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Mammographic prediction of early breast cancer survival

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Introduction

Long-term survival amongst women with small (<15 mm) invasive breast cancer is usually extremely high, regardless of other tumour prognostic characteristics such as grade. However, for a small subset of these women, survival may be poor, with death occurring surprisingly swiftly. If these women could be identified at diagnosis, more aggressive therapy could be targeted at this subset whilst avoiding unnecessary treatment of those at low risk.

Aims

To identify, amongst women with small breast cancers, a population at high risk of early death.

Comments

This paper introduces a very simple and cheap means for improving disease outcome and increasing cost efficiency. A small but significant minority will benefit enormously if these findings are reproducible and applicable in the clinical setting.

Methods

Invasive breast cancers measuring less than 15 mm and diagnosed between 1977 and 1986 in Koppaberg county, Sweden, as part of the Swedish two-county study, were analysed.

Tumour pathology details (size, grade, node status, tumour type) were collected. Women were followed up until 1998 (median 16 years of follow-up, range 12-21 years), and cause of death was established where relevant. Mammograms were prospectively classified into four groups:

- 1: stellate mass without calcifications
- 2: circular/oval lesion without calcifications
- 3: spiculated/circular/oval lesion with non-casting-type calcifications
- 4: casting-type calcifications.

Mammographic findings were investigated according to node status and grade. Survival was estimated using the Kaplan Meier method, and survival estimates were compared by proportional hazards regression.

Results

Of 1053 tumours arising in the study, 346 were invasive and smaller than 15 mm, and mammograms were available for 343 cases. Amongst women with these small tumours, neither lymph node status nor grade were reliable predictors of death. However, in all size groups studied (1-9 mm, 10-14 mm, 1-14 mm), casting-type calcifications were associated with significantly greater risk of early death. For all tumours measuring <15 mm, relative hazard of death from breast cancer was nearly six times greater for tumours with casting-type calcification than for those appearing as circular masses without calcifications (relative risk, CI95% = 5.85 [2.30, 14.86]). Overall, 20-year survival was 87% but, for women with casting-type calcifications, survival was only 55%. Casting-type calcifications were more frequently associated with high grade tumours than were other mammographic features.

Discussion

Casting-type calcifications gave a more reliable prediction of outcome for small tumours than did either grade or node status. Such calcifications were present in 10% of tumours measuring <15 mm. In terms of prognosis, tumours with casting type calcifications behave as though they were larger. This has major implications for diagnosis and therapy. Women at high risk of early death require aggressive treatment, but this is unnecessary in the 90% at low risk. Magnification images of casting-type calcifications enable complete lesion excision with clear margins. This system for mammographic classification is simple, reproducible and incurs no extra cost. Clinical trials should be undertaken to assess the benefit of systemic adjuvant chemotherapy in women showing this type of calcification.

References

1. Tabar L, Chen H-H, Duffy SW, Yen MF, Chiang CF, Dean PB, Smith RA: A novel method for prediction of long-term outcome of women with T1a, T1b, and 10-14mm invasive breast cancers: a prospective study. *Lancet*. 2000, 355: 429-433.