment is an important aim of the follow-up programme.
- The prevention, detection and early treatment of problems following the diagnosis and treatment of breast cancer is an important aim.
- Many women need reassurance and additional support after treatment for breast cancer.
- Most recurrences are detected by women themselves (Zwaverling et al 1987) and three-quarters will present between scheduled visits (Dewar & Kerr 1985).
- Locally recurrent disease can often be controlled if detected early.
- Early detection of a second primary by mammography is an important part of the follow-up process.
- Ongoing audit of the effects of treatment is important and helps to refine treatment techniques and improve clinical standards.

Guideline 3

Follow-up visits should be planned for each woman and should include a clinical assessment and mammography.

Key Points

- There is no general agreement about the required frequency or duration of follow-up visits and only limited data to support any particular regimen.
- A minimum of an annual clinical assessment seems important but more frequent checks by the surgeon, oncologist or GP are probably advisable particularly in women at defined high risk of recurrence.
- The risk of morbidity - which includes psychological and physical sequelae of the disease and its treatment - is higher in the first three years and more frequent visits during this time may be advisable.
- There is evidence that routine annual mammography leads to the diagnosis of contralateral tumours at an earlier clinical stage (Mellink et al 1991).

- The optimum frequency of mammography on the treated breast has not yet been established (Orel et al 1992).
- It is usual practice in New Zealand to carry out annual bilateral mammography.

Guideline 4

Follow-up should be performed by a suitably trained and experienced clinician.

Key Points

- Follow-up may be by the surgeon, oncologist or GP, and shared care is often appropriate.
- There is evidence that general practitioner follow-up can be as effective as that by a specialist (Grunfeld et al 1996).
- Assessment of the breast after breast conserving treatment can be difficult and should be carried out by a clinician with suitable training and experience.
- Careful planning is needed if joint follow-up is being carried out to avoid duplication of visits and to ensure continuity of care.
- Effective communication between the GP and other clinicians performing follow-up is essential.

Guideline 5

Routine investigations other than mammography are rarely helpful and should only be used to evaluate symptoms.

Key Points

- There is no evidence of an improved outcome resulting from routine use of investigations, and only mammography is indicated on a regular basis (Rosselli Del Turco et al 1994) and this should be carried out annually and long-term.
- Routine investigations such as bone and liver scanning, chest x-rays and blood tests do not lead to improved outcomes (GIVIO Investigators 1994) and should be used selectively.

Guideline 6

Identification of the need for extra information and support after breast cancer treatment is an important goal of follow-up.

Key Points

- Many women still require information about aspects of their disease and treatment when the treatment phase is over.
- The need for additional support from a breast care nurse, counsellor or other support person (including BCSS) can often be identified at the follow-up visit.

Clinical Comment

Follow-up by the surgeon is traditional and an activity on which nearly all surgeons expend a considerable amount of time. However, its value in clinical terms and in cost-benefit terms must be questioned. Is the present practice of seeing women at 3-6 month intervals for a number of years the best use of surgical time? The role of the general practitioner in the follow-up process can surely be increased and breast cancer follow-up be incorporated, at least in part, into routine primary care. The issue needs further debate.

Recommendation

A follow-up plan should be developed for each woman and this should be related to her risk of recurrence and need for support. (Level C)

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5.4 Management of Recurrent Disease

General principle

The goals of management for a woman with recurrent breast cancer are to improve both her length and quality of life.

Guideline 1

Approximately 60% of women with breast cancer will develop recurrent disease and two-thirds of recurrences will occur in the first five years. The prognosis after detection of recurrent disease depends on a number of factors but particularly the site of the disease.

Key Points

- Recurrence may occur in the mastectomy scar, in the breast after breast conserving treatment, in regional lymph nodes and at distant sites.
- Loco-regional recurrence will usually present as a mass, nodule or ulcer and occasionally with associated inflammatory changes.
- Distant metastatic disease is most likely to occur in liver, lungs or bone and must be regarded as incurable with current therapies.

Guideline 2

A woman with recurrent disease should have a management plan developed for her which includes input from involved health professionals, her family and supporters. She must be fully informed of the results of investigations, given an accurate and sensitive account of the prognosis and the benefits and side effects of the treatment options.

Key Points

- She will require help and support which should be culturally appropriate, to maximise her quality of life.
- She will require information and an explanation of the treatment options.
- Effective communication between those involved in management is essential.
- She should be informed of the services offered by various professional and voluntary agencies such as the Cancer Society.
- The majority of recurrences are detected by the patient but the surgeon will often be the clinician who first identifies or confirms the presence of recurrent disease.
- The oncologist, general practitioner, palliative care physician, and breast cancer nurse together with the surgeon are the health professionals most likely to be involved and management should be based on guidelines developed by this group. It is important that the radiation and/or medical oncologist is involved at an early stage to ensure that palliative radiation and other treatment modalities are not delayed unnecessarily.

Guideline 3

A woman suspected of having recurrent disease should be carefully assessed to establish the nature and extent of the disease.

Key Points

- Assessment, which should be in conjunction with a medical or radiation oncologist, includes a careful documentation of symptoms and clinical findings and the tailoring of investigations to these.
- A histological or cytological confirmation of the recurrent disease should be obtained whenever reasonable and tissue sent for oestrogen and progesterone receptors.
- Chest X-ray, blood screen and biochemistry are routinely of value.
- Assessment of specific symptoms should include a bone scan, with local bone x-rays, CT or MRI for bone pain, ultrasound or CT of the abdomen if liver disease is suspected, and CT or MRI for central nervous system problems.

Guideline 4

A woman with a local tumour recurrence after mastectomy should be assessed for the most appropriate local and systemic therapy.

Key Points

- Staging including a bone scan and liver ultrasound should be carried out to detect possible metastases in women who are found to have a local recurrence after surgery.
- Eighty to ninety percent of all local recurrences after mastectomy appear in the first 5 years (Tennvall-Nittby 1993).
- After local recurrence only about 30% of women are free of metastases at 5 years and 7% at 10 years (Aberizk et al 1986).
- Histological or cytological confirmation of the diagnosis is important.
- Complete excision of localised disease is recommended when this can be safely achieved with primary closure, but without radiation therapy further local failure will occur in up to 75% of cases. (Probstfeld & O'Connell 1989).
- Radiation therapy should generally be used but may not be possible when that site has been irradiated previously. Review by a radiation oncologist is important.
- There is evidence that the use of systemic therapy such as tamoxifen, as part of the treatment of local recurrence, improves local control but does not influence distant spread or survival (Borner et al 1994) Distant disease will follow in most cases and reserving systemic therapy until then may be reasonable.

Guideline 5

Women developing a breast recurrence after breast conserving treatment can usually be treated successfully by mastectomy.

Key Points

- The prognosis for a woman developing a breast recurrence after breast conserving treatment is better than for a local recurrence after mastectomy. An expected 5 year disease-free survival rate of 50% and relapse free rates of up to 85% have been reported (Kurtz et al 1988, Haffty et al 1991, Osborne et al 1992).
- A further wide local excision after recurrence is associated with a high subsequent risk of breast recurrence and mastectomy is generally the treatment of choice in this situation (Kurtz 1988) unless radiation was withheld during primary treatment.
- Re-treatment with radiation is rarely advised due to the high incidence of complications.
- There is no clear evidence about the value of systemic therapy after recurrence in the breast (Abner et al 1993).
- Mastectomy and reconstruction, usually employing a flap technique, should be considered and discussed with the woman.

Guideline 6

A woman with a localised regional node recurrence can often be treated successfully by a combination of surgery and radiation therapy

Key Points

- There is a reasonable short and medium term disease-free survival after treatment for isolated axillary node recurrence (61% at 45 months) (Recht et al 1991).
- The prognosis after treatment for internal mammary or supraclavicular node recurrence is much poorer than for axillary disease.
- Radiation therapy with or without surgical excision is the local treatment of choice for regional node recurrence.

Guideline 7

When distant metastatic disease is confirmed, management should be in conjunction with an oncologist who will usually supervise the treatment.

Key Points

- The aim of treatment is effective palliation and this can usually be achieved by use of radiation therapy, hormone therapy, chemotherapy, and other measures to control specific symptoms.
- Radiation therapy and chemotherapy should be supervised by an oncologist with an interest in breast cancer .
- Hormone therapy is often applicable as first line therapy especially if there has been a long disease-free interval, hormone receptors are positive on either the primary or secondary tumour specimen, bone or soft tissue metastases are present and there has been a prior response to hormones.
- Chemotherapy is frequently used if none of the above factors apply but it will be more toxic than hormone therapy.

Clinical Comment

The diagnosis of recurrent disease is a significant part of the work of a surgeon with an interest in breast cancer. Once the diagnosis has been made, an oncologist should be centrally involved. Management is generally dependent on the site of the disease. It is important that all concerned recognise that metastatic disease is incurable and expectations for the results of treatment are realistic. The woman often benefits from the ongoing support of the surgeon even when management is no longer primarily surgical.

Recommendations

A multidisciplinary approach to management for the woman with recurrent breast cancer is very important in maximising quality of life. (Level C)

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APPENDIX

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