

Editorial Comment

Is there a future in psychosocial predictive factors in breast cancer?

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The potential role of psychosocial factors in cancer survival has fascinated clinicians and researchers for several decades. Unfortunately it is an area that has generated a limited number of quality empirical investigations and inconclusive reviews [1–4]. In this issue of the *European Journal of Cancer* a substantial piece of epidemiological work from this field is presented. The study is a simple 10 year follow-up of a 578 women diagnosed with early breast cancer (stage I and II) aged 18–75 years consecutively recruited from a single centre. At baseline, information was collected on mental adjustment to cancer, anxiety and depression, in addition to standard biological determinants of survival.

The study presents new data showing that a high helplessness/hopelessness (HH) response reported at diagnosis was associated with decreased likelihood of disease free survival. At baseline, 91 (16%) of the patients had high HH and 49 (53.8%) of these had a recurrence or died by 10 years compared with 39.9% of those with low HH. The adjusted hazards ratio (HR) for disease free survival at 10 years is 1.53 [1.11–2.11], $P = 0.009$. This is a sizable effect, although only about one sixth of the women in this sample had low HH at baseline.

Through application of criteria for meaningfulness based on statistical significance, the authors dismiss a finding which may well be the most interesting outcome of their endeavours [5]. A baseline depression score of >11 on the Hospital Anxiety and Depression scale (*i.e.*, high probability of psychological morbidity) was associated with a HR for death between 0.97 and 6.10 (*i.e.*, 95% CI), while the point estimate was 2.43 and the P -value was greater than 0.05. This finding may indeed be the most important. The wide and probably

unstable confidence intervals are a result of small numbers of subjects in the high depression categories. The survival rate of those with low/normal depression scores was 62% compared with 50% with highest depression. High depression was rather infrequent as there were only 10 (1.7%) cases across the sample, although the research setting may mitigate against accurate case ascertainment through non-participation, patients reporting socially desirable answers and possibly a Hawthorne effect. Several general issues are important regarding depression: an upper HR of around 6 is very high, depression is a relatively easy clinical state to categorise, and effective treatments exist. The frequency of depression in women with breast cancer from a large population-based cancer registry study suggests the prevalence maybe higher than the present study: up to 6% in some age groups [6]. Depression may therefore be a more relevant target for further research in this area.

Some insight into the potential roles of psychosocial factors as modifiable risk factors can be gauged from several randomised controlled trials (RCTs) on the effects of psychosocial interventions on survival from breast cancer. These studies have been subjected to several narrative reviews and meta-analyses [3,7]. In the most recent, four studies are described where follow-up ranged from 5 to 10 years and the interventions ranged from cognitive behavioural to emotional expression techniques. The total number of patients across these studies was approximately 500 women. Overall, for breast cancer, no treatment effect was apparent [7]. This result was supported by a more recent larger Australian trial with 303 patients [8]. The present epidemiological study suggests that the prevalence of potentially 'pathological' psychosocial states is quite low, therefore it is likely that the RCTs have been greatly under powered to identify what would be small overall benefits from psychosocial interventions.

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The current data on the association between psychosocial factors and breast cancer survival do not provide clear guidance for clinical practice or public health policy. For psychosocial oncology and survival research to achieve credibility, the relative contribution of each known and putative predictor of survival needs to be presented. While it is essential that survival analyses using psychosocial variables be 'adjusted' through inclusion of known biological predictors in statistical models, the relative strength should be reported. For example, clinicians and policy makers would value information on whether a specific psychosocial response to the diagnosis confers a greater, equivalent or lower risk of death when compared with tumour grade, size of tumour or lymph node involvement. Recent analytical methods such as artificial neural networks and decision trees, as well as established techniques such as logistic regression, enable quantification of the relative importance of risk factors [9–11]. It is interesting to note that the newer techniques are able to predict early breast cancer survival with surprising accuracy of 0.8–0.9 [10,11], which might leave little room for improvement with the addition of a range of psychosocial factors into prediction models.

Advancement of this area requires survival studies with the collection of a wider range of potentially modifiable putative psychosocial risk factors and larger sample sizes, preferably population-based with case ascertainment through cancer registries. The ultimate clarification of the role of psychosocial factors might come through large effectiveness RCTs, however execution of these studies in this setting is problematic. Large sample sizes are required because small effects are expected, particularly with high and increasing survival rates (>80% survival over 5 years). Blinding of participants and researchers is not feasible, and the attribution of causality in RCTs of psychosocial interventions is not straightforward given potential dynamic relationships between variables and multiple contributing factors [12].

Two key issues remain: (a) what advice should be given to patients regarding psychosocial approaches to improve survival, and (b) the value of psychosocial interventions. Current data indicate that specific psychosocial responses are unlikely to have a substantial effect on survival, but psychosocial interventions, at a mini-

mum, are likely to improve quality of life. This latter point is most relevant as the processes of diagnosis, treatment and adjustment to living a life of uncertainty are undoubtedly traumatic for most women. Directing healthcare resources towards the psychosocial care of patients seems prudent; however current evidence suggests that patients' psychological approaches to the illness are unlikely to have substantial effects on survival.

Conflict of interest statement

None declared.

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