PERGAMON

European Journal of Cancer 38 (2002) 1622–1625

European Journal of Cancer

www.ejconline.com

Does the method of detection of breast cancer affect subsequent psychiatric morbidity?

C.C. Burgess*, A.J. Ramirez, M.A. Richards, H.W.W. Potts

Cancer Research UK London Psychosocial Oncology Group, Guy's King's & St Thomas' School of Medicine, 3rd Floor, South Wing, Adamson Centre for Mental Health, St Thomas' Hospital, London SE1 7EH, UK

Received 12 July 2001; received in revised form 10 January 2002; accepted 12 April 2002

Abstract

The aim of this prospective study was to compare the prevalence of psychiatric morbidity following diagnosis of breast cancer between a group of women presenting with screen-detected cancer and a group presenting with symptomatic disease. Psychiatric symptoms were elicited using the Structured Clinical Interview (SCID) and classified according to DSM-III criteria. 61 (46%) of 132 women interviewed experienced an episode of psychiatric disorder between 1 month before diagnosis and 12 months post-diagnosis. There was no association between detection by screening of breast cancer and psychiatric disorder (Odds Ratio (OR) 0.8, 95% Confidence Interval (CI) 0.4–1.8 $P=0.7$). The occurrence of an episode of psychiatric disorder was associated with a previous history of treatment for psychological problems (OR 2.4, 95% CI 1.1–5.5, $P=0.02$). The results suggest there is no increased risk of developing psychiatric morbidity associated with the detection of cancer through the National Breast Screening Programme.

Keywords: Symptomatic; Screen-detected; Breast cancer; Psychiatric morbidity

1. Introduction

An estimated 25% of women with breast cancer will experience psychiatric morbidity at any one time in the year following diagnosis of the disease [1]. A larger proportion, closer to 50%, may experience psychiatric problems over the year, with the maximum distress evident around the time of diagnosis [2]. This includes depressive illnesses and anxiety states, as well as borderline mood disorders. Some risk factors associated with psychiatric disorder in early breast cancer have been identified including younger age, previous psychiatric history and lack of social support [2,3].

The possibility that screen-detected breast cancer might be associated with increased risk of psychiatric morbidity following diagnosis has been raised as a possible 'cost' of screening [4,5]. Most of the literature, however, has concentrated on the psychiatric cost of screening to women who have no abnormality detected [6] or to those with false-positive/-negative results [7–9].

It might be assumed that a woman's awareness of the potential gain in survival from a screen-detected breast cancer would protect against the likelihood of developing psychological problems. It is equally possible, however, that the impact of an unexpected diagnosis of cancer might be greater in the screen-detected population. Women with symptomatic disease are more likely to have considered the possibility of cancer, and have more control over the process of its discovery, making it easier to assimilate the news of the diagnosis. An early report of a small case–control study and another, prospective study conducted shortly after the establishment of the National Breast Screening Programme found no differences between a screened and a symptomatic group of women with breast cancer [10,11]. It was concluded that further research was warranted to confirm these findings.

The aim of this prospective study was to compare the prevalence of psychiatric disorder in the 12 months following diagnosis of breast cancer between a group of women presenting with screen-detected breast cancer and a group presenting with symptoms.

* Corresponding author. Tel.: +44-20-7960-5734; fax: +44-20-7960-5719.

E-mail address: caroline.burgess@kcl.ac.uk (C.C. Burgess).

0959-8049/02/$ - see front matter
PII: S0959-8049(02)00132-6

2. Patients and methods

The patients eligible for this study were from a consecutive series of 157 women aged between 50 and 65 years presenting between May 1991 and July 1995 to the Breast Unit at Guy's Hospital in whom a diagnosis of invasive breast cancer had been made. The women were those eligible for breast screening from a larger, prospective cohort being studied in relation to a number of psychosocial parameters. For those under the age of 60 years, patients with any stage breast cancer were included, while those $\geqslant 60$ years with stage III/IV were matched with 2 patients with stage I/II disease. A case–control approach was adopted with patients over 60 years as there were insufficient resources to recruit consecutively all the patients >60 years presenting with early breast cancer.

A simplified staging classification was used for this study. Patients were classified as having either operable disease, locally advanced inoperable or metastatic disease at the time of diagnosis. The operable category was further subdivided according to tumour size, using a cut-off of 4 cm, as this is taken as the upper limit for breast-conserving surgery.

Each woman was recruited to the study approximately 8 weeks after diagnosis by a research psychologist. Sociodemographic data were gathered, as well as consent to future interviews. Psychiatric interviews were conducted at 5 months post-diagnosis to gather data on psychiatric morbidity from 1 month prior to diagnosis up to the time of this interview. A further interview was conducted 18 months after the diagnosis to gather data on psychiatric morbidity occurring between 5 and 18 months.

Psychiatric symptoms were elicited using the Structured Clinical Interview (SCID) [12] and patients were classified as full case, borderline or non-case for anxiety or depression. A full case corresponds to a level of severity of psychiatric disorder that would be likely to be seen in a psychiatric outpatient clinic. DSM-III R criteria were used to classify major depressive episodes and/or cases i.e. at least five DSM (Diagnostic and Statistical Manual of Mental Disorder)-III R symptoms over 2 weeks, at least one of which is either depressed mood or loss of interest. Borderline cases of depression included those with at least three symptoms of which one was either depressed mood or loss of interest. DSM-III R criteria for Generalised Anxiety Disorder were used to classify full cases of anxiety, i.e. unrealistic or excessive anxiety or worries about two or more life circumstances for >6 months with >6 associated symptoms of motor tension, autonomic hyperactivity and vigilance and scanning. Borderline cases of anxiety included those with either unrealistic or excessive anxiety about two or more life circumstances or a period of 2 weeks to 6 months with >6 associated symptoms or unrealistic or excessive anxiety about two or more life circumstances for a period of >6 months with >3 associated symptoms. Panic disorder and agoraphobia (occurring in the absence of panic disorder) were also measured according to DSM criteria and included in the analysis as cases of anxiety. Full case panic disorder was defined as four or more panic attacks occurring in a 1-month period or one to three attacks followed by a period of at least 1 month of persistent fear of having another attack. At least four associated autonomic symptoms such as dyspnoea or tachycardia must have been experienced during at least one of these attacks. Borderline case panic disorder was recorded where only one to three autonomic symptoms accompanied such an attack. Agoraphobia (full case only) was rated in the absence of panic disorder and was defined as significant fear of being in places or situations from which escape might be difficult or embarrassing and which results in restriction of travel, the need for a companion when away from home or the endurance of agoraphobic situations despite intense anxiety. Interviews were tape-recorded with the patient's permission.

3. Statistical analysis

Associations between psychiatric morbidity and other variables were assessed using Fisher's Exact tests and multivariate logistic regression.

3.1. Interrater reliability

Interrater reliability was tested on a random sample of 10 interviews. Agreement for the presence of psychiatric symptoms was 92% ($\kappa = 0.74$) and 100% for the presence of an episode of mood disorder. There were two disagreements on the severity of mood disorder (case versus borderline).

4. Results

4.1. Cohort characteristics

Of the 157 patients who met the entry criteria for the study, one woman declined to participate. 93% (145/156) of patients recruited at 8 weeks following diagnosis consented to a psychiatric interview at 5 months post-diagnosis. 11 patients declined to be interviewed at 5 months. 41% (64/145) of the patients had presented via the National Breast Screening Programme. 91% (132/145) interviewed at 5 months were interviewed again at 18 months postdiagnosis and were included in this analysis. 5 declined to be interviewed at this time, 6 had moved away, 1 could not be interviewed because she was suffering from dementia and 1 had relapsed and

psychiatric data for the study period were incomplete. Other patients who had suffered a recurrence, or whose disease had progressed, were interviewed around the time of diagnosis of the recurrence and 6 months later and these data were included in the analysis.

The mean age of the women was 56 years. 39% (52/132) of the patients interviewed at both time-points had presented via the National Breast Screening Programme. 76% (100/132) were married or cohabiting, 19% (25/132) were divorced, separated or widowed and 5% (7/132) were single. 39% (51/132) of the women were classified social class I or II and 61% social class III–V. 62% (82/132) of the patients were classified as having a close intimate relationship with a partner, while 38% (50/132) had poor social support characterised by a lack of intimacy, less frequent contact or conflict.

The clinical pathological characteristics of the two groups are given in Table 1. The tumour size of those presenting via screening was significantly smaller than that of the group with symptomatic disease (1.97 cm versus 2.71 cm; degrees of freedom (df) = 130, t = 2.4, $P = 0.02$). There were no significant differences in terms of tumour stage (χ square = 0.21; $P = 0.6$) or any of the sociodemographic variables, including age, between the two groups.

4.2. Psychiatric morbidity

46% (61/132) of the women experienced an episode of depression or anxiety (full case or borderline) in the time period from 1 month before diagnosis to 12 months postdiagnosis. There was no significant difference in the prevalence of psychiatric disorders between the two groups. 46% (24/52) who came through screening experienced mood disorder as did the same proportion 37/80 (46%) of those with symptomatic disease ($P = 1.0$, Fisher's Exact test).

The occurrence of psychiatric morbidity was not associated with social class ($P = 0.2$) or marital status ($P = 0.5$) nor with tumour size ($P = 0.3$) or stage ($P = 0.4$). Psychiatric morbidity was not significantly associated with social support: 50% (25/50) of the women who lacked an intimate confiding relationship experienced an episode of psychiatric disorder compared with 44% (36/82) of those with a good relationship ($P = 0.3$, Fisher's Exact test).

Patients who reported that they had experienced any psychological problems in the past, which had been treated either by their general practitioner (GP) or as an outpatient or inpatient at hospital, were more likely to experience an episode of depression and anxiety in the 12 months following a diagnosis of breast cancer. 62% (24/39) of those with a psychiatric history experienced an episode compared with 40% (37/93) of those who reported no previous psychiatric history ($P = 0.01$, Fisher's Exact test).

Prior research suggests that past psychiatric history and social support are predictors of psychiatric morbidity. The independent effect of the mode of detection was therefore assessed in a multiple logistic regression which included these predictors, as well as tumour stage at diagnosis (Table 2). Controlling for these other variables, the effect of detection by screening was not significant (Odds Ratio (OR) 0.8, 95% Confidence Interval (CI) 0.4–1.8, $P = 0.7$). Only past psychiatric history predicted psychiatric morbidity independently of these other variables (OR 2.4, 95% CI 1.1–5.5, $P = 0.02$).

5. Discussion

There is no evidence from the data in this study of an increase in psychiatric morbidity following detection of cancer via the National Breast Screening Programme. The proportion of women who experienced an episode of depression or anxiety in the year following diagnosis was the same in the screen-detected and the sympto-

Table 1
Clinical-pathological data ($n = 132$)

	Screen-detected ($n = 52$)	Symptomatic ($n = 80$)
Mean age (years)	57 (range 50–64)	56 (50–63) (NS)
Mean t size (cm)	1.97	2.71 ($P = 0.02$)
Stage of disease		
Missing data	0	1
Stage I/II	51	75
Stage III/IV	1	4 (χ square = 0.21; $P = 0.6$)

NS, non-significant.

Table 2
Multivariate logistic regression analysis for predicting psychiatric morbidity

Variable	Logistic regression coefficient	Odds Ratio	*P* value	Confidence Interval for Odds Ratio
Screening	−0.13	0.8	0.7	0.4, 1.8
Past psychiatric history (treated as inpatient, out-patient or by GP)	0.92	2.4	0.02	1.1, 5.5
Stage III/IV	0.82	2.2	0.4	0.4, 14.4
Social support (lack of intimacy/ infrequent contact/ conflict)	0.19	1.2	0.6	0.6, 2.5
Constant	−1.46		0.2	

GP, general practitioner.

matic group. This finding should reassure those who fear that women whose cancers are screen-detected might suffer greater distress than those who are diagnosed with symptomatic disease. The results support those of an earlier study which used similar standardised psychiatric interviews to assess 295 patients with breast cancer [11]. The sample in that study was not, however, restricted only to women eligible for screening (50–65 years) and it is not clear what proportion of the non-screened group was under 50 years, a known risk factor for psychiatric morbidity in women diagnosed with breast cancer. Despite an attempt to control for age, this could, none the less, have introduced confounding between age and the mode of detection. Our findings also support those of another study which used a questionnaire measure (the Hospital Anxiety and Depression scale (HAD)) to measure psychiatric morbidity [10]. However, this study excluded women with a previous history of psychiatric illness which is a strong predictor of further episodes of depression and anxiety in women with breast cancer. These findings relate to asymptomatic women who attended breast screening. There is some evidence that women diagnosed with breast cancer having undergone mammography for *symptomatic* breast symptoms at 'one-stop' clinics may be at risk of higher levels of depression than those diagnosed conventionally, a finding which warrants further investigation [13]. Our study, however, adds to the findings from other research which indicate that breast cancer screening does not lead to an increased risk of developing psychiatric morbidity, as long as it is undertaken in well-run screening programmes [6–9].

These results confirm that, regardless of the mode of detection of the disease, a substantial proportion of women diagnosed with breast cancer (nearly half in this study) experience clinically significant episodes of depression and/or anxiety at some point during the year following diagnosis. Controlling for known risk factors, the data add to the body of evidence which suggests that the predictors of psychiatric morbidity are patient-related factors, rather than disease or treatment-related. In this study, a past history of treatment for psychological problems predicted psychiatric morbidity following diagnosis with breast cancer. Other studies support this finding and suggest that age under 50 years and a lack of social support are also important predictors [2,3]. Health professionals should be aware of these risk factors when they are assessing patients' psychosocial adjustment, as they may suggest the need for referral for psychological intervention.

Acknowledgements

We are grateful to the Cancer Research UK for funding this study, to Karen Pinder, Trudi Coyne and Jill Graham for undertaking some of the interviews, and to Professor Ian Fentiman whose patients participated in the study.

References

1. Ramirez A, Richards M, Jarrett S, Fentiman I. Can mood disorder in women with breast cancer be identified preoperatively? *Br J Cancer* 1995, **72**, 1509–1512.
2. Pinder K, Ramirez A, Richards M, Gregory W. Cognitive responses and psychiatric disorder in women with operable breast cancer. *Psycho-Oncology* 1994, **3**, 129–137.
3. Harrison J, Maguire P. Predictors of psychiatric morbidity in cancer patients. *Br J Psych* 1994, **165**, 593–598.
4. Wardle J, Pope R. The psychological costs of screening for cancer. *J Psychosom Res* 1992, **36**, 609–624.
5. Sutton S. *Experiences of Screening: Anxiety Issues*. UKCCCR/BSP Workshop on Breast Screening Acceptability. NHS Breast Screening Publication, Report No. 28. London, 1993.
6. Dean C, Robert M, French K, Robinson S. Psychiatric morbidity after screening for breast cancer. *J Epidemiol Community Health* 1986, **40**, 71–75.
7. Ellman R, Angeli N, Christians A, Moss S, Chamberlain H, Maguire P. Psychiatric morbidity associated with screening for breast cancer. *Br J Cancer* 1989, **60**, 781–784.
8. Lerman C, Trock B, Rimer B. Psychological side effects of breast cancer screening. *Health Psychol* 1991, **10**, 259–267.
9. Gilbert FJ, Cordiner CM, Affleck IR, Hood DB, Mathieson D, Walker LG. Breast screening: the psychological sequelae of false-positive recall in women with and without a family history of breast cancer. *Eur J Cancer* 1998, **34**, 2010–2014.
10. Farmer A, Payne S, Royle G. A comparative study of psychological morbidity in women with screen detected and symptomatic breast cancer. In Richardson A, Wilson-Barnett J, eds. *Nursing Research in Cancer Care*. London, Scutari Press, 1995, pp. 189–204.
11. Haddad P, Maguire P, Jones B. Does detection of breast cancer by screening affect subsequent psychiatric morbidity? *Breast* 1994, **3**, 218–221.
12. Spitzer R, Williams J, Gibbon M, First M. *Structured Clinical Interview for DSM III R-Patient edition* (SCID-P, version 1.0). Washington DC, American Psychiatric Press, 1990.
13. Harcourt D, Rumsey N, Ambler N. Same-day diagnosis of symptomatic breast problems: psychological impact and coping strategies. *Psychol Health Med* 1999, **4**, 57–71.