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The Relationship of Cancer Pain to Anxiety

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Abstract

The interaction between pain and anxiety in the setting of somatic illness is a widely recognised association. More accurate knowledge about the association and also about the means of assessing anxiety in a clinical setting are of use to the clinician. The present study used the Hospital Anxiety and Depression Scale for assessment of anxiety, and the set of linear analogue scales for detecting the presence and severity of anxiety and pain in an oncology clinic, where patients were undergoing active treatment for cancer. The relationship between pain and anxiety was found to be significant, even when the possible mediating effect of the variables of illness severity and age were removed. The need for detecting anxiety in order to plan treatment strategy is emphasised.

A recent review [1] of the psychological factors contributing to the quality of life in patients suffering from cancer reveals the complexity of the topic. Anxiety may be due to uncertainty of the outcome of the illness and to the prospect of death; attendance at hospitals, and the effect of necessary treatment may arouse anxiety; disability and symptoms may be important factors. Since anxiety is likely to intensify distress and lead to a need for an increase in treatment and investigations, the topic demands greater study into the detection and management of this factor. For instance, one study [2] considered whether anxiety had preceded the somatic illness or occurred after onset; patients whose anxiety or depression was attributed to the illness reported a greater degree of *somatic* distress. Another study [3] of patients who had been treated for maxillofacial cancer found that a third of them had clinically significant anxiety, and symptoms were reduced by discussing the nature of anxiety and its manifestation as physical symptoms.

Unfortunately, much research is hampered by poor definition of the term and the use of screening and measuring instruments which fail to distinguish between the emotional disorder and possible physical symptoms; for instance the instrument still most widely used for anxiety research, the Hamilton Anxiety Scale, has 50% of its total score derived from somatic symptoms [Snaith and Keedwell, in prep.]. The same problem applies to studies of

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depression in relation to somatic illness; for instance, Tope et al. [1] point out that a 'diagnosis' of major depression may be an artefact of the somatic symptoms of the physical illness.

Future research must therefore be based upon definitions and techniques which clearly separate psychic and somatic manifestations of illness.

Method

The study was conducted at a University Hospital Medical Oncology Clinic where patients cooperate readily with research requests such as the present study. The patients were those referred for further specialist care in the treatment of their cancer and were mainly undergoing chemotherapy treatment. Exclusion criteria were: (a) patients suffering from cerebral tumours or metastases; (b) any patients with intellectual impairment or whose fluency in the English language would inhibit successful completion of the research questionnaires; (c) patients receiving palliative care only, i.e. those patients for whom the major purpose for attendance at the clinic was for the relief of pain or other distress.

The final sample was 53 patients (median age 55, 74% female). Breast cancer accounted for 32%, gynaecological cancer 17%, gastrointestinal 21%, renal and bladder 15%, melanoma 4% and other sites 11% of the sample. With the exclusion criteria mentioned above, the sample consisted of a successive series of patients, who were therefore representative of patients referred to the clinic. Metastatic spread of the tumour had occurred in 68% of the patients.

Instruments and Assessments

The clinician, who remained unaware of the research ratings, supplied information concerning the extent of the disease, i.e. whether metastatic spread had occurred, and an estimate of the overall degree of incapacity in terms of the World Health Organisation system [4] of five grades: 0 = able to carry on all normal activity without restriction; 1 = restricted in physically strenous activity but able to carry out light work; 2 = ambulatory and capable of self-care but unable to carry out any work, and up and about more than 50% of the waking hours; 3 = capable of only limited self-care, and confined to bed or chair for more than 50% of the waking hours; 4 = complete disablement: unable to care for self, and totally confined to bed or chair.

The assessment of pain and mood state was conducted by researchers blind to the physicians' ratings. The instruments are described below.

The linear analogue scales (LASA) were devised for use in cancer studies [5]. These are a set of 10-cm lines focusing on aspects of personal functioning and one of which refers to pain with the end-point 'anchoring' statements: 'extremely severe pain' and 'no pain at all'. The patient records, by a mark on the line, the level of pain in the past few days and the research analysis was conducted in terms of the following ratings: 0–5 mm = no pain (1); 6–37 mm = mild pain (2); 38–69 mm = moderate pain (3); 70–100 mm = severe pain (4). Thus absence of pain was recorded by a mark virtually at the end of the scale and the other three grades were derived by equal division of the remainder.

In this rating, no further information is requested about the pain, i.e. the site, the continuity, the degree to which it interfered with activity and so on; therefore, the measure was an entirely subjective overall estimate of the perception of the distress caused by pain. The LASA also contains a measure of anxiety but, in order to provide an estimate less influenced by the manner of completion of the LASA scales, an independent self-assessment questionnaire was used, the Hospital Anxiety and Depression Scale (HADS) [6] which provides separate measures for both these constructs, the items of which are designed to minimize the effect of somatic symptoms and which has been well-validated in oncology studies [7–9]. The ratings for the two moods were originally classified in three bands of severity, but recently these have been changed to four bands [10] and these were employed in the present study. Thus, for both anxiety and depression, ratings were: 0–7 = normal (1); 8–10 = mild (2); 11–14 = moderate (3); 15–21 = severe (4). The anxiety subscale, which is the major focus of this study, provides a measure of generalised anxiety, i.e. anxiety not focused upon some specific situation or circumstance.

Statistical Method

All calculations use a non-parametric method, including the Spearman rank correlation. A level of $p = 0.02$ was accepted for statistical significance.

Results

The numbers falling into the different categories of these ratings are shown in table 1. Thus 15 patients had some degree of anxiety,

Table 1. Numbers of patients in the grades of disorder

	0	1	2	3	4
WHO disability scale	13 (24.5)	28 (52.8)	10 (18.9)	2 (3.8)	0
Pain grade		19 (35.9)	21 (39.6)	9 (17.0)	4 (7.5)
Anxiety grade		38 (71.7)	4 (7.5)	9 (17.0)	2 (3.8)
Depression grade		39 (73.6)	11 (20.8)	3 (5.7)	0

Values in parentheses are percentages.

in 11 (21%) of whom this was of clinical significance according to the HADS ratings. Only 3 patients suffered from a clinically significant level of depression. The perception of the degree to which pain was a source of distress showed that 32 patients had some pain distress and 13 (25%) had marked distress (LASA ratings 3 and 4). The level of physical incapacity was not severe, only 3 patients having a rating in one of the two highest grades; this was expected in patients still attending a hospital clinic for active treatment.

The correlation of the HADS anxiety subscale with the anxiety analogue scale of the LASA was +0.76 ($p < 0.001$) thus providing further confirmation of its validity for the present study. The correlation of the HADS-A with the pain rating of the LASA was +0.55 ($p < 0.001$). There was a non-significant ($r = 0.21$) correlation between HADS-A and the WHO physical incapacity status. When this latter relationship was nullified by partial correlation, the relation of HADS-A to pain remained at a high level of statistical significance (0.52, $p < 0.001$). There was a non-significant correlation (0.23) for HADS-A with age and correction for this by partial correlation also did not affect the high correlation of anxiety and pain (0.50, $p < 0.001$).

Discussion

There is a growing awareness of the need to recognise emotional factors in somatic illness and especially in cancer [11, 12]. However, there is a lack of transfer of research findings to clinical practice. The introduction of rapid and accurate self-assessment techniques [13] is an important aid to both research and clinical practice.

More attention has been paid to depression than to anxiety, and one recent study [14] showed that depression was the more significant emotional disorder; however, that study used the Hamilton Scales and, as already mentioned, the high somatic content of these scales causes problems in result interpretation. Of course, all types of negative emotion are likely to be of relevance in the assessment of the patient and in the planning of management. Recent studies [15, 16] have emphasised the role of attention to pain as an important factor; certainly pain is more likely to be reported in severe terms by those whose attention is focused upon it. These interacting factors are just part of the complex web which contributes to distress and quality of life in patients suffering from cancer.

The findings of the present study require some caution in interpretation. Firstly, the low level of anxiety may be noted; the higher grades of the anxiety subscale of the HADS

do, however, reflect a fairly severe continuous state. Similarly, the reporting of pain in this study was not high; Bonica [17] estimated that moderate to severe pain is present in 40% of patients with intermediate cancer and up to 80% of patients with advanced cancer. However, our study excluded subjects attending for palliative treatment for severe pain. Another study [18] found a low relationship between anxiety and pain but the subjects in that study were women suffering from breast cancer who were attending mainly for palliative care; therefore, they were likely to have been receiving high levels of analgesic medication.

The present study confirms the importance of anxiety assessment. A high level of anxiety may require anxiety management rather than increasing doses of analgesic drugs. There has been some initial exploration of anxiety management procedures in this area of clinical practice. Certainly, a brief technique, preferably one which the patient may learn to conduct for her- or himself, is necessary. One such technique has recently been described by one of us [19]; the descriptive paper includes information on access to videotaped instruction in its application.

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