

Postlaryngectomy Speech Rehabilitation: Contemporary Considerations in Clinical Care

Réadaptation de la parole suite à une laryngectomie : Considérations contemporaines de soins cliniques

Philip C. Doyle, PhD
University of Western Ontario
London, Ontario

ABSTRACT

The removal of one's larynx due to cancer results in changes that cross anatomical, physiological, and psychological boundaries. Oncologic safety is primary for those undergoing total laryngectomy; however, the immediate and complete loss of verbal communication results in significant challenges to one's well-being. In some instances, these changes may threaten the success of long-term rehabilitation outcomes. The World Health Organization (WHO; 1980) has identified three fundamental areas and the impact of each on the individual's rehabilitation. These areas included: (a) impairment, (b) disability, and (c) handicap. Recently, these areas have been elaborated to address structure and function, activities, and participation, respectively. As such, the WHO recommends that any comprehensive rehabilitation plan include attention to the performance of, or barriers to, activities as well as social attitudes and potential social penalty due to disease and its treatment. Thus, if postlaryngectomy rehabilitation is to be successful, professionals working with those who undergo laryngectomy must carefully consider and seek to comprehensively address the effects of postlaryngectomy changes in each of these areas. This article addresses the importance of these considerations in contemporary clinical practice.

ABRÉGÉ

L'ablation du larynx due à un cancer entraîne des changements qui vont au-delà des frontières anatomiques, physiologiques ou psychologiques. Quoique la sécurité oncologique soit prioritaire chez les personnes subissant une laryngectomie totale, la perte immédiate et complète de la communication verbale présente d'importants défis au bien-être de la personne. En certains cas, ces changements peuvent compromettre le succès des résultats à long terme de la réadaptation. L'Organisation mondiale de la santé (OMS; 1980) a désigné trois aspects fondamentaux et leur incidence individuelle sur la réadaptation de la personne. Ce sont (a) déficience, (b) incapacité, et (c) handicap. L'OMS recommande que tout plan complet de réadaptation tienne compte de la pénalité sociale découlant de la maladie et de son traitement. Ainsi, pour que la réadaptation post-laryngectomie soit une réussite, les professionnels œuvrant auprès des personnes subissant une laryngectomie doivent chercher à se pencher sur l'ensemble des effets des changements découlant d'une laryngectomie dans chacun de ces aspects. Ce mémoire examine l'importance de ces considérations dans la pratique clinique contemporaine.

KEY WORDS: laryngectomy • speech rehabilitation • head and neck cancer • alaryngeal speech • quality of life

In the past 20 years significant advances have been noted in the treatment and rehabilitation of those diagnosed with laryngeal cancer (Bailey, 1985). It is without question that total laryngectomy has a significant impact on those who undergo such surgery. Surgical treatment results in changes that cross anatomical, physiological, and psychological boundaries for the individual (Doyle, 1994). Total laryngectomy results in immediate and profound changes in these areas as well as in verbal communication, with potential psychosocial consequences persisting throughout the remainder of one's life (Amster et al., 1972; Breitbart & Holland, 1988; Gilmore, 1994; Smith & Lesko, 1988). It is because of these myriad changes that

rehabilitation efforts require a comprehensive and integrated approach. Rehabilitation should merge a clinical awareness of the diversity of changes and the subsequent impact on the person following treatment, as well as the need for varied types of professional expertise postlaryngectomy.

The Impact of Laryngectomy

Experienced professionals who work in the area of laryngectomy rehabilitation agree that total laryngectomy results in far-reaching changes to the patient, as well as members of his or her family. While some changes are clearly anticipated, many others come to light at a later time; hence, individuals who are treated for laryngeal cancer acknowl-

edge that the need to adapt is often longstanding in this rehabilitation process. Certainly the possibility of changes in work, social activity, family dynamics, as well as vocational and avocational interests must always be considered (Doyle, 1994; Wellisch, 1984). But the significance of laryngectomy is often fully acknowledged only once the "basic" areas of change, such as those which are primarily structural (anatomical), are met with and adaptation occurs. It is important, however, to note that adaptation will continue over time in many functional areas (e.g., breathing, taste and smell, capacity for physical activity, etc.), as well as in psychological and social domains (Gilmore, 1994).

Despite treatment advances and an increased understanding of the multidimensional impact of laryngectomy on the individual, history suggests that the real impact of laryngectomy has been viewed in a rather narrow and circumscribed manner. Frequently, attention is paid only to the obvious aspects of clinical care with an inadvertent disregard for other aspects which may be altered dramatically for the individual postoperatively. Specifically, the social impact of laryngectomy is seldom at the forefront of clinical rehabilitation efforts. This does not suggest that past efforts and programs of clinical care have been poor, but the protocol of care that has existed in Canada and the United States has sometimes been shortsighted in its tendency to exclude qualitative aspects of rehabilitation. That is, we have often focused on "measurable" change that is represented numerically, those depicting quantitative dimensions of change (e.g., speech acoustics, speech intelligibility). Qualitative considerations would seek to identify, address, and carefully weigh those dimensions of change that are qualitative in nature. For example, the impact of laryngectomy on family relationships, sexuality, occupational status, and life-style will ultimately define the success of rehabilitation efforts. Laryngectomy clearly has the potential to influence one's communicative effectiveness which might increase apprehension in some communication settings (Byles, Forner, & Stemple, 1985). It is, however, necessary to point out that both quantitative and qualitative aspects of clinical outcome are valuable in evaluating postlaryngectomy rehabilitation. If both areas are considered in a combined fashion, the clinical

care and follow-up that can be offered is likely to be more comprehensive, and therefore, the potential for an improved program of rehabilitation is enhanced.

Although a diagnosis of laryngeal cancer and its treatment is unique in many ways, it does share many dimensions with other health problems related to malignancy (Mellette, 1989; Quigley, 1989; Welch-McCaffrey, Hoffman, Leigh, Loescher, & Meyskens, 1989). Namely, treatment modalities have sufficient potential to permanently disrupt normal systems and processes, therefore, adaptation and coping behaviour (Blood, Luther, & Stemple, 1992) must be carefully evaluated and monitored. Adaptation and coping in the postlaryngectomy period is, however, a dynamic process which will depend on one's needs, expectations, and experiences at any given point in time (Blood et al., 1992; Doyle, 1994; Salmon, 1986a). Therefore, preoperative considerations should not be seen as independent of other considerations that will exist in the postoperative period; in fact, conceptualizing concerns both immediate and long-term is critical to facilitate an improved rehabilitative outcome. Although most clinicians are cognizant of many of the changes that will be noted postlaryngectomy, other issues that may be less common, and perhaps of particular importance to a given patient, are essential to consider. One general domain to which rehabilitation "success" may correlate highly would be issues related to changes in life-style. For example, the individual who enjoys activities such as boating and swimming must now carefully consider the requirements and risks of such activity. Similarly, the individual who enjoys woodworking must also consider and be willing to make necessary adjustments if this avocation is to continue safely. It is clear, however, that in most instances, activities can be resumed with guidance and creative thinking. Thus, although a given individual's requirements in some instances may diverge from that of the clinical needs of the larger group, these concerns cannot be disregarded. In order to address some of these concerns, the following sections provide a brief review of issues related to clinical care following total laryngectomy that some clinicians may not fully consider. While some of the information provided is relatively unchanged from the early work of Diedrich and Youngstrom (1966), Gardner (1971), and Snidecor (1978), some of the



more contemporary considerations have emerged in recent years (Doyle, 1994; Graham, 1997). Thus, the present article may be viewed as an introductory attempt at expanding traditional clinical considerations associated with postlaryngectomy rehabilitation efforts.

Components of a Postlaryngectomy Rehabilitation Program

The most comprehensive rehabilitation program for those undergoing total laryngectomy must seek to integrate both the order and content of information provided and, whenever possible, to obtain the appropriate professional expertise so that complete and accurate information is provided (Doyle, 1994). Patients must receive adequate pre- and postoperative information. This important process allows the clinician and patient to set common goals for rehabilitation. Professionals from a variety of disciplines and specialties including medicine, speech science, speech-language pathology, psychology, nursing, as well as others, must work cooperatively with the individual patient and members of his or her family if this goal is to be realized. Preoperative counselling provides the single most important dimension of comprehensive patient care following the diagnosis of laryngeal cancer (Reed, 1983; Salmon, 1986b). Such counselling is also likely to form the foundation from which a successful rehabilitation outcome may evolve (Doyle, 1994). Clinicians must recognize that ongoing counselling is an integral component of comprehensive patient care in those who will or have undergone surgical treatment for laryngeal cancer. The multifaceted goal for the speech-language pathologist is to provide, interpret, and facilitate information to the patient and members of their family (Amster et al., 1972; Doyle, 1994; Mullan, 1984). Information provided to the patient and members of his or her family should begin with presentation of general information (i.e., information that all patients will need to know in relation to their surgery). Postoperatively, individuals will need additional information and support as they face new problems (e.g., communication in noisy environments, changes in mucus secretion, returning to work, resuming sexual activity, etc).

Postlaryngectomy Communication Options

An important component of any pre- or early postoperative counselling session is one primary issue - the individual patient needs to understand that multiple alaryngeal speech options exist, that the individual will learn to verbally communicate using one of these alaryngeal options, and that, in most centres, these options will be made available to them. Options include traditional esophageal speech, use of electronic artificial laryngeal devices (either intraoral or transcervical devices), and/or tracheoesophageal (TE) speech (Doyle, 1994). It is essential that the presentation of information related to postlaryngectomy communication options be provided to the patient and possibly members of his or her family without clinician bias. That is, the advantages and disadvantages of each alaryngeal option should be described openly and fairly so that one method is not presented as being superior to the others. If accurate and complete, as well as unbiased information is offered, the individual's decision will be informed and will be made relative to those advantages and disadvantages which are most suitable to their unique social, vocational, and avocational communication needs. Ultimately, the patient needs to know that at least one of the communication options available is likely to provide a voice source that will allow them to effectively communicate in the postoperative period.

Direct therapeutic intervention that focuses on the acquisition, development, and refinement of vocal and speech skills (Doyle, 1994; Graham, 1997) using one of these three alaryngeal methods should ideally seek to provide a fully functional method of verbal communication that is not restrictive to the patient's communicative needs. However, while many patients are able to acquire highly functional and serviceable alaryngeal voice and speech, additional concerns that often may be considered as collateral issues may have an even more significant influence on the long-term success or failure of postlaryngectomy rehabilitation. In this regard, the issues presented and discussed in the subsequent section are not exhaustive, but they do focus on some concerns that are 'less traditional', but clearly have significant potential to impact the individual's well-being following total laryngectomy.



Quality of Life Following Laryngectomy

In recent years, the clinical literature has seen growth in the areas of quality of life and psychological distress considerations secondary to head and neck cancer (Bjordal & Kaasa, 1995; DeSanto, Olsen, Perry, Rohe, & Keith, 1995; Hassan & Weymuller, 1993; Morton, 1995). While few of these studies have focused specifically on laryngeal cancer, we do have an increased understanding of social, emotional, and behavioural factors relative to head and neck cancers in general and subsequent treatment. Until such literature appeared, the influence of laryngectomy (and other head and neck tumours) on the individual in the more intrinsic, personal, and qualitative domain was frequently considered in an incomplete manner. Though "quality of life" is by no means a secondary concern of many professionals involved with those treated for laryngeal cancer, its interpretation or definitional boundaries at times may be incomplete. Professionals must acknowledge that treatment success cannot be adequately assessed without consideration of those qualitative dimensions that are specific and important to each individual. That is, the inability to pursue or participate in an otherwise "simple" activity such as swimming may significantly restrict one's quality of life. Clearly, changes in appearance, sexual behaviour, and independence, as well as other areas have the potential to disrupt myriad activities that alter the individual's well-being. According to the definition provided by the World Health Organization (1980), quality of life comprises a "...state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." More simply stated, the removal of malignant tissue via total laryngectomy may result in alterations that will influence the individual in many ways for the rest of their life. These changes may result in significant levels of physical change that impact more than communicative behaviour alone. The influence of the disease (cancer), its diagnosis and treatment (effects of surgery, etc.), and subsequent outcome (physical disfigurement, loss of normal verbal communication, etc.) clearly have the potential to restrict quality of life in the postoperative period (Doyle, 1994; Gamba et al., 1992) and contemporary research has sought to obtain information on psychiatric, social, and emotional dimensions relative to quality of life following

psychosocial intervention (Hammerlid, Persson, Sullivan, & Westin, 1999).

Using the World Health Organization's initial framework for disability (WHO, 1980), all treatment modalities for laryngeal cancer would have the potential to result in varying levels of physical *impairment*, functional *disability*, and social *handicap*. More recently, the WHO has expanded its definitional classification of impairment, disability, and handicap in an effort to reduce the limitations and dangers of classification systems, while at the same time seeking to optimize the advantages of such classification procedures.¹ Briefly, impairment initially addressed structural changes in anatomy with related change(s) in function(s) in that anatomical system. Disability primarily focused on changes in the functional, integrated activity or behavior associated with physical alteration. Finally, handicap considerations primarily focused on the difficulty or disadvantages that emerge from the influence of impairments and disabilities on one's participatory behavior within the larger social environment. Contemporary ICIDH-2 vernacular replaces impairment with "structure and function," disability with "activities," handicap with "participation," as well as considering "environmental factors." However, dynamic relationships between these areas frequently limit realistic efforts to compartmentalize the areas in a mutually exclusive manner. Thus, through use of these terms and respective definitions, a given health problem is viewed in the context of the specific changes and limitations experienced by the person, as well as the perception of such changes by the person's social milieu. Both internal and external influences are considered. It is clear, however, that total laryngectomy has the potential to impact all areas noted in a significant and long-term manner. These expansive domains appear well suited to assessing the quantitative *and* qualitative impact of laryngectomy on the patient's comprehensive well-being, which in turn influences their posttreatment quality of life.

Questions related to quality of life and cancer are not new (O'Young & McPeck, 1987). While a definition of "quality of life" is not simple by any standard means (Aarons, 1991), it is generally accepted that quality of life is characterized by a sense that life is worth living and that living has meaning to the patient and others (Doyle,



1994). With this definition at hand, clinicians must consider numerous (but frequently considered collateral) issues including the effects of a cancer diagnosis, its treatment, and the subsequent residual outcome on the patient's well-being (Mullan, 1984). Similarly, rehabilitative efforts also must consider the social consequences of the problem and limitations that may be confronted by the individual postoperatively. If such consideration is not undertaken, the value of the rehabilitation program will be restricted and significant problems may arise. One way to avoid such difficulties is to actively seek to involve family members in the rehabilitation process from the outset.

Because of the multidimensional nature of any individual's quality of life, a given individual's outcome following treatment for laryngeal cancer may be realistically defined along a number of dimensions (Records, Tomblin, & Freese, 1992). For example, while the tumour may be eliminated by treatment, the diagnosis of cancer and/or the primary treatment (e.g., surgery) may result in changes that significantly influence one's physical, psychological, social, and psychosocial well-being. Thus, a priori consideration of structure and function, activities, and participation domains seems most appropriate and logical. This is most definitely the case when treatment results in a noticeable alteration from what is considered to be "normal," whether the changes are physical or otherwise (Dropkin, 1989; Dropkin & Scott, 1983; Goffman, 1963). While professionals working in laryngectomy rehabilitation will confirm that the individual's postoperative communication ability is important, the underlying contribution of communication to the ultimate success of recovery and rehabilitation may be underestimated. Specifically, effective communication forms the essential component of a person's personal and social identity (Prutting, 1982), and as such, must be considered in a more all-encompassing manner. This would suggest that just because one has been identified as being successful in the acquisition of some method of alaryngeal communication, often based on quantitative comparisons, communication in the broad sense and the social impact which results remains a significant problem. Thus, good alaryngeal speech intelligibility does not always correlate with a successful postsurgical outcome beyond that simple measure alone. In this instance,

it is difficult to maintain that a successful rehabilitation outcome has been achieved. Therefore, it has been suggested that clinicians must consider both quantitative and qualitative aspects of rehabilitation in the hope of optimizing each patient's chance of rehabilitative success (see Table 1).

But the astute clinician must acknowledge that serious illness challenges more than just one's physical health; the patient's emotional and psychological well-being is also challenged (Gamba et al., 1992). Clinicians cannot forget that the individual with any form of cancer often confronts a particular stigmata common to diagnosis of malignant disease (Doyle, 1994). To briefly expand on this issue, three basic elements are of importance following the diagnosis and treatment of laryngeal cancer: (a) control of malignancy, (b) patient adaptation to anatomical and physiological alterations resulting from treatment, and (c) the individual's long-term psychological and social adjustment. The individual must also confront and cope with the stigma frequently associated with cancer. At times these stigma may not be palpable, but rather, very subtle in their manifestation (e.g., friends who no longer visit, etc.) Thus, the stigma of cancer as a disease, surgery as the treatment, the disruption of self-concept and body-image when disfigurement occurs, as well as postoperative changes in voice and speech production, will have significant impact on recovery and rehabilitation. Coping with such issues may not be easy and "aesthetic" concerns may emerge for the disease class, the individual's posttreatment physical appearance, as well as for changes that occur in verbal communication (i.e., altered voice quality, decreased speech intelligibility, etc.). Thus, use of solely traditional quantitative methods of assessing "success" are destined to be inadequate at best.

Social Penalty and Total Laryngectomy

The central feature of the stigmatized individual's situation centres around the question of their acceptance by society at large. This acceptance, when combined with the vocal and communication deficit following total laryngectomy may present significant challenges to the laryngectomized patient's social competence (Doyle, 1994; Prutting, 1982). Society establishes the criteria defining normality and abnormality (Goffman, 1963), hence, society will also monitor and identify deviations from that which is expected

Table 1. An overview of traditional clinical issues and collateral or quality of life issues related to postlaryngectomy rehabilitation.*

Traditional Issues	Example
Anatomical changes	Altered breathing, loss of voice, changes smell and taste
Alaryngeal speech options	Speech requirements, advantages and disadvantages of methods, option/device selection
Speech intelligibility	Articulatory strength and precision, speech loudness
Collateral and Quality of Life Issues	Example
Self-concept	Appearance, speech limitations Interpersonal Communication Initiation and maintenance of social relationships, demands of private and public communication environments
Employment Issues	Cancer stigma, voice loss, abnormal speech/voice quality, communicative effectiveness
Dress and Appearance	Self-esteem, stigma, clothing limitations and/or adaptations
Intimacy	Sexual performance, disfigurement, stigma

* This overview is not intended to be an exhaustive presentation of areas of concern, but rather, an overview of potential issues and representative examples.

as normal. Expectation, therefore, provides a construct from which comparison emerges. Individuals "...who do not depart negatively" from the expectation are considered normal (Goffman, 1963). For those undergoing total laryngectomy, physical changes, the abnormality in voice/speech quality, and ultimately, why this occurred (i.e., behaviors that may have precipitated the malignancy), may be judged negatively by society. Those who do not conform post-treatment may then be "discredited" with the result that one's social identity is jeopardized. In essence, the individual's social identity is judged relative to the preconceived expectations of others. Gender-based concerns relating to expectation must also be considered in Western society, particularly with the increasing number of females who will undergo laryngectomy. Such concerns also may be quite applicable to those who receive less radical (conservative) treatment methods. That is, in some instances, partial laryngectomy may result in relatively greater levels of dis-

ability for a female as opposed to a male patient (e.g., a "rough" voice quality may garner more social penalty in a woman).² Although limited data on this issue are available, these concerns are critical and will require exploration in the new century that is before us.

Speech Performance and Communicative Effectiveness

From a voice and speech perspective, data on the success or failure of alaryngeal speech communication options is often varied. However, even when "success" is suggested for particular aspects of speech (i.e., frequency, intensity, duration, intelligi-

bility, etc.), the character and quality of the vocal signal, nonverbal components of communication, and the subsequent perceptual judgments of one's speech influence the speaker. In this regard, the definition for speech success, communication success, and, more broadly, communicative acceptance without social penalty, may be quite different. When considered with the concept of "normal expectations" (Goffman, 1963), one can see the social importance of achieving acceptable behaviours, both vocally and socially. The loss of "normal" verbal communication can isolate some individuals from re-entering a variety of activities, but when coupled with other stigmatizing factors (e.g., cancer, disfigurement, etc.) the collective effects on recovery and rehabilitation often may be underestimated. Because of this, the clinician's ability to evaluate the individual's performance across a variety of domains and parameters, while at the same time considering social demands, is essential if comprehensive rehabilitation is to be achieved.

Summary and Conclusions

Rehabilitation following laryngectomy should be guided by one primary goal: to provide the patient with the greatest opportunity for returning to as normal a life as possible. This goal will always be central to a successful program of rehabilitation following total laryngectomy. All individuals with laryngeal cancer will need to face numerous challenges, endure difficulties, and learn to cope with significant changes and restrictions following surgical treatment. Yet the successful program of rehabilitation must be designed to accept individualized needs and expectations, as well as the multidimensional impact of laryngectomy on one's long-term total well-being. These goals can be met through the simple vehicle of working cooperatively with the individual patient. Asking questions provides the first step toward providing answers and possible solutions to anticipated or real problems. This includes comprehensive consideration of factors that influence vocational and avocational interests, social interaction, and family dynamics, as well as many other areas. Each individual patient is best qualified to define the areas of importance to them and, ultimately, how successful the program of treatment has been. It is incumbent on clinicians who serve these individuals to determine the broad impact of total laryngectomy on postlaryngectomy quality of life. As speech-language pathologists, we are in a unique position to evaluate and address the multifaceted and complex issues that focus on communication within the framework of the individual and society. Clinicians and their patients are most successful when they work together to achieve realistic goals with definable outcomes. If we can consider and acknowledge the primary importance of issues previously assumed to be collateral and accept the importance of qualitative issues in clinical practice, we will no doubt be in a position to offer the best and most complete care to our patients.

Endnote

1. The reader is encouraged to consult documentation provided by the WHO in regard to the currently revised International Classification of Impairment, Disability, and Handicap system (ICIDH-2). This information can be

accessed via the Internet at www.who.int/icidh/brochure/improvements.htm, with associated links.

2. While "partial" laryngectomy is in fact considered a conservation procedure that is assumed to be less restrictive, anecdotal clinical information suggests that the extent of postoperative problems in women may mirror that of total laryngectomy. Whether the nature of such perceived difficulties is due to the degree of change experienced following surgery or to unreasonable expectations because of insufficient information prior to surgery, is unknown.

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Please address all correspondence to: Philip C. Doyle, PhD, School of Communication Sciences and Disorders, Vocal Production Laboratory, Elborn College, The University of Western Ontario, London, Ontario, N6G 1H1, or via e-mail to pdoyle@julian.uwo.ca.

References

- Aaronson, N. K. (1991). Methodologic issues in assessing the quality of life of cancer patients. *Cancer*, *67*, 844-850.
- Amster, W. W., Love, R. J., Menzel, O. J., Sandler, J., Sculthorpe, W. B., & Gross, F. M. (1972). Psychosocial factors and speech after laryngectomy. *Journal of Communication Disorders*, *5*, 1-18.
- Bailey, B. J. (1985). Glottic carcinoma. In B. J. Bailey & H. F. Biller (Eds.), *Surgery of the larynx* (pp. 257-278). Philadelphia, PA: W.B. Saunders.
- Blood, G. W., Luther, A. R., & Stemple, J. C. (1992). Coping and adjustment in alaryngeal speakers. *American Journal of Speech-Language Pathology*, *1*, 63-69.
- Bjordal, K., & Kaasa, S. (1995). Psychological distress in head and neck cancer patients 7-11 years after curative treatment. *British Journal of Cancer*, *71*, 592-597.
- Breitbart, W., & Holland, J. (1988). Psychosocial aspects of head and neck cancer. *Seminars in Oncology*, *15*, 61-69.

- Byles, P. L., Forner, L. L., & Stemple, J. C. (1985). Communication apprehension in esophageal and tracheoesophageal speakers. *Journal of Speech and Hearing Disorders, 50*, 114-119.
- DeSanto, L. W., Olsen, K. D., Perry, W. C., Rohe, D. E., & Keith, R. L. (1995). Quality of life after surgical treatment of cancer of the larynx. *Annals of Otolaryngology, Rhinology, and Laryngology, 104*, 763-769.
- Diedrich, W. M., & Youngstrom, K. A. (1966). *Alaryngeal speech*. Springfield, IL: Charles C. Thomas.
- Doyle, P. C. (1994). *Foundations of voice and speech rehabilitation following laryngeal cancer*. San Diego, CA: Singular.
- Dropkin, M. J. (1989). Coping with disfigurement and dysfunction after head and neck surgery: A conceptual framework. *Seminars in Oncology Nursing, 5*, 213-219.
- Dropkin, M. J., & Scott, D. W. (1983). Body image reintegration and coping effectiveness after head and neck surgery. *Society of Otorhinolaryngology Head and Neck Nursing Journal, 2*, 7-16.
- Gamba, A., Romano, M., Grosso I. M., Tamburini M., Cantu, G., Molinari, R., & Ventafridda, V. (1992). Psychosocial adjustment of patients surgically treated for head and neck cancer. *Head and Neck, 14*, 218-223.
- Gardner, W. H. (1971). *Laryngectomy speech and rehabilitation*. Springfield, IL: Charles C. Thomas.
- Gilmore, S. I. (1994). The psychosocial concomitants of laryngectomy. In R. L. Keith & F. L. Darley (Eds.), *Laryngectomy rehabilitation* (3rd Ed., pp. 395-486). Austin, TX: Pro-Ed.
- Goffman, E. (1963) *Stigma: Notes on the management of a spoiled identity*. Englewood Cliffs, NJ: Prentice Hall.
- Graham, M. S. (1997). *The Clinician's Guide to Alaryngeal Speech Therapy*. Boston, MA: Butterworth-Heinemann.
- Hammerlid, E., Persson, L. - O., Sullivan, M., & Westin, T. (1999). Quality of life effects of psychosocial intervention in patients with head and neck cancer. *Otolaryngology Head and Neck Surgery, 120*, 507-516.
- Hassan, S. J., & Weymuller, E. A. (1993). Assessment of quality of life in head and neck cancer patients. *Head and Neck, 15*, 485-496.
- Mellette, S. J. (1989). Rehabilitation issues for cancer survivors: Psychosocial challenges. *Journal of Psychosocial Oncology, 7*, 93-110.
- Morton, R. P. (1995). Evaluation of quality of life assessment in head and neck cancer. *Journal of Laryngology and Otolaryngology, 109*, 1029-1035.
- Mullan, F. (1984). Re-entry: The educational needs of the cancer survivor. *Health Education Quarterly, 10*, 88-94.
- O'Young, J., & McPeck, B. (1987). Quality of life variables in surgical trials. *Journal of Chronic Diseases, 40*, 513-522.
- Prutting, C. A. (1982). Pragmatics as social competence. *Journal of Speech and Hearing Disorders, 47*, 123-134.
- Quigley, K. M. (1989). The adult cancer survivor: Psychosocial consequences of cure. *Seminars in Oncology Nursing, 5*, 63-69.
- Records, N. L., Tomblin, J. B., & Freese, P. R. (1992). The quality of life of young adults with histories of specific language impairment. *American Journal of Speech-Language Pathology, 1*, 44-53.
- Reed, C. G. (1983). Surgical-prosthetic techniques for alaryngeal speech. *Communicative Disorders, 8*, 109-124.
- Salmon, S. J. (1986). Adjusting to laryngectomy. *Seminars in Speech and Language, 7*, 67-94.
- Salmon, S. J. (1986b). Pre- and postoperative conferences with the laryngectomized and their spouses. In R. L. Keith & F. L. Darley (Eds.), *Laryngectomy rehabilitation* (2nd ed., pp. 277-290). San Diego, CA: College-Hill Press.
- Smith, K., & Lesko, L. (1988). Psychosocial problems in cancer survivors. *Oncology, 2*, 33-40.
- Snidecor, J. C. (1978). *Speech rehabilitation of the laryngectomized*. Springfield, IL: Charles C. Thomas.
- Welch-McCaffrey, D., Hoffman, B., Leigh, S. A., Loescher, L. J., & Meyskens, F. L. (1989). Surviving adult cancers. Part 2: Psychosocial implications. *Annals of Internal Medicine, 111*, 517-523.
- Wellisch, D. K. (1984). Work, social, recreational, family, and physical states. *Cancer, 53*, 2290-2302.
- World Health Organization - World Health Assembly (1980). International classification of impairments, disabilities, and handicaps: *A manual of classification relating to the consequences of disease*. Geneva, Switzerland: Author.

