Survival after local treatment for early breast cancer

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Summary

A 10-year survival rate of 82% was found in 517 women with early localized breast cancer (pathological stage $T_1$-$N_0$-$M_0$) who had been treated with local therapy alone (total mastectomy and axillary clearance). Factors influencing survival were tumour size ($T_1$ versus $T_2$) and age; patients older than 50 years fared better than younger patients at 5 years but this advantage had disappeared at 10 years. Receptor status influenced disease-free survival, but not survival. Recurrence developed in 93 patients — systemic in 46 and local in 47. Support for the contention that all breast cancer is systemic was thus not found at 10 years, and the value of local therapy alone in node-negative women was endorsed.

A contemporary view is that breast cancer is almost invariably a systemic disease from the time of diagnosis.\textsuperscript{1-3} This view draws in part from various longitudinal studies, which have recorded progressive metastatic recurrence after treatment for 'early' breast cancer.\textsuperscript{4,5} It is a view which has also played a major part in providing the rationale for immediate systemic therapy. It was with this in mind that we felt it was important that the outcome be examined in women with early breast cancer who had been treated by local therapy alone (mastectomy and axillary clearance). We also believed it important to examine the performance of mastectomy and axillary clearance, as the current view — with which we agree — is that certain early lesions may be treated with excision and radiotherapy. This latter treatment is certainly less mutilating, but the survival rate will have to be compared with the standard of total mastectomy without radiotherapy.

Patients and methods

All the clinical records of patients with early breast cancer (pathological staging $T_1$-$N_0$-$M_0$; Manchester stage I) who presented to the Groote Schuur Hospital Breast Unit over the 10-year period 1974-1983 were reviewed. Patients who were referred after treatment elsewhere and patients who, for various reasons, did not undergo resection were excluded from the study. All patients were staged according to the International TNM staging system.\textsuperscript{6} Total mastectomy with retention of the pectoralis major muscle and axillary node clearance was performed in all cases. Oestrogen and progesterone receptor analysis was undertaken from 1979 according to the dextran-coated charcoal method.\textsuperscript{7} Follow-up was on a prospective basis at the Groote Schuur Hospital Breast Clinic or by the patient's general practitioner or surgeon, and was complete in all instances. Survival statistics were computed by standard life-table methods and significance calculated by the chi-square method at 5 and 10 years. Recurrence was recorded as local, nodal or systemic.

Results

Frequency distribution, age and receptor status

This study was based on 517 patients with early node-negative breast cancer who had undergone resection. Of these, 189 were staged as $T_1$ (lesions 2 cm or less) and 328 as $T_2$ (lesions 2-5 cm). Excluded from the study were 4 male patients, 22 female patients who had not undergone resection and a further 21 patients who had been treated with segmental mastectomy and radiotherapy. During the period of study 2129 patients at all stages of disease were referred to the Breast Unit; the frequency distribution of $T_1$ lesions was therefore 8.9% and of $T_2$ lesions 15.4%.
The age distribution of patients with T1 and T2 lesions was essentially similar and is represented together in Fig. 1; 15% of patients were under 40 years and 2% under 30 years, and the majority presented in their fourth to sixth decades. Tissue receptors were analysed in 262 patients: 86 were oestrogen receptor-positive (ER+) and progesterone receptor-positive (PR+), 61 patients were ER+ but PR-, 5 were ER- but PR+, and 110 were both ER- and PR-.

**TABLE I. COMPARISON OF SURVIVAL CURVES AT 5 AND 10 YEARS BY AGE (< 49 v. > 50 YEARS), SIZE (T1 v. T2) AND RECEPTOR STATUS (R+ v. R-)**

<table>
<thead>
<tr>
<th>Age</th>
<th>Survival (χ², df, P)</th>
<th>Disease-free survival (χ², df, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 years</td>
<td>15,734 &lt; 0.01</td>
<td>41,384 4 &lt; 0.01</td>
</tr>
<tr>
<td>10 years</td>
<td>16,722 9 None</td>
<td>42,269 9 &lt; 0.01</td>
</tr>
<tr>
<td><strong>Receptor status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 years</td>
<td>16,34 &lt; 0.01</td>
<td>43,384 4 &lt; 0.01</td>
</tr>
<tr>
<td>10 years</td>
<td>17,19 &lt; 0.05</td>
<td>44,479 9 &lt; 0.01</td>
</tr>
</tbody>
</table>

**Discussion**

It was most heartening to find a 10-year survival rate of 82% in our patients with early node-negative breast cancer who had been treated by local therapy alone. We are very conscious of the fact that our survival rates were calculated by the life-table method, and that in time our actual survival rate may be less than we report it now. Nevertheless, this survival rate is similar to the experience of others who have treated stage I disease with radical mastectomy, or simple mastectomy.

The view that almost all cases of breast cancer are systemic at the time of diagnosis was thus not upheld, at least as we calculate it at 10 years, and we are happy to provide our patients with a favourable outlook. The view that breast cancer is almost invariably systemic is drawn largely from a prolonged 30-year follow-up of women in the Cambridge area after mastectomy; in this series 159 of the women were classified as stage I and at 5 and 10 years the survival rates were 74.2% and 50.2% respectively. These survival rates are considerably worse than ours and we can only presume that staging between 1947 and 1950 was less diligent than at the present time. All major mortality took place within 10 years and thereafter excess mortality was far less marked. A similar longitudinal study in Edinburgh showed flattening of mortality rates after 10 years. That recurrence may occur after 10 years is not debated; that it occurs at a markedly lower rate than within 10 years is encouraging for patients.

Unfortunately, only 24% of our patients had disease confined to the breast (T1, N0, M0). This proportion is far lower than that seen at other major clinics where a third or more women may present with early breast cancer. It is probable that lack of screening programmes in Cape Town and certain cultural restraints may have contributed to this.

The influence of age on survival in breast cancer is a controversial issue. The traditional view is that the young fare better than the older patients in terms of survival (P < 0.01) and DFS (P < 0.01). The survival difference had, however, disappeared at 10 years.

Survival and DFS were compared between 189 patients with T1 lesions and 328 with T2 lesions: the 5-year survival rate for T1 lesions was 96% and for T2 lesions 84%, which was statistically significant (P < 0.01); 10-year survival rates were 89% and 78%, a difference which was less statistically significant (P < 0.05). DFS was significantly different at 5 years (86% versus 76%; P < 0.01) and at 10 years (79% versus 70%; P < 0.01).

There were 86 patients who were ER+ and PR+ and these were grouped as receptor-positive (R+) patients and compared with 110 patients who were ER- and PR- (R-). Comparison beyond 5 years was not possible as the assay only started in 1979. The 5-year survival rates were not significantly different but the DFS rates were statistically superior in the R+ group when compared with the R- group.

**Fig. 2. Survival and DFS rates.**

**Sites of local recurrence**

Recurrent disease developed in 93 patients (18%); in 46 patients (9%) this was metastatic, in 32 (6%) local recurrence at the site of resection and in 15 (3%) recurrence in the ipsilateral nodal drainage area. The sites of nodal recurrence were the internal mammary nodes in 1 patient, the axilla in 5 (all of whom had axillary sampling rather than clearance) and the supraclavicular fossa in 9.
worse than the old; 14,15 more recently, however, more careful evaluation has shown the reverse to be true, 16 the explanation currently favoured being that the old are less well equipped (immunologically and in other ways) to deal with malignant disease and its treatment. In this study age had no influence either way on survival at 10 years, a finding similar to a recent report. 17

The adverse influence of tumour size on survival is both logical and supported by clinical observation. 18,19 The 10-year survival rate for the T1 lesions in this study was 89% and for T2 lesions 78% which is also similar to that of others. 20

The favourable influence of receptor positivity is well known, 21,22 and was supported by this study, although assays were only conducted over the last 5 years.

Various histological criteria (cytological differentiation, lymphatic invasion, blood vessel invasion, invasion of surrounding soft tissue) have been shown to influence prognosis; 23,24 indeed, when these characteristics were absent in T1-T2 disease, the 10-year survival rate was 100%, which contrasted with a rate of 56% when all criteria were present. 25 The histological material from this study has unfortunately not been reviewed, but it is suspected that the findings would be similar.

Operations less major than mastectomy (segmentectomy or lumpectomy), with irradiation, have recently gained popularity. 26 This study can neither support nor detract from these new approaches. We do, however, provide a standard against which the newer operations can be measured in terms of survival. If, in the long term, the survival rates for mastectomy and operations less drastic than mastectomy are equivalent, then the latter are clearly preferable; if the newer approaches have an inferior survival rate they will have to be seriously reconsidered.

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REFERENCES

News and Comment/Nuus en Kommentaar

Ethics in a Communist setting

Problems in medical ethics appear to be the same the world over, regardless of the political system. Just how true this is is exemplified by a series of articles in the Zeitschrift für die gesamte innere Medizin und ihre Grenzgebiete (Leipzig), the first instalment of which deals with problems of terminal illness. The Association of Physicians of the German Democratic Republic (East Germany) has recently appointed a committee on ethics to discuss outstanding problems. In the first of the series (Z Gesamte Inn Med 1984; 39: 553) various thoughts on the care of the dying are put together. Much of what is written could be applied without change to South Africa.

An article by G. Steinbach and K.-J. Ruhnau points out that modern civilization has created new forms of human contact. Family life has suffered as a result of disintegration of families, the need for women to work as well as their husbands, shift work, and so on. This has had an impact on the care of the dying, who can no longer obtain the warmth and loving care they formerly received in the family. At present, one-third of all those in East Germany who die at home, die without the presence of their relatives. It is therefore more necessary than ever that the doctor should understand how to help and care for these people. However, experience shows that medical students are not being given the instruction necessary to cope with these situations, although the doctor ought to be able to set an example to relatives and others in caring for terminal patients.

Other articles by Helmut Meister on the difficult question of how to break the bad news to terminal patients, and by K.-J. Ruhnau and G. Steinbach on the goals of medical care in a hospital for the terminally ill also express points of view that would be entirely acceptable to most of us. It is encouraging to find that, regardless of political polarizations, the medical profession the world over can still find common ground in respect of the ethical aspects of the provision of medical care.