1000 screened we would expect to detect during prevalence screening.

We are concerned that most women attending these menopause clinics are in the same age group as those invited to attend screening. The mean age of referrals from GPs was 50 years. The consequence of this is that double screening may take place, or that this 'preliminary screen' may give the women a false sense of security. This may make them less likely to attend routine screening. Current evidence indicates no definite increased risk of breast cancer with H.R.T. [4] and our results show that the group of women presenting for H.R.T. do not yield a higher incidence of breast cancer than the general population. H.R.T. does not appear to influence the outcome of breast cancer.

In Camberwell, the number of women attending mammographic screening to detect breast cancer is less than the 70% compliance projected in the Forrest Report. The purpose of this review is not primarily to address this problem, but we believe that if women, aged 50–64 years, attending menopause clinics were encouraged to enter screening programmes as recommended, attendance would improve. We are aware of the pressures and demands made upon GPs to request mammography, but we also believe that if patients with symptoms of pain and nodularity between the ages of 50–64 years were also encouraged to enter the screening programme, attendance figures would improve still further. However, it must be conceded that the 723 extra mammograms performed after initiation of screening requested from GPs and from the menopause clinic, is small compared to the total number of women invited for screening. Every effort must be made to improve overall attendance. However, for many reasons, such as anxiety, breast symptoms often represent a severe problem to the patient. A better approach to this situation may be further education of both the public and GPs about the signs and symptoms of breast cancer.

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Biological, Physical, Mental and Social Dimensions of Breast Cancer: Information Based on Routine Case Notes

Kaija Holli and Matti Hakama

551 patients were diagnosed with breast cancer in Tampere University Hospital district, Finland between 1977 and 1980. The number of follow-up visits during the first 5 years was 8248. The biological, physical, mental and social dimensions of breast cancer were measured by death, recurrence of disease, Karnofsky score, physical or mental symptoms, and sick leave. The prevalence rates of an event and the incidence rates of the appearance or disappearance of an event were used to determine the indicators for these different dimensions of breast cancer. The study was based on hospital case notes. Data on death, recurrence, sick leave and Karnofsky score were well recorded, but physical or mental symptoms were recorded infrequently. There was a 4-fold difference between the highest and lowest prevalence for the different dimensions, but the trends were similar by follow-up time. The variation was also large for the incidence rates but the trends differed with length of follow-up time. The biological, physical, mental and social consequences of breast cancer differ in magnitude and have different trends over time, indicating that breast cancer is a different disease depending on the dimension and on the indicator under consideration.

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INTRODUCTION

As a rule, the course of breast cancer is described in terms of death rates, recurrence rates or an indicator describing the biology of the disease. In fact, breast cancer covers a variety of different dimensions, of which the biological aspect is only one. Sometimes quality of life indicators are also used [1–3]. These characterise the patient and her mental reaction to the disease or its treatment, or describe her social environment [4–6]. The disease and the patient are usually separated from each other by such dimensions. In this report we will call them physical, mental and social dimensions.

Furthermore, any one of these dimensions can be described by a variety of indicators. Death is traditionally described in terms of mortality or survival rate, whereas symptoms and other indicators, which are not absorbing states, are described by prevalence rates. In principle, however, all these dimensions can be described by a prevalance rate or by an incidence (i.e. mortality for death) rate.

This study describes ways of evaluating these different dimensions of breast cancer, and of establishing whether the course of the indicators describing each dimension is of similar magnitude and constant over the follow-up time. The material is based on

Table 1. Follow-up of breast cancer patients in Tampere University Hospital district between 1977 and 1985. Prevalence of case notes with record of different indicators of breast cancer

		Percentage recording indicator					
Start of year of follow-up	Total no. of patients	Death	Recurrence	Karnofsky score	Physical symptoms	Mental symptoms	Sick leave
1	519	100	100	85	62	37	100
2	419	100	100	93	88	54	100
3	362	100	100	95	91	57	100
4	317	100	100	94	92	60	100
5	280	100	100	94	93	56	100
6	271	100	100	95	91	59	100

routine case notes on all breast cancer patients diagnosed in a specified geographical area of Finland.

PATIENTS AND METHODS

The study was based on the follow-up of breast cancer patients residing in the Tampere University Hospital District in central Finland. The population in the district is about 500 000, i.e. 10% of the total Finnish population. All 551 new breast cancer patients who were diagnosed there and reported to the Finnish Cancer Registry in 1977–1980 were included in this study. The Finnish Cancer Registry is a nationwide and population-based agency and its files are virtually complete [7].

All follow-up visits made by patients to the oncology or surgical clinics of the University Hospital, or any other hospital with a surgical department within the University Hospital district were included. Thus, all visits were included except those made by 4 patients residing in the district but who were followed up elsewhere.

The patients were followed for 5 years or until the time of death, whichever occurred first, during the period 1977–1985. The data on survival status were confirmed through the national population registry and were complete. Other data were taken from hospital records. Altogether, 94% of the patients made at least one follow-up visit. 19 patients (4%) had no routine follow-up. 9 patients died before the first expected follow-up visit.

The biological, physical, mental and social dimensions of breast cancer were recorded retrospectively from the case notes. The biological disease was measured in terms of recurrence of and death from breast cancer. The physical dimension of the disease was measured by physical symptoms and physical performance status (Karnofsky score [8]). The mental dimension of the disease was measured by any information on mental problems or on treatment of such problems; the social dimension was measured by absence from work because of sick leave or disability.

Two indicators were determined for each of these four dimensions of health. The prevalence rates of an event (e.g. recurrence of breast cancer) were obtained as the ratio of those affected by the event to all patients alive at any given point during the follow-up. The prevalence for mortality was estimated as the proportion of cumulative deaths by the given point in time. The annual incidence rates of an event were estimated as the number of events occurring during a given follow-up divided by the number of woman-years at risk. Woman-years at risk were calculated among those not affected by the event at the beginning of the follow-up year. Prevalence indicates the actual frequency of events characteristic of measured dimension at any point during the follow-up, and the incidence rate indicates the intensity or instantaneous risk of occurrence of the event. The event can be related both to its occurrence among those previously free from it and to its disappearance from those previously affected by it. Thus, both the incidence of recurrence and the incidence of disappearance of recurrence were estimated.

RESULTS

Of the 551 breast cancer patients diagnosed, 519 started routine follow-up. These patients experienced 1778 follow-up years during the first 5 years of follow-up, with a total of 8248 visits. The mean number of visits per patient was 16.

Hospital records on death, recurrence and sick leave were complete (Table 1). The physical performance status, i.e. Karnofsky score, was also well recorded. However, for many patients there was no record of physical symptoms and only infrequent mention of mental problems.

Physical symptoms were most common and a poor Karnofsky score (≤ 70) was least common in terms of prevalence for any of the transient states (Fig. 1). As a rule, prevalence increased up to the third year of follow-up and decreased thereafter. The prevalence of sick leave was high at the beginning of follow-up because that was the time of the first course of treatment.

The annual incidence of recurrence decreased with follow-up time, and was between 10 and 20% per woman-year of observation (Fig. 2). After 3 years of follow-up the incidence of recurrence was rather low. The annual incidences for the other indicators were more stable.

The annual incidences for improvement ('cure') showed large variations in both magnitude and in trend (Fig. 3). Return back to work was common and the incidence showed a downward trend, whereas improvement in Karnofsky score showed an upward trend. Disappearance of a recurrence was very rare.

DISCUSSION

Breast cancer, like any other disease, has biological, physical, mental and social consequences [9]. In this paper these different dimensions were assessed by death, recurrence of disease, physical performance status, physical symptoms, mental problems and ability to work. They all affect the length and quality of life of a cancer patient. They do not yield a complete

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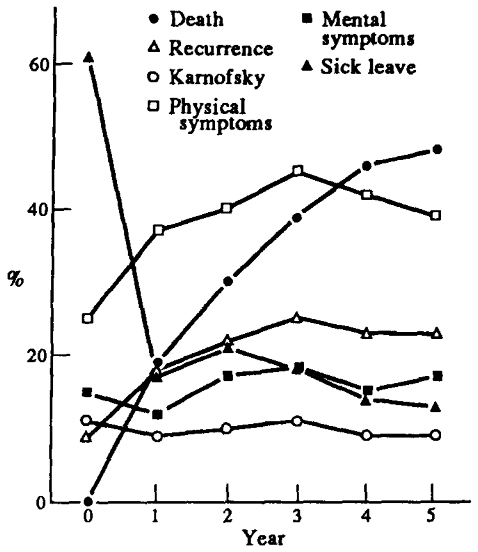

Fig. 1. Follow-up of breast cancer patients in Tampere University Hospital District between 1977 and 1985. Cumulative death rates and prevalence of poor quality of life, based on different dimensions.

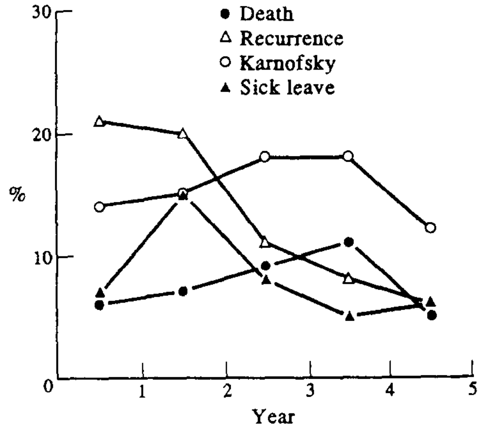

Fig. 2. Follow-up of breast cancer patients in Tampere University Hospital District between 1977 and 1985. Incidence of rates for different dimensions of the disease.

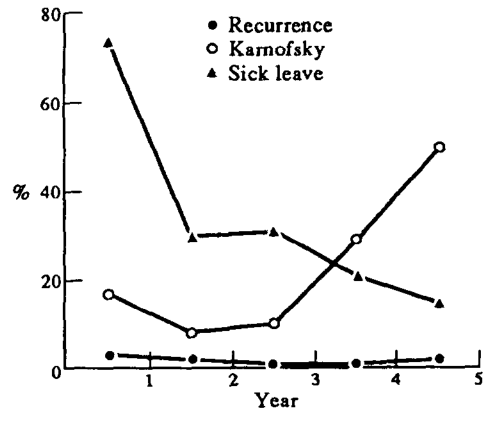

Fig. 3. Follow-up of breast cancer patients in Tampere University Hospital district between 1977 and 1985. Incidence rates for disappearance of events indicating different dimensions of breast cancer.

description of the different dimensions of breast cancer, but most of them feature in the hospital case notes of patients. Many of the more elaborate quality of life scores [1, 10] assume details which are recorded only prospectively. Assessment by a few simple questions removes many of the problems encountered in measuring quality of life [11]. Information on the biological dimensions characterising the disease was complete for our patients, but symptoms were inadequately recorded. This implies that the patient and her subjective symptoms are not regarded as such important determinants of care as the disease is, or that physicians are simply not used to recording them in case notes for other reasons.

Physical symptoms were unknown for one third and mental symptoms for two thirds of the patients. Because of their incompleteness, these data were not used in the more detailed analysis.

Karnofsky score and sick leave records were relatively complete. The Karnofsky score is well known in oncology and is in routine use. A medical certificate is needed for statutory paid sick leave, and so information on disability to work is consistently found in case notes. The Finnish insurance system does not distinguish between those employed and those not (e.g. housewives), as long as the person is under 65 years of age. This was the age limit we applied in our analysis of sick leave. Records of work provide only a limited amount of information about the social consequences of the disease, but work has profound connotations in Finnish society and is probably the most important single item in the social dimension [12]. The biological dimension of the disease can be measured by the morphology of the malignancy, the clinical stage of the tumour, the response to treatment, the recurrence of disease, the death of the patient, etc. We selected the two most important items, death and recurrence, to describe the biological dimension of breast cancer.

Usually, only survival, death or other biological indicators are used to characterise the cancer and the patient. Furthermore, if the symptoms or the performance status are reported, it is done only in terms of prevalence. However, the picture that emerges depends on the indicator selected to describe the dimension. In our study, the prevalence of patients with a recurrent disease increased but there was a decreasing trend in the annual incidence of recurrence. Ninety per cent of patients had a consistently good performance status (Karnofsky score > 70) throughout the follow-up. This constant, however, was the outcome of opposite changes in performance status, an increase in the incidence of poor performance among the 90% with good performance status and an increase in the incidence of good performance status among the 10% with a poor Karnofsky score (≤ 70).

Our results are in agreement with those of survival studies showing that the intensity of death or annual survival for breast cancer is more independent of survival time than for most other primary sites of cancer [7]. We found that the trend for the incidence of recurrence of the disease was consistently downwards, whereas that for the intensity of poor physical performance increased until the fourth year of follow-up, and the incidence of sick leave was at its maximum during the second year after the primary treatment. Furthermore, the chance of an improvement in physical performance status increased, and that of a return to work decreased with length of follow-up. The biological, physical, mental and social consequences of breast cancer varied in frequency and had different trends over time. Breast cancer seems to be a different disease, depending on whether its biological, physical, mental or social consequences are considered, and depending on which indicator of each dimension is used. The effects of treatment modalities are not the same, or not even in the same rank order, for all the different dimensions of breast cancer. Clinical trials and other research—and, therefore, the preferences between treatments—are mainly based on the biological dimension. However, other dimensions should also affect treatment policies.

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Patterns of Metastatic Breast Cancer in Relation to Histological Type

Sunjay Jain, Charlotte Fisher, Paul Smith, Rosemary R. Millis and Robert D. Rubens

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We have examined the clinical records of 1238 patients with operable breast cancer to identify the sites of metastatic disease. Infiltrating ductal carcinoma (IDC) recurred more commonly in lung ($P < 0.05$), pleura ($P < 0.05$) and brain ($P < 0.05$), while infiltrating lobular carcinoma (ILC) more commonly metastasised to the bone marrow ($P < 0.01$) and peritoneum ($P < 0.01$). Bone involvement as the initial presentation of distant metastatic disease occurred in over 50% of women with ILC, significantly more commonly than in those with IDC (34%, $P < 0.01$). Survival was similar for the two groups, both from time of diagnosis and from time of development of distant metastases.

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INTRODUCTION

THE TWO main histological variants of infiltrating breast cancer, infiltrating ductal carcinoma (IDC) (70–80% of cases) and infiltrating lobular carcinoma (ILC) (10–14%) [1, 2], have been reported to show different patterns of metastatic spread [3–6]. Recurrence in the meninges, bone marrow and peritoneum is more common in ILC and recurrence in the lung in IDC.

Differences in survival after development of metastases have also been noted, patients with ILC faring significantly better than those with IDC [5, 6]. As such differences could be of importance in patient management we reviewed our data to confirm these findings.

PATIENTS AND METHODS

Patients

Between 1977 and 1986, 1391 patients with primary operable invasive breast cancer were treated at Guy's Hospital Breast Unit and histological diagnoses were performed using established criteria [7]. IDC (including mixed tubular pattern) was diagnosed in 1069 cases (76%) and ILC (classical and variant) in 177 cases (13%). Other histological types were not included in the analysis.

Clinical information

Clinical records were examined and the sites and dates of tumour recurrence noted. Bone metastases were differentiated according to whether they involved the calcified matrix, referred to as 'bone' (diagnosed radiographically) or the bone marrow (diagnosed cytologically). Peritoneal involvement was diagnosed by imaging, laparotomy, or deduced from the presence of

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