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Psychosocial factors and asthma

C. M. Bosley, Z. M. Corden and G. M. Cochrane*

Department of Allergy and Respiratory Medicine, United Dental and Medical Schools, Guy's Hospital, London, U.K.

Introduction

There is a growing body of literature on the relationship between psychological and social factors and asthma. These findings should be taken into account when plans for the management of patients with asthma are considered.

Asthma Deaths

Research investigating the psychosocial issues associated with asthma mortality is usually based on information gathered retrospectively, and is therefore to be viewed with some caution. Studies suggest that factors contributing to asthma death include lack of prompt and aggressive medical treatment, and lack of prompt action by patients or their relatives. The British Thoracic Association examined the circumstances surrounding 90 deaths from asthma in two regions of England (1). Five of these patients had their steroid dose reduced rapidly in the month before their death because of the patients' fear of side-effects or the doctors' determination to keep the dose of oral steroids low. The information was obtained from medical notes and interviews with the families, and it is difficult to assess the relative importance of the patient's or the doctor's attitudes. The British Thoracic Association examined the circumstances surrounding 90 deaths from asthma in two regions of England (1). Five of these patients had their steroid dose reduced rapidly in the month before their death because of the patients' fear of side-effects or the doctors' determination to keep the dose of oral steroids low. The information was obtained from medical notes and interviews with the families, and it is difficult to assess the relative importance of the patient's or the doctor's attitudes. The British Thoracic Association examined the circumstances surrounding 90 deaths from asthma in two regions of England (1). Five of these patients had their steroid dose reduced rapidly in the month before their death because of the patients' fear of side-effects or the doctors' determination to keep the dose of oral steroids low. The information was obtained from medical notes and interviews with the families, and it is difficult to assess the relative importance of the patient's or the doctor's attitudes. The British Thoracic Association examined the circumstances surrounding 90 deaths from asthma in two regions of England (1). Five of these patients had their steroid dose reduced rapidly in the month before their death because of the patients' fear of side-effects or the doctors' determination to keep the dose of oral steroids low. The information was obtained from medical notes and interviews with the families, and it is difficult to assess the relative importance of the patient's or the doctor's attitudes. The British Thoracic Association examined the circumstances surrounding 90 deaths from asthma in two regions of England (1). Five of these patients had their steroid dose reduced rapidly in the month before their death because of the patients' fear of side-effects or the doctors' determination to keep the dose of oral steroids low. The information was obtained from medical notes and interviews with the families, and it is difficult to assess the relative importance of the patient's or the doctor's attitudes.

In a study of children who had died from asthma, Strunk et al. (2) identified disregard of asthmatic symptoms, depressive symptoms and family-staff conflict as being risk factors. This study has been criticized by Creer (3) on statistical grounds. He also points out that relying on staff reports about the behavioural and psychological characteristics of patients introduces bias to the study. Other studies have concentrated on the importance of the ability of the patient and supporting family to recognize and respond to a severe attack. Wareham et al. (4) suggest that psychosocial factors may contribute to asthma deaths by affecting a person's capacity to respond appropriately. In the 28 fatal cases they studied, 17 (71%) were found to show evidence of psychosocial factors which may have been important in contributing to death, such as social isolation, abuse as a child, neurotic illness, marital or legal problems, and alcohol abuse. Similarly, Mascia et al. (5) suggest that 'deaths are not due to the severity of the disease alone, but also the failure of the individual to readily adapt to the disease'. Factors which they found to be more likely in fatal outcomes included severe psychopathology, psychotic signs, low IQ, anxiety and depression.

Near-fatal Asthma Attacks

In studies of near-fatal asthma attacks, such as those by Sibbald (6) and Campbell et al. (7), the General Health Questionnaire (GHQ) has been used to identify psychiatric caseness. Sibbald found a prevalence of psychiatric illness of 38%, and Campbell et al. found a prevalence of 43%. General Health Questionnaire scores were found to correlate with days lost from work/school, and frequency of asthma attacks (7), suggesting an association between psychiatric and asthma morbidity (although direction of causality cannot be inferred). It may be expected that psychiatric morbidity may decrease an individual's ability to care for themselves, but in Sibbald's study, GHQ scores were not found to be associated with self-care in acute asthma as judged by the response to a hypothetical attack of asthma (6). However, this finding can only reflect the patient's theoretical response to an attack.

High levels of denial, measured using the denial scale of the Illness Behaviour Questionnaire, have been reported in patients who have suffered a near-fatal attack. Whilst a certain level of denial may be adaptive in asthma (allowing normal life to continue without undue anxiety), Campbell et al. found that patients with high levels of denial were more likely to...
present sudden collapse from asthma rather than progressive respiratory distress, and they suggested that denial 'may be a barrier to the uses of appropriate self management strategies' (7). Yellowlees and Ruffin (8) reported that asthma patients had high levels of anxiety and denial, and suggested that a near-fatal attack serves to increase the denial or may cause the individual to decompensate psychiatrically. Yellowlees and Kalucy (9) wrote an article discussing the possible reasons for increased prevalence of anxiety among patients with asthma, and hypothesized a multifactorial model where predisposing biological factors interact with psychosocial factors to increase the likelihood of panic and hyperventilation.

**Psychosocial Factors and Medical Outcome**

Dirks et al. found that hospitalized patients with high panic-fear scores, measured using the panic-fear scale of the Minnesota Multiphasic Personality Inventory (MMPI), were more likely to receive more intensive medication regimes and longer hospital stays (10). They also found that extremely high and extremely low scores are associated with more frequent hospital admissions in the year following discharge (11). Kinsman et al. found that high anxiety levels not only appear to affect patients, but also affect physicians' behaviour; 'sensitive' doctors were more likely to prescribe higher doses and longer courses of steroids to more anxious patients (12). De Araujo et al. followed 36 patients over 1 yr after assessing their psychosocial assets and experience of life events. They found that patients with a high psychosocial asset score (Berle Index) required lower doses of steroids. Of those patients with a low Berle Index, those with a high life event score required higher doses than those with a low life event score, suggesting that life events had an indirect effect on the patient's asthma if the patients had few psychosocial resources (13). Northup and Weiner compared hospitalized patients with a group of outpatients, and assessed life events in the 12 months prior to the study. Hospitalization correlated with asthma-dependent events (such as loss of job through sickness) but not asthma-independent events, and they concluded that although psychosocial stresses did cluster prior to asthma exacerbations, the asthma caused those stresses rather than vice versa (14).

**Patient Attitudes to Treatment**

Patients' attitudes to treatment may be a factor in how they cope with their illness and influence the way they use their treatment (15). Worth (16) and Brewis (17) have both written that inappropriate over-emphasis of the side-effects of corticosteroids is a 'recognized risk factor' contributing to the death of some patients from acute asthma. An American study by Mayo et al. (18) looked more directly at patient attitudes towards asthma and drug therapy by interviewing 56 patients. The authors reported that all the patients 'expressed concern' about potential side-effects of oral steroids but decided that none used oral steroids in a way that differed from good medical judgement. Pretet et al. (19) conducted a large postal study sending out questionnaires to 450 people with asthma. From the 370 who responded, 87% admitted reducing the dose of any of their medications when symptoms were improved. Forty percent said that this was due to concerns about side-effects but there was no discrimination between the steroid and the β-agonist use. It has not yet been shown, although it is often assumed, that patients use their inhaled corticosteroids less than their bronchodilators. Dompeling et al. (20) compared compliance with an inhaled corticosteroid and a bronchodilator using capsule count. They found that although compliance with the steroid was significantly less than with the bronchodilator, the two were highly correlated, and they suggest that compliance is patient-dependent rather than drug-dependent. Bosley et al. (21) measured compliance with inhaled corticosteroids and inhaled β-agonists using an electronic monitor (Turbohaler Inhalation Computer), and no significant difference in compliance was found between the two drugs. Therefore, there is little objective evidence that patients are specifically 'steroid phobic' or that dislike of steroids leads to non-compliance.

Later studies which have looked at the relationship between attitudes and actions include a study by Sibbald (6). Two hundred and ten asthmatic patients were interviewed and given questionnaires about self-management of asthma attack, attitudes to asthma, family support, Apgar score, psychiatric morbidity (GHQ), recent asthma morbidity and knowledge. One in four patients expressed strong feelings of stigma and pessimism, and there was some association with self-management (although the authors report this as weak). Wöller et al. (22) carried out a study of asthma patients who had undergone a 5-day inpatient education programme. Patients completed questionnaires on their attitudes towards cortisone and a questionnaire about emotional support from a key figure. Adherence to the instructions given to them during the education programme was assessed by interview. The authors concluded that
experiencing a key figure as supportive exerts an indirect influence on adherence (to self-management guidelines) via influencing the perception of cortisone. However, as adherence was assessed by interview only, no firm conclusion may be reached regarding behaviour. A study by Bosley et al. (23) interviewed 93 patients with asthma and measured their compliance with inhaled corticosteroids and \( \beta \)-agonists using Turbohaler Inhalation Computers. Poor adherence levels were found to be associated with high depression scores (measured with the Hospital Anxiety and Depression Scale), and negative attitudes to taking doctors' advice.

**Interventions to Improve Health Outcomes**

Interventions aimed at improving asthma self-management also provide evidence that psychological factors are of importance. Previous studies such as that by Hilton et al. (24) have shown that information alone is not sufficient to alter behaviour. More recently, programmes have used comprehensive packages, employing strategies such as cognitive-behavioural approaches, individual treatment tailoring, and group and individual supportive sessions. These programmes have produced more encouraging results in outcome measures. Maes and Schlösser (25) showed that coping variables, such as reacting emotionally in attack situations, focusing on asthma in everyday life and maintaining a restrictive lifestyle, were important factors accounting for some of the variance in patients' well-being, the number of hospital admissions and the number of days absent from work. They investigated the effectiveness of an intervention consisting of a group cognitive-educational programme (based on Ellis' rational-emotive therapy). They found no major changes in the coping behaviour measures, but reported that study patients used less corticosteroids, were less preoccupied by their asthma and reported less emotional distress. Two large studies by Bailey et al. (26) and Wilson et al. (27) examined the effects of education programmes, both of which emphasized individual self-management, compared with control groups. In the Bailey study, the treatment group showed increased adherence (measured by the subjective report of patients and staff) and functional status. The education group in the Wilson study showed improvement in metered dose inhaler technique, environmental control measures and reported symptoms. In each of these studies, the intervention and the control groups decreased the number of hospital visits over the follow-up period with no significant difference between the groups. Mayo et al.'s smaller study (18) offered patients a special asthma clinic with physician accessibility and personalized patients' self-management plans. The special clinic group showed decreased hospitalization rates and hospital usage compared with a control group. The authors pointed out that they made no attempt to identify which, if any, particular aspect of the programme was essential but they believed that the motivation of the physician and the personality of the patients both played a crucial role in the effectiveness of the programme. Mulhauser et al. (28) used a 5-day inpatient programme to improve self-management and showed that the number of hospitalized patients decreased in the year following the intervention, as did the number of severe attacks. After 3 yr follow-up, the study group reported that the programme had been cost-effective due to the decrease of days in hospital, days absence from work, severe asthma attacks and physician consultations (29). However, there was no control group for this study. Ringsberg et al. (30) carried out a small controlled study of an 'Asthma School' where patients are educated over a period of 8–10 weeks by different members of the health-care team (including a social worker and a psychologist). After 12 months follow-up they found that both the intervention and the control groups had improved their knowledge of the disease and how to treat it. On self-assessment questionnaires, the intervention group showed some improvement over the controls, and their acute hospital visits and number of days in hospital were reduced significantly. However, only the control group had significantly improved spirometry. Non-attendance for these kinds of intervention limits their usefulness in clinical practice. Yoon et al. (31) had such a disappointing turnout for the education programme that they devoted some time to examining the issue. Of 120 patients who agreed to take part in the programme, only 51 completed it. They examined the differences between the attenders and non-attenders, and found that women, non-smokers and those whose physician was involved in the study were significantly more likely to attend. Fitzgerald (32) reported that economic status, literacy level, ethnicity and occupational asthma may also form barriers to asthma education. Their findings suggest that patients who have suffered or who are likely to suffer a near-fatal attack are also those who are least likely to attend. The non-attenders for any form of treatment programme may comprise those patients who are being failed by the health-care system. It is an important but difficult area of study to discover how to improve the relationship between the clinics and these patients.
Conclusions

There is evidence that psychosocial issues are important contributory influences on patients’ experience of asthma, the way they cope with and manage their asthma, and the ways in which health professionals respond to them. 

Identifying the factors involved in the process of change may help to develop more efficient and effective intervention programmes. It is also of note that the intervention groups are not always significantly more improved than the control group, highlighting the need to identify the essential ingredients for successful intervention.

References