

Psychosocial Implications of Patients with Tracheostomy - a Suggestive Example of Interdisciplinarity

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Abstract: *Performed urgently or out of necessity, tracheostomy is one of the most traumatic surgeries that seriously affects the patient's quality of life. It has a profound impact on the ability to communicate and on self-esteem, so that the patient can experience a storm of emotions and major changes that can affect their existence.*

The patient with tracheostomy is a special patient with special needs. The care of such a patient involves a constant multidisciplinary effort supported by specialists in many fields: ENT specialists, oncologists, radiotherapists, anesthetists, neurosurgeons, general surgeons, physiotherapists, speech therapists, nutritionists especially psychotherapists.

Tracheostomy affects the basic needs of the individual: communication, nutrition, sexuality, social relationships.

Numerous studies show that patients with tracheostomy show a high level of psychological distress. Depression, anxiety, low self-esteem, frustration, alienation, isolation, tendency to suicide are the negative consequences of this mutilating surgery.

Perceived as a permanent disability, tracheostomy requires special care from a psychological point of view.

Sometimes, however, it is observed that both patients and their families are not sufficiently informed about the management of tracheostomy. Due to lack of means or staff, not enough emphasis is placed on preoperative training so that the patient fully understands both the benefits and the disadvantages of this surgical technique. Therefore, often the patient's family, which later assumes the role of caregivers of the tracheotomized, perceives it as a burden, excessive fatigue, helplessness, abandonment from society.

This paper aims to highlight the importance of pre- and postoperative psychological training of both the patient and his family and to demonstrate that tracheostomy care can be one of the most suggestive examples of interdisciplinarity that seeks to provide effective solutions in this regard.

Keywords: *tracheostomy care, psychological impairment, psychotherapy, multidisciplinary team.*

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1. Introduction

The surgery that consists in opening the anterior wall of the trachea at the cervical level in order to create a direct communication with the outside is called tracheotomy. This is a temporary surgical procedure. The permanent one is, performed by anchoring the trachea to the skin and is called tracheostomy. In both cases the tracheal cannula is used.

Known since antiquity, this salvage intervention has endured many criticisms and failures. In the twentieth century Jackson Chevalier standardized the technique, the necessary instruments, certain features of the tracheal cannulas but also the indications of this surgical technique (Călărașu et al., 2013).

Depending on the relationship with the thyroid isthmus, tracheostomies are supraistmic, transistmic and subistmic. They can be performed urgently, out of necessity or percutaneously.

But regardless of the type of intervention, this surgical procedure has multiple advantages but also disadvantages.

The main, absolute indication for emergency tracheotomy is upper airway obstruction caused by congenital diseases, acute inflammatory diseases of the larynx, allergic diseases, burns, cervical trauma, laryngeal damage and glottic space obstruction, laryngeal foreign bodies and tracheobias. tumors that obstruct the respiratory space.

The relative indications of tracheotomies consist in the fact that they are performed for palliative purposes in the presence of tumor processes with loco-regional evolution, in which chronic laryngeal stenoses are observed or in radiotherapy, in prolonged mechanical ventilation preventing injuries secondary to tracheal intubation pharyngolaryngeal interventions (Călărașu et al., 2013).

In the case of tracheotomies there are no absolute contraindications but only the relative ones by which only the timing of the intervention is recommended.

The advantages of tracheotomy are particularly important. First of all it ensures a good approach of the respiratory tract through which the aspiration of bronchial secretions can be achieved and it improves the comfort of the patient with the possibility of oral or communication feeding. It also protects the respiratory tract in patients neurosurgical.

However, the technique is not without complications that can be both immediate or late, intraoperatively or postoperatively and functional complications: swallowing disorders, functional disorders of the larynx (Călărașu et al., 2013; Mirea et al., 2017)

2. Material and methods

This article was written on the basis of the research in the specialized literature and on the observation sheets of the ENT clinic, with the approval of the ethics commission of the County Clinical Hospital “Sfantul Apostol Andrei” Galati, Romania, no. registration 4500 of 19.02.2021.

We conducted an observational study on the number of tracheostomies and other surgical techniques performed at our center.

Thus, in the ENT clinic of the Galati County Emergency Hospital, between January 2017 and July 2020, 179 tracheostomies were performed and 8 other techniques such as: replacement of the tracheal cannula, excision of peristomal granulations, inspections and local toilets. These procedures were applied. in 156 men and 23 women, patients under 50 were 42 and over 50 were 137. In this study, the main indications for tracheostomy were in descending order: respiratory failure caused by the presence of tumors in the pharyngo-laryngeal, oral cavity, severe brain trauma affecting the respiratory centers (see table no. 1).

Table 1. Effective tracheostomies in the ENT clinic

Interventions		2017	2018	2019	2020
	TRACHEOSTOMY	54	49	52	24
	TOTAL				
TRACHEOSTOMY	Male	45	45	46	20
	Female	9	4	6	4
	<50 years old	14	9	12	7
	>50 years old	40	40	40	17
	Necessity	21	9	31	15
	Emergency	29	38	15	6
	Percussive	0	1	4	2

Source: Autors’ own conception

Thus, these patients require special care exemplified in the following exposition.

3. The need for interdisciplinarity

Thousands of tracheostomies are performed worldwide each year, which is a challenge for both the patient, his family and the medical staff (Nakarada-Kordic et al., 2018).

Pre-and especially postoperative care of a patient undergoing tracheostomy involves a constant multidisciplinary effort sustained by specialists in many fields: ENT specialists, oncologists, radiotherapists, anesthetists, neurosurgeons, general surgeons, physiotherapists, speech therapists, nutritionists, therapists, social therapists but especially psychotherapists.

Affecting the basic needs of the individual, tracheostomy involves the presence of a special management. Thus, the care of tracheostomy is one of the most suggestive examples of interdisciplinarity, requiring more medical teams, trained staff to provide continuous and effective care, starting from preoperative to home care or recovery centers. (Bonvento et al., 2017)

3.1 .The need for specialists in respiratory rehabilitation

Careful management and care of the patient with tracheostomy, especially immediately postoperatively, reduces the possibility of serious respiratory complications: occlusion of the tracheal cannula with mucus, hemorrhage, pneumothorax, subcutaneous emphysema accompanied by swallowing disorders, malnutrition, lack of speech and lack of the capacity of satisfying the patient,s basic needs. In this sense, collaboration between specialities is essential to provide safe care for these patients. This requires synchronized specialities on duty, standardized protocols, interdisciplinary education, patient involvement in the process of self-care and the family suport. In this sense, the staff is trained to provide basic care such as: aspiration of endotracheal secretions, rigorous hygiene of surgical wounds, hygiene of the mandrel of the tracheal cannula, infection control, maintaining the permeability of the tracheal cannula through humidifiers 24 hours, nebulizations, nasal-oral hygiene, encouraging the self-elimination of secretions that appear at the level of tracheostomy. These maneuvers must be performed gently, because, for example too aggressive aspiration can affect the trachea with the possibility of bleeding, tracheal stenosis, peristomal granulations, pneumonia and tracheitis (Rovira et al., 2021).

Also playing an important role in the care process are respiratory physiotherapists who have skills in treating respiratory problems caused by tracheostomy through breathing techniques and exercises aimed at adequate

chest clearance. Certain respiratory devices with positive pressure can be used. And also the combination of drug therapy for the mobilization of secretions, nebulizations, mucolytics. Respiratory physiotherapists have a special role in the physical rehabilitation of patients, especially at the time of decanulation (Bonvento et al., 2017)

3.2. Help in communication rehabilitation

Because tracheostomy severely affects the function of communication, a thorough protocol is needed in this regard.

Immediately after surgery, the inability to communicate causes states such as: anxiety, frustration, helplessness associated with lack of confidentiality being necessary to use other people to understand the patient. Sometimes patients have found that the loss of the ability to speak is more painful than the surgical procedure. This feeling disappears with speech rehabilitation, but if it is a permanent surgical procedure patients need specialized help and must adapt various communication strategies to improve quality of life and therapeutic act. Speech therapists have a role in recovering the voice, a phenomenon that gives patients a state of well-being and improving self-esteem and the ability to be helped and understood (Nakarada-Kordic et al., 2018). In the case of ENT cancer patients, the side effects of chemoradiotherapy, including: oral and intestinal mucositis, xerostomia, dental damage, skin changes, osteoradionecrosis of the temporomandibular joint or skull base, changes in taste and smell. There are, therefore, also neglected: the function of speech and swallowing. For this purpose are used by specialists swallowing exercises, closing and opening the mouth, mobility of the tongue.

Unfortunately, there are currently few qualified specialists in this field. Often these procedures are expensive and the centers that provide them are few, especially if patients do not benefit from a satisfactory socio-economic status (Schorn et al., 2020).

3.3. The need for nutritionist, oncologist, radiotherapist and other multidisciplinary teams

Studies show that tracheostomy is generally associated with major benefits over prolonged ventilation through orotracheal intubation. The tracheostomized patient benefits from mobility, the possibility of oral nutrition and hydration, and fewer sedatives and analgesics (Sutt et al., 2020).

In general, the lack of ability to meet basic needs such as nutrition, hydration, communication is associated with a high level of anxiety (Sutt et al., 2020). Although parenteral nutrition can be used, it has been found that

after tubing patients and initiating enteral nutrition patients acquire a certain degree of autonomy leading to a significant improvement in quality of life. Thus, enteral nutrition is much more appropriate than parenteral nutrition because it reduces the risk of hepatobiliary dysfunction and electrolyte imbalances, being associated with a lower incidence of subsequent infections or gastrointestinal bleeding.

Patients with tracheostomy, especially oncological ones, need a professional nutritional plan through a standardized management. This improves the nutritional status, the patient's prognosis and reduces the risk of nosocomial infections (Wang et al., 2018).

Studies have shown that psychological state is associated with nutritional status especially in oncological cases of head and neck. In these patients mental suffering and malnutrition is higher than in other groups of patients.

Malnutrition, cachexia seriously influence the effectiveness of oncological treatment and it is necessary to perform gastrostomy, a surgical process as painful as psychic tracheostomy.

After the oncological record of the patient by the specialists, the elaboration of a therapeutic plan together with the radiotherapist, before starting the indicated therapy, a nutritional evaluation of the patient is imperative in order to reduce mortality and morbidities and the risk of acute and late complications related to oncological treatment (Gosak et al., 2020).

4. The psychological suffering of patients with tracheostomy

This paper also focuses on the psychosocial implications of these patients by highlighting certain facets less observed in the clinic every day.

The literature shows that there is little knowledge about the impact of tracheostomy on patients and their caregivers.

Patients with head and neck cancer, especially those to whom tracheostomy is addressed, are special patients, especially with special needs. Although the overall survival rate of head and neck cancer patients has improved considerably due to therapeutic advances, few studies explore the psychological problems that derive from these interventions. These patients suffer from severe dysfunctions and loco-regional disfigurements that can lead to special psychological problems (Ichikura et al., 2020).

One of the most common psychosocial problems encountered in patients with head and neck cancer is depression. Of these patients, 7-50% suffer from major depression compared to other patients diagnosed with other types and locations of tumors.

Considered to be an under-recognized comorbidity, depression in cancer patients has multiple psychosocial implications, is different from that of healthy patients. Moreover, it can compromise the patient's quality of life and influences the response to cancer treatment (Ionuț et al., 2019). In addition, 16 % of patients with head and neck cancer show suicidal tendencies immediately after diagnosis (Ichikura et al., 2020).

Tracheostomy is one of the most traumatic surgeries that severely affects the patient's quality of life because it addresses the basic needs of the individual such as: breathing, communication, nutrition, sexuality, social relationships, professional activity, but also body integrity, especially when surgery is perceived as a permanent handicap (Nakarada-Kordic et al., 2018).

Moreover, the loss of voice has a profound impact on self-esteem, the patient may experience a "storm of emotions", even dark ones that can affect his daily life. Loss of voice is associated with serious negative changes starting with mood, frustration, anger that apparently no one understands, stress, loneliness, isolation, vulnerability. Patients may feel mentally traumatized because they believe they cannot be able to convey messages and be understood (Freeman-Sanderson et al., 2018).

Lack of confidentiality, the feeling of pain, loss of control over his health, are experiences that seriously affect the patient's psyche. Therefore it is necessary to implement effective communication strategies: voice button, high-performance digital devices, support from professionals in the field (Nakarada-Kordic et al., 2018).

Another negative aspect of tracheostomy is the fact that this intervention is disfiguring, mutilating, seriously affecting the patient's body image. This is where real psychological challenges and dramas arise for the patient, because self-image, sexuality, social relations and even his psychological health are damaged, especially if the intervention is permanent. The increase in anxiety and depression is much greater if the intervention took place urgently without preoperative training, and immediately after the intervention the patient wakes up in a whole new world where he cannot adapt. Where there is a social withdrawal and isolation because tracheostomies feel ashamed, attract the public's attention, especially if there is a cough attack with expulsion of secretions. Tracheostomy severely affects family relationships: many partners divorce because of this (Nakarada-Kordic et al., 2018).

Studies show that radical treatment of head and neck cancers severely affects the mental health of the patient, who often suffers from emotional changes with increased risk of suicide. The incidence of suicide is

four times higher among ENT cancer patients than among other oncological conditions.

The common denominator of depressive syndromes, including the cancer patient, is, as mentioned above, the risk of suicide. Classified as selfish, altruistic, anomic or fatalistic, suicide is difficult to explain in the case of cancer patients (Bolos et al., 2012).

Depression, anxiety, and severe psychological problems are also associated with a poor lifestyle that the patient continues even after surgery or during cancer treatment such as alcohol and tobacco (Twigg et al., 2020).

5. Socio-economic implications of the patient with tracheostomy

Most of the times, the ENT oncological patient for whom tracheostomy is recommended is extremely late in the medical centers when the oncological condition is much advanced loco-regionally, in advanced stages, usually outdated therapeutically. In these cases only palliative treatment is provided. For this reason, it is necessary to implement population screening strategies in order to early diagnose head and neck cancers in order to reduce the costs of hospitalization and subsequent treatment.

Many head and neck cancer survivors face serious economic problems such as: job loss, financial stress, high costs associated with cancer treatment. It is considered that the treatment of head and neck cancer is the most expensive. At this add different levels of depression and high suicide rate (Osazuwa-Peters et al., 2018).

Also, the care of the tracheostomy is expensive, with multidisciplinary involvement and long recovery time. The social impact on this type of patient, in addition to those listed above, adds to the family reluctance, lack of integration and social adaptation (Swain et al., 2021).

One of the important aspects suffered by the tracheostomy is the reluctance of employers to re-employ the patient with such problems, one of the causes being compensatory disputes. Moreover, due to the appearance and problems related to tracheostoma patients are forced to give up physical activities such as: swimming, mountaineering, running or are afraid of too long trips (Nakarada-Kordic et al., 2018).

6. Psychological evaluation and quality of life of the patient with tracheostomy

The psychological well-being of the patient with tracheostomy is considered by researchers as important as the physical one. For this,

numerous assessment tools are used in order to give the patient a sense of self-knowledge, acceptance of his condition and to be able to share their needs and feelings (Billington & Lockett, 2019).

These tools assess: the functional integrity of the patient, vitality, the level of physical and emotional problems, social integration, mental health, physical and mental well-being in general. The most well-known tools are: the Short Q 36 questionnaire, the European Research Organization questionnaire and Quality of Life Cancer Treatment (EORTC QLQ - C30) as a measure of the quality of life, EORTC QLQ-C30, EORTC QLQ-H & N35 specially designed for head and neck, Hospital Anxiety and Depression Scale (HADS). Designed to provide effective solutions, these tools can help the patient cope with the socio-emotional impact associated with tracheostomy (Melissant et al., 2018).

7. The role of the family in the process of tracheostomy care

Tracheostomy has a special impact not only on the patient but also on their family or group of friends.

Depending on the situation, informing the patient or their family about the tracheostomy is a real shock, and the feeling of joy and impatience experienced at discharge quickly turns into despair and misery.

Often the spouse or caregiver of the tracheostomized person seems overwhelmed by experiencing feelings of depression, feeling helpless, feelings of abandonment by other family members. sleep disorders, decreased social interactions, other times being forced to give up the profession in favor of the loved one who is so affected (Watchara & Kiwanuka, 2019).

Prior to discharge, the family or caregiver of the tracheostomy must be well trained in the care maneuvers of the tracheostomy: rigorous peristomal toilet, washing or changing the mandrel of the tracheal cannula, proper oral hygiene, nutrition, mobilization, etc. at the possibility of respiratory difficulties, clogging of the cannula with mucus. In some cases the relatives are trained for emergency interventions, change of the tracheal cannula, respiratory resuscitation maneuvers, oxygenation of the patient with mobile equipment (Swain et al., 2021; Watchara & Kiwanuka, 2019). Although the caregivers experience feelings of reluctance, fatigue, depression, the feeling that the person being cared for is a burden for the family, they learn to accept the problems and overcome them. Thus, at some point, will feel satisfaction, gratitude, and improve their care skills, express a high degree of empathy, they understand and try to alleviate the suffering of the person being cared for (Watchara & Kiwanuka, 2019).

8. Psychosocial interventions

Unfortunately, the psychological suffering of the patient with tracheostomy is difficult to estimate. Sometimes professional interventions are needed for such individuals to face the challenges of this extremely painful mental intervention.

The main objectives of psychosocial interventions are to reduce the mental suffering brought by the feeling of loneliness, isolation, social abandonment, despair, financial stress, breaking up marital relations. Also, the patient is helped to effectively manage the care process. These types of patients are: psychoeducation, individual and group psychotherapy, cognitive-behavioral training. These interventions help the patient to become aware of their needs, to express their emotions and mental feelings, to take responsibility for the self-care process.

Carried out with the help of specialized personnel, these interventions have a multitude of benefits, ensuring first of all the psychosocial well-being of this type of patient, which is so difficult to understand (Semple et al., 2013).

Another new and effective psychotherapeutic tool is considered to be the motivational interview through which the patient is helped to accept and respect the recommended treatment even in the case of tracheostomy. These concrete ways help the patient to overcome the immediate postoperative moment, thus changing the perspective on the therapeutic act. In this sense, a new approach is needed, of a personalized, individual, patient-centered therapy from a bio-psycho-social perspective (Curis et al., 2018).

9. Beyond unspoken words

Although it is a surgical technique in which the survival of the individual prevails, mental suffering often remains permanent, severely affecting the patient's well-being and quality of life. Tracheostomy is a mutilating operation, leaving scars difficult to understand, especially in young patients or pediatricians or if the intervention was performed urgently without the patient's prior preparation. The negative impact increases when the individual suffers stigma or is labeled in the community or in society as people with a severe physical disability. The disfigurement often cannot be simulated due to access of cough, secretions. These patients are perceived as a burden, a torment for family and society. Sometimes they are associated with people with mental retardation. They feel ashamed, worthless, abused, ignored and misunderstood by friends and family, without a future. abandoned.

Mental suffering is accentuated in individuals who before the intervention had an extroverted, sociable temperament, with occupations in which communication, singing, physical effort played an essential role. These categories of patients require specialized help to avoid subsequent psychosocial toxicities.

This paper highlighted the fact that beyond the surgical act, the mental suffering of the patient with tracheostomy must not be neglected and that beyond the unspoken words it is a strong cry for help that we must know how to give.

10. Conclusions

Although tracheostomy is a life-saving procedure, it is found that the psychosocial implications are often neglected.

Both the patient and their family should have clear information and instructions regarding the process of tracheostomy care.

Because it affects the basic needs of the individual, effective care strategies must be adapted to cover all the patient's needs.

The patient himself must be actively involved in the self-care process, and in addition to the tracheostomy care procedures, the risks of psychological distress must be managed, using certain interventions in order to obtain adequate mental well-being.

In the therapeutic management of ENT cancer patients, an assessment of mental health, suicide risk and other psychosocial toxicities is required.

Managing economic problems, job loss, financial stress generated by the high cost of treatments associated with depression, anxiety, fear, anger, isolation, feelings of worthlessness, abandonment, deep mental pain related to loss of voice, relationships, previous life style , make the care of tracheostomy a complex and difficult act.

This paper demonstrates that the care of tracheostomy is one of the most suggestive examples of interdisciplinarity, offering effective solutions for the psychosocial problems associated with this special type of patient who needs special care.

References

- Billington, J., & Luckett, A. (2019). Care of the critically ill patient with a tracheostomy. *Nursing Standard*, *34*(2), 59–65.
<https://doi.org/10.7748/ns.2019.e11297>

- Bolos, A., Ciubara, A. M., Chirita, R. (2012). Moral and ethical aspects of the relationship between depression and suicide. *Revista Romana de Bioetica*, 10(3), 71-79.
- Bonvento, B., Wallace, S., Lynch, J., Coe, B., & McGrath, B. A. (2017). Role of the multidisciplinary team in the care of the tracheostomy patient. *Journal of Multidisciplinary Healthcare*, 10, 391–398.
<https://doi.org/10.2147/JMDH.S118419>
- Călărășu, R., Dimitriu, T., & Safta, D. (2013). Îndrumar pentru examenul de specialitatea ORL și chirurgie cervico-facială [Guide for the ENT and cervico-facial surgery exam].
<https://www.scribd.com/document/370247815/Indrumar-Pt-Examenul-Practic-in-Specialitatea-ORL-Si-Chirurgie-Cervico-Faciala-1>
- Curis, C., Ciubară, A. B., Nechita, A., Nechita, L., Kantor, C., & Moroiianu, L. A. (2018). The role of the motivational interview in treatment. *Revista Medico-Chirurgicală a Societății de Medici și Naturaliști*, 122(2), 375–380.
<https://www.revmedchir.ro/index.php/revmedchir/article/view/1172>
- Freeman-Sanderson, A. L., Togher, L., Elkins, M., & Kenny, B. (2018). Quality of life improves for tracheostomy patients with return of voice: A mixed methods evaluation of the patient experience across the care continuum. *Intensive and Critical Care Nursing*, 46, 10–16.
<https://doi.org/10.1016/j.iccn.2018.02.004>
- Gosak, M., Gradišar, K., Rotovnik Kozjek, N., & Strojan, P. (2020). Psychological distress and nutritional status in head and neck cancer patients: a pilot study. *European Archives of Oto-Rhino-Laryngology*, 277(4), 1211–1217.
<https://doi.org/10.1007/s00405-020-05798-y>
- Ichikura, K., Nakayama, N., Matsuoka, S., Ariizumi, Y., Sumi, T., Sugimoto, T., Fukase, Y., Murayama, N., Tagaya, H., Asakage, T., & Matsushima, E. (2020). Efficacy of stress management program for depressive patients with advanced head and neck cancer: A single-center pilot study. *International Journal of Clinical and Health Psychology*, 20(3), 213–221.
<https://doi.org/10.1016/j.ijchp.2020.06.003>
- Paduraru, I. M., Vollmer, J., Diana, P., Bogdan, C. A., Hozan, C. T., Firescu, D., & Ciubara, A. (2019). Anxiety and depression in patients with cancer. A case report. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 10(3), 55-59.
- Melissant, H. C., Jansen, F., Schutte, L. E. R., Lissenberg-Witte, B. I., Buter, J., Leemans, C. R., Sprangers, M. A., Vergeer, M. R., Laan, E. T. M., & Verdonck-de Leeuw, I. M. (2018). The course of sexual interest and enjoyment in head and neck cancer patients treated with primary (chemo)radiotherapy. *Oral Oncology*, 83, 120–126.
<https://doi.org/10.1016/j.oraloncology.2018.06.016>

- Mirea, L., Ungureanu, R., Mirea, D., Țigliș, M., Grințescu, I. C., Neagu, P. T., & Grințescu, I. M. (2017). The timing of tracheostomy in critically ill patient. *ORL.Ro*, 2(35), 20. <https://doi.org/10.26416/orl.35.2.2017.794>
- Nakarada-Kordic, I., Patterson, N., Wrapson, J., & Reay, S. D. (2018). A systematic review of patient and caregiver experiences with a tracheostomy. *Patient*, 11(2), pp. 175–191. <https://doi.org/10.1007/s40271-017-0277-1>
- Osazuwa-Peters, N., Simpson, M. C., Zhao, L., Boakye, E. A., Olomukoro, S. I., Deshields, T., Loux, T. M., Varvares, M. A., & Schootman, M. (2018). Suicide risk among cancer survivors: Head and neck versus other cancers. *Cancer*, 124(20), 4072–4079. <https://doi.org/10.1002/cncr.31675>
- Rovira, A., Dawson, D., Walker, A., Tornari, C., Dinham, A., Foden, N., Surda, P., Archer, S., Lonsdale, D., Ball, J., Ofo, E., Karagama, Y., Odutoye, T., Little, S., Simo, R., & Arora, A. (2021). Tracheostomy care and decannulation during the COVID-19 pandemic. A multidisciplinary clinical practice guideline. *European Archives of Oto-Rhino-Laryngology*, 278(2), 313–321. <https://doi.org/10.1007/s00405-020-06126-0>
- Schorn, L., Lommen, J., Sproll, C., Krüskemper, G., Handschel, J., Nitschke, J., Prokein, B., Gellrich, N. C., & Holtmann, H. (2020). Evaluation of patient specific care needs during treatment for head and neck cancer. *Oral Oncology*, 110, 104898. <https://doi.org/10.1016/j.oraloncology.2020.104898>
- Simple, C., Parahoo, K., Norman, A., Mccaughan, E., Humphris, G., & Mills, M. (2013). Psychosocial interventions for patients with head and neck cancer. *Cochrane Database of Systematic Reviews*, 2013(7). <https://doi.org/10.1002/14651858.CD009441.pub2>
- Sutt, A. L., Tronstad, O., Barnett, A. G., Kitchenman, S., & Fraser, J. F. (2020). Earlier tracheostomy is associated with an earlier return to walking, talking, and eating. *Australian Critical Care*, 33(3), 213–218. <https://doi.org/10.1016/j.aucc.2020.02.006>
- Swain, S. K., Acharya, S., & Das, S. (2021). Social impact of tracheostomy: Our experiences at a tertiary care teaching hospital of Eastern India. *Journal of the Scientific Society*, 47(3), 148. https://doi.org/10.4103/JSS.JSS_61_20
- Twigg, J. A., Anderson, J. M., Humphris, G., Nixon, I., Rogers, S. N., & Kanatas, A. (2020). Best practice in reducing the suicide risk in head and neck cancer patients: a structured review. *British Journal of Oral and Maxillofacial Surgery*, 58(9), 6–15. <https://doi.org/10.1016/j.bjoms.2020.06.035>
- Wang, C., Wang, J., Wang, B., Jing, X., & Huang, Y. (2018). Effect of enteral nutrition tolerance assessment standardized process management on ventilator associated pneumonia and prognosis in patients with tracheotomy and long-term mechanical ventilation in intensive care unit. *Zhonghua Wei Zhong Bing Ji Jiu Yi Xue*, 30(12), 1173–1177. <https://doi.org/10.3760/cma.j.issn.2095-4352.2018.12.014>

Watchara, T., & Kiwanuka, F. (2019). Special article family caregivers for older adults with a tracheostomy during hospitalization: Psychological impacts and support. In *International Journal of Caring Sciences*, 12(2), 1244-1250. http://www.internationaljournalofcaringsciences.org/docs/75_1-tabootwong_special_12_2.pdf