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Depression and anxiety in women with early breast cancer: five year observational cohort study

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Abstract

Objective To examine the prevalence of, and risk factors for, depression and anxiety in women with early breast cancer in the five years after diagnosis.

Design Observational cohort study.

Setting NHS breast clinic, London.

Participants 222 women with early breast cancer: 170 (77%) provided complete interview data up to either five years after diagnosis or recurrence.

Main outcome measures Prevalence of clinically important depression and anxiety (structured psychiatric interview with standardised diagnostic criteria) and clinical and patient risk factors, including stressful life experiences (Bedford College life events and difficulties schedule).

Results Nearly 50% of the women with early breast cancer had depression, anxiety, or both in the year after diagnosis, 25% in the second, third, and fourth years, and 15% in the fifth year. Point prevalence was 33% at diagnosis, falling to 15% after one year. 45% of those with recurrence experienced depression, anxiety, or both within three months of the diagnosis. Previous psychological treatment predicted depression, anxiety, or both in the period around diagnosis (one month before diagnosis to four months after diagnosis). Longer term depression and anxiety were associated with previous psychological treatment, lack of an intimate confiding relationship, younger age, and severely stressful non-cancer life experiences. Clinical factors were not associated with depression and anxiety at any time. Lack of intimate confiding support also predicted more protracted episodes of depression and anxiety.

Conclusion Increased levels of depression and anxiety in the first year after a diagnosis of early breast cancer highlight the need for dedicated service provision during this time. Psychological interventions for women with breast cancer who remain disease free should take account of the

broader social context in which the cancer occurs, with a focus on improving social support.

Introduction

Earlier diagnosis of breast cancer in women and the use of systemic adjuvant therapy have increased the likelihood of long term, disease free survival. Although the psychological effect of diagnosis and treatment is well documented, less is known about the prevalence of, and risk factors for, clinically important depression, anxiety, or both after the first year. A better understanding of this among women in long term remission from breast cancer would tell us who might benefit from a psychological intervention, and inform service provision.

We assessed the prevalence of clinically important depression and anxiety in women with breast cancer in the five years after diagnosis using a clinical interview, and identified risk factors over that time. We also examined the prevalence of, and risk factors for, depression and anxiety around recurrence.

Participants and methods

A consecutive series of 222 women, aged 60 years or younger, with a diagnosis of early breast cancer at Guy's Hospital were invited to participate in our study between May 1991 and July 1994. Exclusion criteria included previous or concomitant malignancy, pregnancy, and age over 60. The women were treated surgically by lumpectomy, axillary clearance, and radiotherapy or by modified radical mastectomy followed by adjuvant therapy.



Diagnostic criteria for depression and anxiety are on bmj.com



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We recruited women about eight weeks after diagnosis. Audiotaped interviews were held five months after diagnosis and then every 18 months up to five years. Women who had a recurrence had a final interview about eight weeks after diagnosis.

Instruments

We elicited psychiatric symptoms using a shortened version of the structured clinical interview (SCID),¹ focusing on depression and anxiety. At the five month interview we collected data on depression and anxiety for the period one month before diagnosis to five months after diagnosis. Data on depression and anxiety were also collected at 21, 39, and 60 months for the period between interviews. Using standardised diagnostic criteria we classified the women as full case, borderline case, or non-case for anxiety, depression, or both (see bmj.com). We calculated the point prevalence as the percentage of women with depression, anxiety, or both in the month before a given time point. The annual period prevalence was the percentage of women who had at least one episode of depression, anxiety, or both over a one year period.

Severely stressful non-cancer related life experiences were assessed using the Bedford College life events and difficulties schedule.² At the five month interview we collected data for severely stressful life experiences for the period one month before diagnosis to five months after diagnosis. Data on severely stressful life experiences were also collected at 21, 39, and 60 months for the intervening period.

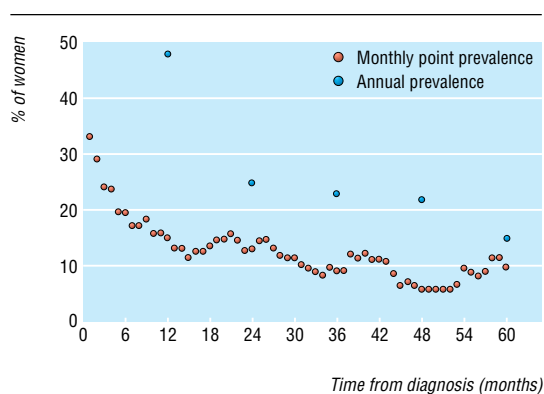
We classified an intimate confiding relationship as one with a cohabiting partner (with or without sexual intimacy). Previous psychological treatment was defined as any psychological treatment from a general practitioner or hospital.

Statistical analysis

We assessed potential risk factors for three periods: around diagnosis (one month before diagnosis to four months after diagnosis), medium term (four months to two years after diagnosis), and longer term (two years to five years after diagnosis).

The effect of a severely stressful life experience on a patient was taken to last six months. If more than one severe life event was experienced simultaneously, this was taken to be present from the earliest start date to the latest finish date.

Patients were classified into two groups for the phase around diagnosis: those who had depression, anxiety, or both during this period and those who did not. We used a logistic regression model to investigate



Prevalence of episodes of depression, anxiety, or both in women with diagnosis of early breast cancer

potential risk factors for depression and anxiety. As depression and anxiety varied over time for the medium and longer term periods, we investigated potential risk factors using Cox's proportional hazards model. We assessed risk factors associated with longer episodes of depression, anxiety, or both (≥ 90 days) occurring at any time during the study. For patients who had a recurrence, we looked at predictors of depression and anxiety after recurrence. See bmj.com for full details of statistical analysis.

Results

Overall, 91% (202 of 222) of eligible women completed the first interview. After exclusions, 77% (170 of the original 222) provided complete interview data either up to five years after diagnosis or to recurrence. Recurrence was confirmed in 39 women. See bmj.com for details and table showing baseline personal and clinical characteristics.

Point prevalence of depression and anxiety was 33% at diagnosis and 24% at three months after diagnosis, dropping to 15% at one year (figure). The annual prevalences for the first to fifth years after diagnosis were 48%, 25%, 23%, 22%, and 15%, respectively.

The table shows risk factors for depression, anxiety, or both for the three time periods. Treatment and prognostic factors, comprising number of axillary lymph nodes involved, tumour size and histology, and type of adjuvant treatment, were not associated with depression, anxiety, or both at any time.

Overall, 81 (40%) women reported an episode of depression, anxiety, or both lasting at least 90 days, 41

Risk factors for depression, anxiety, or both in phase around diagnosis and medium and longer term

Risk factors	Phase around diagnosis (-1 month to 4 months)		Medium term (4 months to 2 years)		Longer term (2 years to 5 years)	
	Odds ratio* (95% CI)	P value	Hazard ratio† (95% CI)	P value	Hazard ratio† (95% CI)	P value
Past psychological treatment	1.90‡ (0.99 to 3.66)	0.05	1.38‡ (1.10 to 1.74)	<0.01	—	—
Lack of intimate confiding relationship	1.67 (0.91 to 3.01)	0.10	1.38‡ (1.11 to 1.72)	<0.01	1.43‡ (1.11 to 1.86)	<0.01
Younger age§	0.98 (0.94 to 1.01)	0.18	0.98 (0.96 to 1.00)	0.10	0.96‡ (0.93 to 0.99)	<0.01
Severe life events	1.02 (0.51 to 2.04)	0.95	0.99 (0.73 to 1.35)	0.76	1.54 (0.81 to 1.47)	0.55
Severe difficulties	0.95 (0.49 to 1.83)	0.95	1.36‡ (1.05 to 1.76)	0.02	1.54‡ (1.14 to 2.09)	<0.01
Previous episode of depression or anxiety in study period	NA	NA	—	—	1.55‡ (1.17 to 2.06)	<0.01

NA=not available. Only variables indicating significance at univariate level ($P \leq 0.1$) were included in multivariate model.

*Logistic regression.

†Cox's proportional hazards model

‡Significant at 5% level.

§Odds ratio and hazards ratio for one year change in age.

(20%) an episode lasting fewer than 90 days, and 80 (40%) reported no episodes (131 of these 202 women were followed up for five years). Previous psychological treatment (odds ratio 2.90, 95% confidence interval 1.25 to 6.75) and lack of an intimate confiding relationship (2.34, 1.14 to 4.82) were significantly associated with longer episodes (>90 days) of depression, anxiety, or both rather than shorter (<90 days) ones.

Of the 39 patients who had a recurrence within five years of diagnosis, we had data for 33. Overall, 45% (95% confidence interval 28% to 64%) of women had an episode of depression, anxiety, or both in the three months after diagnosis of recurrence compared with 36% (30% to 43%) in the three months after initial diagnosis. We found no significant association between depression, anxiety, or both at recurrence and any of the risk factors included in the study. The duration between initial diagnosis and recurrence was not a risk factor.

Discussion

In women with early breast cancer, the prevalence of depression, anxiety, or both in the year after diagnosis is around twice that of the general female population. Thereafter, women in remission show similar levels of depression, anxiety, or both to the general female population, but those with recurrence of disease experience a sharp increase in levels. The risk factors for depression and anxiety are related to the patient rather than to the disease or treatment.

Our large cohort study is unique in that we used structured interviews and standardised diagnostic criteria to assess the point prevalence and period prevalence of clinically important depression and anxiety in women with early breast cancer in the five years after diagnosis. We also used a standardised interview method to examine the broader social context.

The point prevalence of depression and anxiety in the year after diagnosis was lower than reported in previous studies,^{3,4} including one carried out in the same unit as our study.⁵ This may be because of improvements in survival rates and better supportive care. The stigma associated with breast cancer may have decreased over time. Alternatively, the levels we report were based on different methods from those used in earlier research.⁶

Our findings, in line with other studies, show that factors related to the patient rather than to the disease or treatment increase the risk of clinically important depression and anxiety in women who remain free of breast cancer in the year after the disease is diagnosed.⁷⁻⁹ These risk factors include the main ones for depression and anxiety in the general female population.² Effective dissemination of information and the communication style of the surgeon seem to protect women against depression and anxiety;^{7,9,10} whereas offering women choice of surgical treatment does not.^{4,10} The risk is not affected by clinical factors, and adjuvant chemotherapy may increase the risk of depression and anxiety during but not after treatment. Detecting breast cancer through screening does not seem to increase the risk of depression and anxiety.^{11,12}

The increased levels of depression and anxiety around recurrence of breast cancer highlight the

What is already known on this topic

More women are surviving breast cancer because of early detection and improved treatment

Around twice as many of these women than the general female population have clinically important depression, anxiety, or both in the year after diagnosis

Less is known about the prevalence of, and risk factors for, clinically important depression and anxiety beyond the year after diagnosis

What this study adds

After the first year following a diagnosis of breast cancer, women in remission have levels of depression and anxiety that are comparable with those of the general female population

The risk factors for depression and anxiety in the five years after diagnosis are related to the patient rather than to the disease or its treatment

Psychological interventions for women with breast cancer should take account of the broader social context in which the cancer occurs, focusing on improved social support

adverse effect of this event on women's mental health. Much less is known about the psychological problems experienced by women with advanced breast cancer. The lack of risk factors for depression and anxiety at recurrence suggests that the adverse psychological consequences are relatively independent of an individual's own vulnerability factors. These findings should be interpreted with caution, however, because of the small sample sizes.

We examined clinically important anxiety and depression, but this is only one dimension of the psychological consequence of survival after breast cancer is diagnosed. The absence of problems from anxiety and depression after the first year of diagnosis does not imply the absence of other psychological difficulties for women in remission from breast cancer. These include more subtle and existential concerns about loss of hope and certainty about the future.

Our findings are relevant to the implementation of guidance for improving supportive and palliative care services for adults with cancer.¹³ Psychological services are needed especially in the year after diagnosis of breast cancer and around recurrence. Women who are free of the disease but who are at risk of developing depression and anxiety are likely to benefit from psychological interventions that take account of the broader social context in which cancer occurs.

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Insulin resistance and depressive symptoms in middle aged men: findings from the Caerphilly prospective cohort study

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Insulin resistance may protect against depression, possibly through an effect on circulating free fatty acid concentrations and brain serotonin concentration,^{1,2} although a recent study contradicted these findings.³ Studies to date have either used indirect measures of insulin resistance,¹ or they have been cross sectional.^{2,3} We assessed the association of insulin resistance with depressive symptoms in a prospective cohort.

Participants, methods, and results

The Caerphilly cohort study has been described in detail before.⁴ In phase I (1979-83), 2512 (89% of eligible) men aged 45-59 years from Caerphilly in Wales provided fasting blood samples. Insulin resistance (homoeostasis model assessment (HOMA) score) was derived from fasting insulin and glucose.⁵ HOMA scores were not calculated for men with diabetes or high fasting glucose (≥ 7.0 mmol/l).

In phases II (1984-88), III (1989-93), and IV (1993-7), depressive symptoms were measured by the 30 item general household questionnaire (GHQ). This was validated at phase II in a subgroup (n=97) by comparison with a clinical interview schedule given by a psychiatrist blinded to the GHQ score.⁴ Based on receiver operating characteristics, we defined men scoring five or above as having mild to moderate psychological distress.⁴

At phase I, 2203 (88%) of the men had assessment of insulin resistance or diabetes status. Of the surviving men, the numbers with GHQ data at phases II, III, and IV were 1619/2025 (80%), 1236/1845 (67%), and 1088/1675 (65%).

Insulin resistance and high GHQ score were not associated at any phase of follow up (table). Diabetes at baseline was associated with a tendency to reduced odds of high GHQ at follow up, but, owing to small

numbers, these estimates are imprecise. Additional adjustment for smoking, physical activity, alcohol consumption, and adult and childhood social class did not substantively alter any of the findings.

Insulin resistance and GHQ scores were not associated in linear regression models with GHQ as a continuous outcome (all P values > 0.2). When fasting insulin was used there was no evidence of an association with GHQ. In cross sectional analyses (exposures and outcomes measured at phase II) there was no association between any HOMA scores, fasting insulin, or diabetes and GHQ score. We also found no associations between body mass index, systolic blood pressure, high density lipoprotein cholesterol, or (logged) triglyceride concentration and GHQ in either prospective or cross sectional analyses (all P values > 0.3).

Comment

Insulin resistance was not associated with reduced depressive symptoms in a prospective study of middle aged men. This contradicts our earlier findings in a cross sectional study of older women, in which there was an inverse association with both clinically diagnosed depression and use of antidepressant drugs,² and the findings of a second cross sectional study which found a positive association between insulin resistance and depression assessed using the Beck's depression inventory.³ These contradictory findings may be due to the cross sectional nature of the earlier studies. A large prospective study, in which reverse causality would be unlikely, found that indicators of insulin sensitivity were associated with suicide risk.¹ Taken together these findings indicate that insulin resistance may protect against only severe depression.

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