British Journal of Psychiatry (1993), **163**, 173–176

Depression Following Laryngectomy
A Pilot Study

ALAN BYRNE, MICHAEL WALSH, MARY FARRELLY and KIERAN O'DRISCOLL

When a group of 10 patients who had received surgery for carcinoma of the larynx were compared with 10 control patients who had received radiotherapy for carcinoma of the larynx, four of the former but none of the latter were found to be suffering from depression, a statistically significant difference. Depression was associated with poor communication skills and geographical isolation. Psychiatric intervention is recommended for patients undergoing mutilating forms of surgery.

Laryngectomy for advanced carcinoma of the larynx is a severely debilitating form of surgery. While the quality of the surgical repair itself has improved greatly (Singer *et al*, 1983), the plight of laryngectomised patients, with their consequent aphonia, has only recently received attention. As techniques for alaryngeal speech have developed, the social aspects of laryngectomy have attracted interest (Singer & Blom, 1980). The dramatic changes produced by the surgical removal of the larynx, and the production of a tracheostomy, have profound physical, social and psychological effects upon the patient. A parallel may be drawn between the effects of laryngectomy and those of mastectomy, where social and psychological adaptation may be poor (Renneker & Cutler, 1952; Maguire *et al*, 1978; Jamison *et al*, 1978). Not only do patients have to adapt to an altered body image, but they must do so in the knowledge that they also harbour a 'cancer' which may be fatal. For patients requiring mastectomy, distress has been minimised through education and the teaching of coping skills (Spiegel *et al*, 1981; Vachon *et al*, 1981).

The coexistence of physical and psychiatric illnesses has long been established (Culpan *et al*, 1960; Maguire & Granville-Grossman, 1968; Eastwood & Trevelyan, 1972) and laryngectomy patients, with their physical and social deficits secondary to surgery, were chosen as the subjects in this pilot project. The prognostic relevance of psychological adjustment to the diagnosis of cancer has received much attention (Greer *et al*, 1979; Cull, 1990; Timms, 1990), but these authors have directed their attentions to patients with cancer of the breast rather than the larynx.

Method

From a group of laryngectomy patients attending a cancer clinic in Dublin City, where both laryngectomised patients and patients receiving radiotherapy for carcinoma of the larynx are regularly reviewed, ten laryngectomy patients were chosen at random, and ten age- and sex-matched patients who had received radiotherapy were chosen as controls. The control group had therefore had less invasive carcinomas than had the index group. All patients in the study were interviewed by AB and were assessed using both the Hamilton Rating Scale for Depression (Hamilton, 1967) and the Beck Depression Inventory (Beck *et al*, 1961). Any patients adjudged to be suffering from a depressive disorder were commenced on antidepressant therapy, and all patients were reviewed monthly for six months. A note was made of the most frequent complaints in both groups.

Results

No patient failed to attend for review. Of the ten laryngectomy patients (Table 1), four were found to be suffering from depression, on both clinical grounds and using depression scales (Table 2). All four patients had developed depressive symptoms within six months of surgery; only one patient had previously (10 years earlier) suffered from a depressive illness, and this had responded to treatment. Three of the depressed patients lived over 80 km from the clinic, and these patients had failed to receive adequate support from the health services in their respective areas. Three of the depressed patients had failed to develop effective communication skills following their surgery.

The four patients with depression had failed to comply with therapy programmes as instructed by the specialists at the clinic, and the reasons given for this failure were poor concentration, lack of motivation, and generally poor spirits, making instructions difficult to follow. Another complaint specific to the depressed group was lack of access to appropriate support groups (e.g. Laryngectomy Association). The families of the depressed patients were interviewed where possible, and frustration and hopelessness were noted among relatives (Livingstone, 1987). The distance from the clinic prevented the discussion of specific problems with specialist personnel, and

https://doi.org/10.1192/bjp.163.2.173 Published online by Cambridge University Press

Table 1
Details of patients undergoing laryngectomy

Sex	Age: years	Time since operation: months	Communication status	Distance from clinic: km
Male	62	18	good	7
Male[1]	53	16	poor	95
Male	47	24	good	8
Male	65	14	poor	120
Female[1]	70	17	poor	3
Male[1]	61	12	poor	85
Male	55	24	good	10
Male[1,2]	64	20	fair	90
Male	80	23	good	6
Male	63	18	good	3

1. Cases diagnosed with depressive illness.
2. Diagnosed as depressed 10 years earlier–episode responded to treatment.

Table 2
Scores on the Hamilton Rating Scale for Depression (HRSD) and the Beck Depression Inventory (BDI)

Laryngectomy patients		Controls	
HRSD	BDI	HRSD	BDI
8	4	9	8
28[1]	31[1]	6	3
11	6	6	4
31[1]	26[1]	7	8
6	6	8	6
30[1]	34[1]	11	9
10	12	11	8
27[1]	29[1]	10	10
5	8	7	10
9	11	9	9

1. Patients diagnosed as depressed.

among depressives' families, factual knowledge about communication was poor.

No case of depression was detected among the 10 controls. The difference in the rate of depression between the two groups was significant (χ^2 test, $P<0.05$; Fisher's exact test, $P=0.043$). The control group, as a whole, displayed more hypochondriacal concern, the most common complaints being dry mouth (5 patients), dysphagia (4 patients), dysgeusia (3 patients) and sexual fears (3 patients). The complaints of dysphagia were less in the laryngectomy patients, despite their having had equivalent amounts of radiotherapy in combination with their surgery. Their most common complaints were of oesophageal regurgitation (6 patients), communication difficulties (5 patients), and geographic/social isolation, anosmia and restriction of physical activities (4 patients each).

Discussion

Laryngectomy is a serious and debilitating, though uncommon, operation. After surgery, patients have to cope with aphonia and the tracheostoma. Continuous reassurance is essential because the aphonia and altered appearance can greatly impede recovery. Laryngeal carcinoma has an association with excesses in the use of both tobacco and alcohol, and these can predispose to a stormy post-operative period and lengthy rehabilitation.

It has been noted by some authors (Hollinger, 1975; Richardson, 1981) that the early acquisition of speech by artificial means (artificial larynx and oesophageal/tracheo-oesophageal speech) can greatly reduce the social isolation of these patients, and improve their self-esteem. In only some patients, though, can oesophageal or tracheo-oesophageal speech be achieved (Maniglia, 1985) and an inability to achieve it is often viewed by patients as a failure, compounding their sense of loss. Therefore, it is imperative that attempts at communication, combined with support mechanisms, continue (Wetmore *et al*, 1985).

Surgery may be viewed as an adverse life event (Brown *et al*, 1973), and incidence of depression in such situations can be increased between two and seven times (Paykel, 1978). Factors in the patient, factors in the environment, and the patient's previous experience of illness will all play a part in determining the outcome of a particular case (Lloyd, 1977) but there can be no question of laryngectomy patients having defective recall in a "search after meaning".

Comparisons between groups of patients affected by different types of cancer can be misleading, especially as some malignancies may be more influenced by the immune or hormonal system than others (Burgess, 1987). Horne & Picard (1979) have described an association between lung cancer and the loss of a significant relationship, and Lehrer (1980) has associated life events with the onset of gastric cancer, but causation cannot be attributed on the basis of these associations. Stress, the perceptions thereof, and the ability of the patient to adapt to stressors, all have a bearing on the progression of malignancies, but the exact nature of the association is unclear (Cooper *et al*, 1986; Goodkin *et al*, 1986; Temoshok, 1987). Cull (1990) has reviewed these psychosocial variables in terms of their effect on cancer and its treatment.

In our pilot study we found depression in four of ten laryngectomised patients. Although the numbers are small, they are statistically significant. Much has been written about the adverse effects

https://doi.org/10.1192/bjp.163.2.173 Published online by Cambridge University Press

of depression on recovery and prognosis (Querido, 1959; Kenyon, 1976; Karasu, 1979) and on the meaning of the illness to the patient in terms of likely progress following surgery (Greer *et al*, 1979, 1985, 1987). While malignancy can cause depression *de novo*, as in pancreatic cancer, a consistent causal relationship has not been shown (Cull, 1990), and we feel that the onset of depression in our patient group relates to factors intrinsic to the stresses of treatment and rehabilitation. Our four depressed patients complained of social and geographic isolation, poor communication skills, and isolation from specialist services and peer support. Certainly this process may be bidirectional, with depression causing reluctance to seek specialist help, and the social isolation caused by poor communication skills, compounding the sense of hopelessness and frustration.

Regardless of the direction of causality, our findings suggest a need for psychiatric input in the rehabilitation of laryngectomy patients, especially for those patients who have a history of depression, and for those patients who are geographically or socially isolated (Gath *et al*, 1982).

Acknowledgements

Special thanks are due to Ms Wendy Hagstrom for her expert assistance in the preparation of this manuscript, and to Professor T. Fahy and Dr B. O'Shea for their helpful comments.

References

BECK, A. T., WARD, C. H., MENDELSON, M., *et al* (1961) An inventory for measuring depression. *Archives of General Psychiatry*, **4**, 561–571.

BROWN, G. W., HARRIS, T. O. & PETO, J. (1973) Life events and psychiatric disorders. Part 2: nature of causal link. *Psychological Medicine*, **3**, 159–176.

BURGESS, C. (1987) Stress and cancer. *Cancer Surveys*, **6**, 403–416.

COOPER, C., DAVIES-COOPER, R. F. & FARAGHER, E. G. (1986) A prospective study of the relationship between breast cancer and life events. Type A behavior, social support and coping skills. *Stress Medicine*, **2**, 381–396.

CULL, A. (1990) Invited review: psychological aspects of cancer and chemotherapy. *Journal of Psychosomatic Research*, **34**, 129–140.

CULPAN, R., DAVIES, R. M. & OPPENHEIM, A. N. (1960) Incidence of psychiatric illness among hospital outpatients: an application of the Cornell Medical Index. *British Medical Journal*, *i*, 855–857.

EASTWOOD, R. & TREVELYAN, M. H. (1972) Relationship between physical and psychiatric disorder. *Psychological Medicine*, **2**, 363–372.

GATH, D., COOPER, P. & DAY, A. (1982) Levels of psychiatric morbidity before and after hysterectomy. *British Journal of Psychiatry*, **140**, 335–342.

GOODKIN, K., ANTONI, M. H. & BLANEY, P. H. (1986) Stress and hopelessness in the promotion of cervical intra-epithelial neoplasia to invasive squamous cell carcinoma of the cervix. *Journal of Psychosomatic Research*, **30**, 67–76.

GREER, S., MORRIS, T. & PETTINGALE, K. W. (1979) Psychological response to breast cancer, effect on outcome. *Lancet*, *ii*, 785–787.

—— & —— (1985) Psychological attributes of women who develop breast cancer: a controlled study. *Journal of Psychosomatic Research*, **19**, 147–153.

—— & MOOREY, S. (1987) Adjuvant psychological therapy for patients with cancer. *European Journal of Surgical Oncology*, **13**, 511–516.

HAMILTON, M. (1967) Development of a rating scale for primary depressive illness. *British Journal of Social and Clinical Psychology*, **6**, 278–296.

HOLLINGER, P. H. (1975) A century of progress of laryngectomies in the northern hemisphere. *Laryngoscope*, **85**, 322–332.

HORNE, R. L. & PICARD, R. S. (1979) Psychosocial risk factors for lung cancer. *Psychosomatic Medicine*, **41**, 503–514.

JAMISON, K. R., WELLISCH, D. K. & PASNAU, R. O. (1978) Psychosocial aspects of mastectomy. (1) The woman's perspective. *American Journal of Psychiatry*, **135**, 432–436.

KARASU, T. B. (1979) Psychotherapy of the medically ill. *American Journal of Psychology*, **136**, 1–11.

KENYON, F. E. (1976) Hypochondriacal states. *British Journal of Psychiatry*, **129**, 1–14.

LEHRER, S. (1980) Life change and gastric cancer. *Psychosomatic Medicine*, **42**, 499–502.

LIVINGSTONE, M. (1987) How illness affects patients' families. *British Journal of Hospital Medicine*, July, 51–54.

LLOYD, G. G. (1977) Psychological reactions to physical illness. *British Journal of Hospital Medicine*, October, 352–358.

MAGUIRE, G. P., LEE, E. G., BEVINGTON, D. T., *et al* (1978) Psychiatric problems in the first year after mastectomy. *British Medical Journal*, *i*, 963–965.

—— & GRANVILLE-GROSSMAN, K. L. (1968) Physical illness in psychiatric patients. *British Journal of Psychiatry*, **115**, 365–369.

MANIGLIA, A. J. (1985) Newer technique of tracheo oesophageal fistula for vocal rehabilitation for total laryngectomy. *Laryngoscope*, **95**, 1064–1069.

PAYKEL, E. S. (1978) Contribution of life events to causation of psychiatric illness. *Psychological Medicine*, **8**, 245–253.

QUERIDO, A. (1959) Forecast and follow-up. An investigation into the clinical, social and mental factors determining the results of hospital treatment. *British Journal of Preventive and Social Medicine*, **13**, 334–339.

RENNEKER, R. & CUTLER, M. (1952) Psychological problems of adjustment to cancer of the breast. *Journal of the American Medical Association*, **148**, 833–838.

RICHARDSON, J. L. (1981) Surgical and radiological effects upon the development of speech after total laryngectomy. *Annals of Otolaryngology*, **90**, 294–297.

SINGER, M. I. & BLOM, E. D. (1980) An endoscopic technique for restoration of voice after laryngectomy. *Annals of Otology, Rhinology and Laryngology*, **89**, 529–533.

——, —— & HAMAKER, R. C. (1983) Voice rehabilitation after total laryngectomy. *Journal of Otolaryngology*, **12**, 329–334.

SPIEGEL, D., BLOOM, J. R. & YALOM, I. D. (1981) Group support for patients with metastatic cancer. *Archives of General Psychiatry*, **38**, 527–533.

TIMMS, M. W. H. (1990) Aspects of psychological intervention with breast cancer patients. *Irish Journal of Psychological Medicine*, **2**, 79–87.

TEMOSHOK, L. (1987) Personality, coping style, emotion and cancer. *Cancer Surveys*, **6**, 545–567.

https://doi.org/10.1192/bjp.163.2.173 Published online by Cambridge University Press

VACHON, M. L., LYALL, W. A., ROGERS, J., *et al* (1981) The effectiveness of psychosocial support during post-surgical treatment of breast cancer. *International Journal of Psychiatry and Medicine*, **11**, 365–372.

WETMORE, S. J., KREUGER, K., WESSON, K., *et al* (1985) Long-term results of the Blom–Singer speech rehabilitation procedure. *Archives of Otolaryngology*, **111**, 106–109.

*Alan Byrne, MB, BA, MRCPI, MRCPsych, *Chief of Psychogeriatrics, Alberta Hospital Ponoka, Lecturer in Psychiatry, University of Alberta, Canada*; Michael Walsh, FRCSI, FRCS, *Consultant ENT Surgeon, St James' Hospital, Dublin, Republic of Ireland*; Mary Farrelly, BA, RemLing, *Senior Speech Therapist, St James' Hospital, Dublin*; Kieran O'Driscoll, BSc, BA, MB, BCh, *Senior House Officer, ENT, St James' Hospital, Dublin*

*Correspondence: *Department of Psychiatry, University of Alberta, 1E7.31 Mackenzie Centre, Edmonton T6E 2B7, Canada*

https://doi.org/10.1192/bjp.163.2.173 Published online by Cambridge University Press