

ANALYSIS OF COMMUNICATION OF PEOPLE WITH LARYNGECTOMIES SPEECH THERAPY EXAMINATION RESULTS

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ABSTRACT

People with voice disorders and their problems are always at the centre of attention of several sciences, in particular medicine, pedagogy, psychology, and sociology.

The use of quantitative procedures in this paper is mainly ready to lend a hand in sorting out some of the significant issues surrounding speech therapy intervention in both clinical and research contexts.

After the removal of the throat, the patient, having the means of communication - the word, but losing one of the components of expressive speech - the voice, has pronounced difficulties in the process of communication. Some patients, realizing their inadequacy due to absence of voice, try to take various measures to overcome the problem, while others become discouraged, frustrated, lose optimism, the desire to overcome the problem and return to a full life. Patients, within the frame of this study, had certain prerequisites for vocal cords, such as verbal breathing and expressive mobility problems.

Keywords: throat removal, laryngectomy, pharyngectomy, speech therapy, speech therapy examination, voice, communication, expressive speech.

LITERATURE REVIEW

Surgery to remove all or part of the pharynx (throat) is called a pharyngectomy. This operation might be used to treat cancers of the hypopharynx. Often, the larynx is removed along with the hypopharynx (Thomas & Keith, 1984). Patients who have a laryngectomy or

pharyngectomy typically lose the ability to speak normally. Some people will need a tracheostomy after surgery. Less extensive operations can also affect speech in some cases (American Cancer Society, 2020).

It is an indisputable fact that the voice has an invaluable role and significance in the process of full development and social development of a person. Therefore, it should be noted that voice disorders deprive a person of the ability to fully communicate, and in some cases, are an obstacle to full-time work and community integration (Kubareva, 2019; Uklonskaya, 2016).

Voice disorders are very diverse. By nature, severity, and social significance, voice disorders have a special place in the case of throat cancer. Recently, it should be noted that there is an increase in the number of these patients, which is due to several reasons, especially environmental factors, the use of tobacco, alcohol, etc. (Fateyeva, Chubenko, Posokhova & Shanaurina, 2010). In this regards the scientists believe that some risk factors, such as tobacco or heavy alcohol use, may cause these cancers by damaging the DNA of the cells that line the inside of the larynx and hypopharynx. Some forms of the human papillomavirus are emerging as important causes of some throat cancers (including cancers of the hypopharynx) (American Cancer Society, 2014).

Development and improvement of medical care for people with throat cancer are one of the current issues in medicine, psychology, and pedagogy, which is due to the frequency of their existence, the severity of physiological, functional, and anatomical disorders, the patient's mental disorders, and voice disorders as well.

Before surgery, the voice is produced by air from the lungs passing through the voice box and making the vocal cords vibrate (Hutton, 2021). While laryngectomy the voice box is removed and lungs are no longer connected to the mouth. A replacement for the lungs leads directly to the outside of the body via a permanent hole in the neck called a stoma. This means voice can no longer be made ordinarily and a new method of communication will be used following the operation (Hutton, 2021).

Patients with laryngectomy experience changes to communication which impact their quality of life. The literature review conducted by a group of researchers indicates that there is a complex nature of changes faced by

patients following laryngectomy about communication and quality of life. The general factors of changes are seen in communication competency, self-perception, and social engagement impact each other and are also influenced by adaptation to change. The model linking communication changes to the quality of life may become a useful tool for researchers and clinicians in supporting the management of patients post-laryngectomy (Sharpe, Costa, Doubé, Sita, McCarthy & Carding, 2018).

Another study examining the quality of life in the laryngectomees using different methods of communication has been conducted in Nova Scotia with sixty-two participants. Within the frame of this study all patients were asked to rate their ability to communicate and their difficulty with several communication problems. Out of sixty-two patients, 57% were using electrolaryngeal speech, 19% esophageal speech, and 8.5% tracheoesophageal speech. There were very few differences between these groups' inability to communicate in social situations and no difference in overall quality of life as measured by these scales. The most commonly cited problem was difficulty being heard in a noisy environment (Carr, Schmidbauer, Majaess & Smith, 2000).

Thus, the analysis of sources allows us to conclude that patients with laryngectomies face major changes in lifestyle related to altered airway, loss of voice, body image concerns, and challenges with eating. Support of family, friends, and health care professionals is critical for a successful transition during this stressful period. Direct messaging, email, virtual support groups can contribute to a great improvement in communication and engagement for this population (Dooks, McQuestion, Goldstein & Molassiotis, 2012). Still, while talking about patients with total laryngectomy as a life-preserving surgery, the extent to which communication changes disrupted social roles affecting a person's sense of self appeared to relate to long-term adjustment (Pereira da Silva, Feliciano, Freitas, Esteves & Almeida e Sousa, 2015).

As it might be concluded, many factors are influencing the choice of the mode of speech restoration in a precise patient and for effective rehabilitation, a team approach is compulsory (Gumennaya, 2016). Within the frame of this work, the speech therapy examination is done to understand the level and pattern of communication of patients with laryngectomies.

METHODOLOGY AND RESULTS

Within the frame of the current study the experimental research has been conducted in the departments of nose-throat-ear in “Armenia” Republic Medical Centre, Fanarjyan National Oncology Centre, Izmirlian Medical Centre, and in Yerevan State Medical University “Heratsi” N1 hospital complex. All hospitals were located in Yerevan, the capital of Armenia. During the confirmatory research 65 male patients with laryngectomies, aged between 39-64 years has participated (Figure 1).

It is a fact that as a result of complete removal of the throat, the person is deprived of a loud voice, so the speech therapy intervention with these patients conducted by the researcher did not presuppose a voice examination but assumed a study during a communication process when sound is absent and also investigation for a voice formation.

Table 1.

Age of participants with a laryngectomy.

Age	Number
Till 40 years	1
41-50 years	7
51-60 years	17
Above 61 years	40

Based on the all mentioned above, the patients’ speech investigations in 2 main directions has been conducted:

1. Research of the communication process, where the nature of communication was especially important to the researcher:
 - a. the patient communicates orally silently (silent pronunciation);
 - b. the patient communicates through writing;
 - c. the patient communicates through multilingual means: natural gestures, facial expressions;
 - d. the patient avoids communicating in any way.
2. Examining the preconditions of a voice formation:
 - a. examination of verbal breathing;

b. examination of the mobility of the articular organs.

Before implementation of speech therapy intervention, the medical records of participants have been reviewed, the existing difficulties and problems during the pre-surgery and post-surgery period, the effectiveness of post-surgery rehabilitation, data on the patient's general somatic condition were analyzed.

In addition, interviews have been conducted with each patient's family members and treating physicians, the specifics of each patient and problems caused during the disease process were clarified, and as a result, the approaches to working with each patient have been developed. The purpose and direction of further work have been agreed upon with each patient based on the concept paper.

The speech therapy examination was organized on a step-by-step basis; in each case, the workload was adjusted to the patient's ability to work, to the psychosomatic condition of each participant. To study the communication process, within the framework of establishing contact, at first, a preliminary conversation with the patients with laryngectomies was conducted, paying attention to the patient's desire for communication, nature, and features. Then the question and answer method was used.

The patient was asked simple questions in household life and the nature of the patient's answers was studied. The patients examined did not wear a voice prosthesis or any other sound equipment during the examination. During the examination, each patient was provided with a paper and pen so that could communicate by writing if necessary. Each patient was asked 8 questions and every answer was suspected to have two or more words, excluding "yes" or "no" answers. The results of the research were analyzed according to the following criteria:

- responds orally (silent pronunciation);
- responds by writing (in this case, if possible, we ask the patient to try to pronounce it silently);
- responds using different multilingual means (in this case we again ask them to try to express it if it is possible);
- the patient avoids answering.

Table 2.***The results of the research.***

Participants n-65	Suggested assignment	Type of communication							
		Oral pronunciation		Written		Multilingual means		Lack of communi- cation	
		n	%	n	%	n	%	n	%
Participants n-65	Answering the questions	3	5	40	61	14	21	8	13

Analyzing the results of the research helps to state that the majority of the subjects, 61%, communicate through writing. At the same time, it must be noted that the answers were mostly short, sometimes in one word. It also must be noted that 5% of the participants, despite having a silent pronunciation, but was actively supplemented by multilingual means, and sometimes the answer was not clear enough. It takes a lot of effort from the patient, often after answering 1-2 questions, the patients tried to avoid further questions. 13% of the participants did not execute the task at all, did not give any answer, these patients generally communicated very passively. In this regard, it might be possible to point out, within this context, the psychological manifestations of these patients, the attitude towards the problem, and the existence of several psychosomatic problems in this post-surgery period are very important.

As part of the research, the preconditions for voice formation during the post-surgery period were also examined. Therefore, in line with the logic of the research, further examinations were aimed at the examination of verbal breathing and examination of the mobility of the expressive organs.

The research has been implemented based on the approaches used in speech therapy and suggested by a group of specialists (Kubareva, 2019; Fatayeva, Chubenko, Posokhova & Shanaurina, 2010). The suggested approach was partially modified and adapted to the logic of the research. During the examination of verbal breathing research, several necessary conditions have been assured:

- ensuring optimal temperature in the room (not cold, not hot);
- the work was implemented at least 2 hours after feeding;
- the work did not exceed 7-8 minutes.

The research was implemented based on an individual approach, on a step-by-step basis, with small portions of speech therapy instructions, taking into account the patient's well-being, ability to work, and general mood. In the study of verbal breathing, research was particularly interested in the ability to exhale through the mouth for a long time. For this purpose, patients were asked to keep long inhalation and exhalation through the mouth.

During the process of verbal breathing research, several factors were considered as important, in particular, the nature of the respiratory function, as among the patients who had removed their throats are preserved breathing old stereotypes, even though patients' speech in these new conditions is not formed based on physiological exhalation, but the speech formation and tracheal respiration symmetry are preserved, which significantly complicates the communication process, such as the presence of a trachea tube or absence of that as a result of surgery. The results of the study are presented in Figure 3.

Table 3.
Indicators of verbal breathing.

Participants n-65	Suggested assignment	The nature of verbal breathing					
		Oral long pronunciation		Oral short pronunciation		Did not do the task	
		n	%	n	%	n	%
Participants n-65	Breathing exercises	1	1	57	88	7	11

Analyzing the data presented in Figure 3, it may be stated that only one person can make a long exhalation through the mouth, which is important for voice formulation. The majority of participants, 88%, did task with a big difficulty, mouth exhalation was short, shallow, and 7 (11%) of the participants did not complete the task at all, stating in various languages that they will not be able to, they will feel bad, it is very difficult for them, they do not want to do.

Thus, the results of the study show that during the post-surgery period, the patients with laryngectomy can't perform the essential verbal breathing correctly.

In line with the logic of the research, the further research focus was on the next prerequisite for voice formation, namely the expression organs mobility.

The study of the mobility of the expression organs was implemented by us based on the approaches used in speech therapy, (Gumennaya, 2016; Prikhodko, 2010), which parts have been modified and adapted to the logic and aim of the current study. In this context, patients have been offered several exercises aimed to:

- research the mobility of the tongue (take the tongue out of the mouth, move up, down, side, back);
- research the mobility of lips;
- research the mobility of the lower jaw;
- research the mobility of the soft palate.

In this case, the research was implemented with an individual approach too, on a step-by-step basis, in small portions, taking into account the patient's well-being, ability to work, and general mood. All was done based on the principles taken into account in each part of the research. And the results are presented in Figure 4.

The results here show that the lip exercises were performed more easily than the tongue exercises. 83 % of participants found it difficult to perform accurate, precise, smooth tongue exercises, which, in our opinion, is due to changes in the kinesthetic sensations of the oral cavity after surgery. The results of the mandibular and soft palate examination in Figure 5 shows, that the participants experienced difficulties with soft palate exercises; only 2 of 65 participants completed the tasks, and 95% could not do it. In this situation, such an indicator in the context of soft palate mobility is conditioned on the one hand by the closer physiological connection of the soft palate muscles with the muscles of the vocal apparatus, on the other hand, with problems with verbal breathing, as well as with changes in oral sensation during the postoperative period.

Table 4.***Indicators of tongue and lip mobility.***

Participants n-65	Suggested assignment	Qualitative indicators of exercises							
		Tongue exercises				Lip exercises			
		Makes clear, unobtrusive		Performs vague, constrained		Makes clear, unobtrusive		Performs vague, constrained	
		n	%	n	%	n	%	n	%
Participants n-65	Pronunciation assignment:	22	34	43	66	59	91	6	9

Table 5.***Indicators of the lower jaw and soft palate mobility.***

Participants n-65	Suggested assignment	Qualitative indicators of exercises							
		Lower jaw exercises				Soft palate exercises			
		Makes clear, unobtrusive		Performs vague, constrained		Makes clear, unobtrusive		Performs vague, constrained	
		n	%	n	%	n	%	n	%
Participants n-65	Pronunciation assignment:	13	20	52	80	2	5	6	95

DISCUSSION

The analysis of the results of the current study shows similarities with the results indicated by Dooks, McQuestion, Goldstein, and Molassiotis (2012). Patients with laryngectomies face major changes in their lifestyle related to loss of voice, and related challenges. They avoid active communication and try not to engage in situations that require their speech.

At the same time the results of this research somehow are controversial with the results indicated by Carr, Schmidbauer, Majaess, and Smith, (2000), where participants mentioned only the difficulties while talking in a noisy environment. There was no difference in overall quality of life as was indicated by the participants as well. Still, it is very important to mention, that within this study all participants were using electrolaryngeal,

esophageal or tracheoesophageal speech. While in current research participants do not use any of mentioned above.

Psychological feelings of these patients with laryngectomy were quite observable within the frame of the current study and that was quite relevant with the findings indicated by Pereira da Silva, Feliciano, Freitas, Esteves, and Almeida e Sousa (2015) where authors point out that the communication changes of patients with laryngectomy disrupted social roles affecting a person's sense of self and quality of life. At the same time an intervention based on a team approach while working with these patients will be much more effective (Gumennaya, 2016) and will enhance their quality of life.

CONCLUSION

In consequence, summarizing the results of speech therapy examination results within the frame of the current study, it becomes possible to state:

- the voice is a key indicator in the context of verbal communication and while the absence of a voice, the verbal communication of people with a sore throat is mostly incomplete, it is implemented either in writing or through the use of multilingual language;
- some people with laryngectomy have several psychological problems, and as a result of which these patients avoid communication at all, and their communication is limited to giving "yes" or "no" short answers, or pointing to something;
- among the people with laryngectomy, during the post-surgery period, there are problems for voice formulation in the context of verbal breathing and mobility of articular organs. Moreover, the psychological feelings of these patients were quite visible here, as a result of which they refused to do some exercises, quickly became discouraged, and were disappointed in case of a small difficulty.

Summarizing the result of the research, it must be noted that after laryngectomy the patient, having the means of communication, the word, but losing one of the components of expressive speech, the voice, has pronounced communication difficulties. Some patients, realizing their inferiority due to

absence, try to take various ways to overcome the problem, others become discouraged, frustrated, lose their optimism, their desire to overcome the problem and return to a full life. Patients in the study had certain prerequisites for vocal cords, such as verbal breathing and expressive mobility problems. The above mentioned emphasizes the importance and urgency of finding optimal ways of speech therapy effective intervention for people with a laryngectomy.

REFERENCE LIST

1. American Cancer Society. Guidelines for the Early Detection of Cancer, 2020.
2. American Cancer Society. Cancer Facts & Figures 2014. Atlanta, Ga: American Cancer Society; 2014
3. Carr, M., Schmidbauer, J. A., Majaess, L., & Smith, R. L. (2000). Communication after laryngectomy: an assessment of the quality of life. *Otolaryngology-Head and Neck Surgery*. [https://doi.org/10.1016/S0194-5998\(00\)70141-0](https://doi.org/10.1016/S0194-5998(00)70141-0).
4. Dooks, P., McQuestion, M., Goldstein, D., & Molassiotis, A. (2012). Experiences of patients with laryngectomies as they reintegrate into their community. *Supportive Care in Cancer*. <https://doi.org/10.1007/s00520-011-1101-4>.
5. Fateeva, N. M., Chubenko, E. A., Posokhova, M. A., & Shanaurina, O.A. (2010). Ispolzovanie dikhatelnikh metodik dlya formirovaniya rechevogo dikhaniya u detey s psevdobulbarnoy dizartriey, *Specialnoe obrazovanie N2*, s. 44-48.
6. Gumennaya, G. S. (2016). Diagnosticheskaya deyatel'nost' korrektsionnogo pedagoga, Aktualnie problem specialnoy psikhologii i korrektsionnoy peradogiki: teoriya i praktika: sb. Nauch. tr. X mejdunarod. nauch. – praktich. konf. (24 maya 2016g.), nauch. red. A. I. Akhmetzyanova. 2016. – Vip. 10. – s. 234–238.
7. Hutton, K. (2021). Communicating after a laryngectomy - information for patients. University Hospital Birmingham, NHS Foundation Trust.

8. Kubareva, E., V. (2019). Issledovanis funkcii rechevogo dikhaniya doshkolnikov so stertoj dizartriej, Nauchno-metodicheskiy elektronniy journal Kontsept, N 2, s.1-4.
9. Pereira da Silva, A., Feliciano, T., Freitas, S., Esteves, S. & Almeida e Sousa, C. (2015). Quality of life in patients submitted to total laryngectomy. Journal of Voice. <https://doi.org/10.1016/j.jvoice.2014.09.002>.
10. Sharpe, G., Costa, C.V., Doubé, W., Sita, J., McCarthy, Ch., & Carding, M.(2018). Communication changes with laryngectomy and impact on quality of life: a review. National Library of Medicine, Qual Life Res, Apr; 28(4):863-877.
11. Uklonskaya, D. V. (2016). Vosstanovlenie golosovoy funkcii posle udaleniya gortani: novie vozmojnosti i alternativni //Pedagogika i psikhologiya obrazovaniya, 2016 N1, s.37-43.