Am J Transl Res 2024;16(3):855-863
www.ajtr.org /ISSN:1943-8141/AJTR0151850

Original Article

Significant enhancement of swallowing function and oral hygiene following multidisciplinary team nursing in tongue cancer patients after radical resection

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Received June 21, 2023; Accepted August 30, 2023; Epub March 15, 2024; Published March 30, 2024

Abstract: Objective: To determine the effects of multidisciplinary team (MDT) nursing mode on the swallowing function and oral hygiene in patients after radical resection of tongue cancer (TC). Methods: The data of 88 patients with TC treated in West China School/Hospital of Stomatology, Sichuan University were analyzed retrospectively. Among them, 42 patients who received routine nursing between February 2019 and February 2020 were assigned to a control group, and 46 patients who received MDT nursing between March 2020 and February 2022 were assigned to an observation group. The two groups were compared in the changes of postoperative swallowing function and oral hygiene, postoperative swallowing-related quality of life (QoL), and the survival rate for myocutaneous flap. The risk factors affecting swallowing function were analyzed through Logistic regression. Results: After one month of nursing, the score of swallowing function decreased notably in both groups, with notably lower score in the observation group than that in the control group ($P < 0.05$). The control group exhibited notably lower oral cleanliness than the observation group after nursing ($P < 0.05$). Additionally, a notably lower survival rate of myocutaneous flap was found in the control group than that in the observation group ($P < 0.05$). The QoL scores of the two groups increased notably after nursing, and the observation group had notably higher QoL score than the control group ($P < 0.05$). The extent of glossectomy and nursing plan were independent risk factors impacting the recovery of swallowing function ($P < 0.05$). Conclusion: MDT nursing have a positive impact on oral hygiene as well as the swallowing function of patients after radical resection of TC, and MDT is a protective factor for swallowing function in the patients after radical resection.

Keywords: Multidisciplinary team, radical resection of tongue cancer, swallowing function, oral hygiene

Introduction

Tumors are frequently seen diseases posing a serious threat to human health [1]. Oral and maxillofacial tumors account for approximately 3% of all malignant tumors and ranking 8th in incidence rate [2]. Specifically, tongue squamous cell carcinoma (TSCC) is the most frequently seen type [3]. Although multidisciplinary comprehensive therapies like surgical treatment combined with postoperative radiotherapy, chemotherapy, and immunotherapy has been adopted for TSCC, patients are still affected by the strong invasiveness, easy metastasis, and recurrence, resulting in a low survival rate after surgical resection and lymph node dissection [4-8].

Radical resection of tongue cancer (TC) is the main treatment for TSCC [9], which often leads to functional and appearance deficits of the tongue, and a lower quality of life (QoL) after operation [10]. Current nursing methods after such surgery often struggle with challenges such as large oral wounds, increased blood exudation, and decreased oral cleaning ability caused by the use of vasodilators after operation [11, 12]. These conventional nursing approaches often do not offer comprehensive or personalized care, which could potentially

https://doi.org/10.62347/TQFJ8242

impact the patient's recovery and QoL. The Multidisciplinary Team (MDT) nursing mode is a novel approach that leverages teamwork to offer comprehensive and high-quality medical services. This approach involves experts from various disciplines who contribute their expertise towards developing an optimal treatment and nursing plan, so as to achieve better treatment outcomes and improve the QoL of patients [13, 14]. However, it remains unclear whether MDT nursing can be effectively adopted for patients after radical resection of TC.

This study, therefore, aims to fill this gap by exploring the effects of the MDT nursing mode on swallowing function and oral hygiene in patients after radical resection of TC. The findings from this research could offer a reference for the nursing plan of TC, potentially leading to improved patient outcomes and quality of care.

Methods and materials

Subjects

The data of 102 patients with TC treated in West China School of Stomatology, Sichuan University between February 2019 and February 2022 were analyzed retrospectively. This study was performed with the approval from the Medical Ethics Committee of West China School of Stomatology, Sichuan University.

Inclusion and exclusion criteria

Inclusion criteria: patients who were diagnosed with TC; patients who received radical resection of TC with median split of mandible and repair of forearm flap; patients with detailed clinical data.

Exclusion criteria: patients with severe cardiac or pulmonary dysfunction; patients with cognitive impairment; patients with cerebrovascular or other diseases that may trigger neurogenic dysphagia; patients with recurrent advanced malignant tumors or tumors in other organs.

Sample grouping

Data of 102 patients were obtained, and according to the inclusion and exclusion criteria, 88 patients were enrolled. The patients were grouped according to the time when the nursing scheme was introduced into the hospital. Totally 42 patients who received routine nursing between February 2019 and February 2020 were assigned to a control group, and 46 patients who received MDT nursing between March 2020 and February 2022 were assigned to an observation group.

Nursing schemes

In the control group, routine rehabilitation measures were provided, including postoperative anti-infective intervention, wound care, and nutritional support. During the hospitalization, the tongue movement training method was introduced to the patients and their families. After removal of the gastric tube, patients were allowed to begin to eat liquid food and have a gradual transition to a semi-fluid diet. In the case of difficulty in swallowing, the patient was taught to try to use postural compensation techniques such as swallowing with head up.

In the observation group, an MDT nursing group was set up. The nursing group was composed of nurses from the department of stomatology, department of pain, department of psychology, department of nutrition, and responsible nurses, with the nurse from the department of stomatology as the leader. The leading nurse was responsible for uniformly dispatching personnel, organizing and coordinating nursing work, and supervising the implementation of the nursing plan. The nursing plan was divided into three stages, preoperative nursing, intraoperative nursing, postoperative nursing, and discharge care. I. Preoperative nursing: 1. Completion of relevant examination: The nurses were required to ensure that patients completed the necessary laboratory and imaging examinations before operation to provide a basis for preoperative evaluation and team discussion. 2. Nutritional assessment and support: The nurses were arranged to evaluate the nutritional status of patients and then provide personalized nutritional support to enhance their physical strength and help them to be physically prepared for surgery. 3. Psychological support: The nurses provided psychological counseling and intervention for patients to fight against anxiety, depression and other negative emotions, thereby helping patients build confidence to actively face the operation. 4. Health education: The nurses were introduced the surgical process, possible complications, and postoperative rehabilitation methods to pa-

tients and their families, so that they could have a full understanding of the operation. II. Intraoperative nursing: 1. The nurses were required to closely monitor the vital signs of patients to ensure their safety during the operation. 2. The nurses were required to maintain close communication with the surgical team to ensure the smooth progress of the operation. III. Postoperative nursing: 1. Wound nursing: The nurses regularly observed the surgical incision and skin flap transplantation area of patients to prevent infection and to timely treat complications. 2. Pain management: Painkillers were provided as needed to ensure patient comfort. 3. Nutritional support: The nutrition program was adjusted according to each patient's postoperative recovery status to ensure that the patient could get adequate energy and nutrition. 4. Rehabilitation training: After the patient's condition was stable, appropriate physical therapy, speech therapy, and other rehabilitation training were carried out according to the professional advice of the rehabilitation therapist to help the patient recover swallowing function and speech function. 5. Psychological support: Psychological counseling and intervention were provided to address potential mood swings, aiding patients to gradually adapt to the new life state. IV. Discharge care: 1. Health education: Through WeChat, patients and their families were instructed on performing wound care, rehabilitation training, and daily life care at home, so as to ensure that patients receive adequate care and rehabilitation support within the family surroundings. 2. Nutritional guidance: Personalized dietary advice was provided according to the patient's recovery status to help the patient maintain a good nutritional status.

Collection of clinical data

The clinical data were collected from the electronic medical record system, including age, gender, body mass index (BMI), extent of glossectomy, range of cervical lymph node dissection, and neoplasm staging. The scoring indexes included Kubota's water swallow test score [15] and swallowing-related QoL (SWAL-QoL) score [16]. General data included oral hygiene and postoperative survival rate of myocutaneous flap.

Outcome measures

Primary outcome measures: The changes in postoperative swallowing function and oral hygiene were compared between the two groups.

Secondary outcome measures: The two groups were compared in terms of clinical data, postoperative SWAL-QoL score, and survival rate for myocutaneous flap. According to the swallowing function score at one month after operation, the patients with grade 1-2 swallowing function were assigned to an improvement group, and the patients with grade 3 swallowing function or higher were assigned to a non-improvement group. The risk factors impacting the swallowing function were analyzed through Logistic regression.

Statistical analyses

The data were analyzed using SPSS version 26.00 (IBM Corp., Armonk, NY). Categorical variables were compared using the chi-square test between groups. In terms of multiple logistic regression analysis, the LR method was used to determine the risk factors for poor swallowing function. The Shapiro-Wilk method was adopted for normality test of measurement data. Normally distributed data were described by the mean ± standard deviation ($x \pm sd$). Their inter-group comparisons were conducted via independent-samples t test, and the intra-group comparisons via paired t test. $P < 0.05$ (bilateral) was considered to be statistically significant.

Results

Comparison of baseline data

According to comparison of baseline data between the two groups, the control group and observation group were not greatly different in age, gender, BMI, extent of glossectomy, range of cervical lymph node dissection, and neoplasm staging ($P > 0.05$, **Table 1**).

Changes of swallowing function score after operation

The swallowing function scores of the two groups were compared before and after operation. According to the results, the two groups

Table 1. Baseline data

Factors	Control group (n = 42)	Observation group (n = 46)	χ^2 value	*P* value
Age			0.001	0.920
≥ 50 years old	16	18		
< 50 years old	26	28		
Gender			0.277	0.598
Male	27	32		
Female	15	14		
BMI			0.422	0.515
≥ 25 kg/m^2	19	24		
< 25 kg/m^2	23	22		
Extent of glossectomy			1.051	0.305
≥ 50%	21	28		
< 50%	21	18		
Cervical lymph node dissection			0.259	0.610
Bilateral	11	14		
Unilateral	32	32		
Neoplasm staging			0.126	0.722
Stage I	24	28		
Stage II	18	18		

Note: BMI: Body mass index.

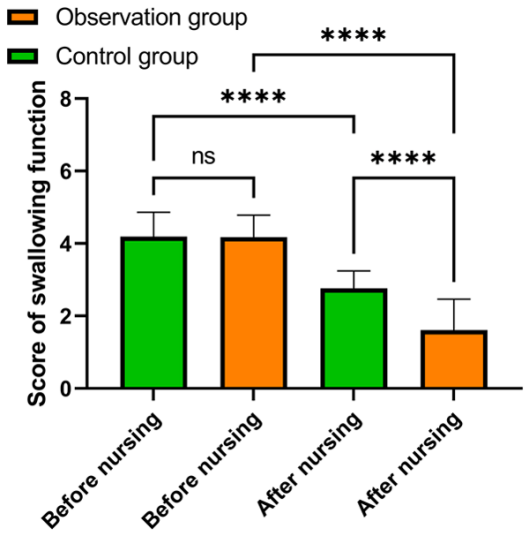

Figure 1. Postoperative swallowing function score of patients. Note: **** indicates P < 0.0001.

were not greatly different in swallowing function score at 5 days after operation (P > 0 05, **Figure 1**), while after one month of nursing, the score of swallowing function in the two groups decreased notably, with notably lower score in the observation group than that in the control group (P < 0.05, **Figure 1**).

Comparison of oral hygiene

According to comparison of oral hygiene between the two groups, the control group exhibited notably lower oral cleanliness than the observation group after nursing (P = 0.035, **Table 2**).

Comparison of survival rate of myocutaneous flap

The survival rate for myocutaneous flap was compared between the two groups. According to the results, after nursing, a notably lower survival rate of myocutaneous flap was found in the control group than that in the observation group (P < 0.05, **Table 3**).

Changes in QoL before and after operation

The QoL scores of the two groups were compared before and after operation. According to the results, before operation, the QoL scores of the control group and observation group were not greatly different (P > 0 05, **Figure 2**), while after one month of nursing, the QoL scores of the two groups increased notably, and the observation group demonstrated notably high-

Table 2. Comparison of the excellent and good rates of oral hygiene

Group	Excellent	Good	Poor	Excellent and good rates
Control group (n = 42)	10	20	12	30
Observation group (n = 46)	26	15	5	41
χ^2 value				4.414
P value				0.035

Table 3. Survival rate of myocutaneous flap

Group	Survived	Infected	Unrecovered	Survival rate
Control group (n = 42)	33	7	2	33
Observation group (n = 46)	43	2	1	43
χ^2 value	4.143	3.629	0.446	4.143
P value	0.041	0.056	0.504	0.041

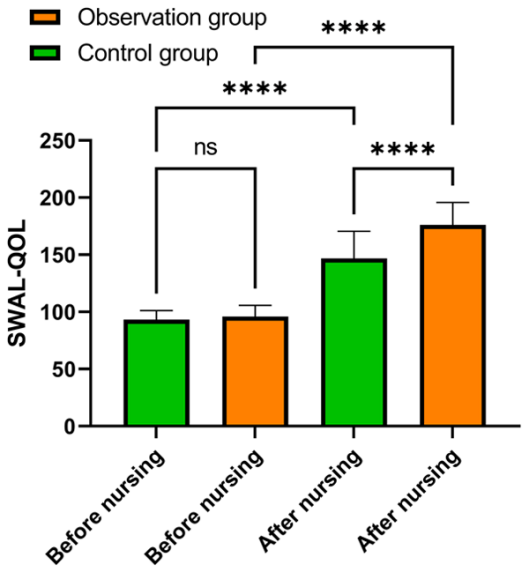

Figure 2. Postoperative quality of life scores of patients. Note: **** indicates P < 0.0001. SWAL-QoL: swallowing-related quality of life.

er QoL score than the control group (P < 0.05, **Figure 2**).

Risk factors affecting the recovery of swallowing function

In this study, the risk factors affecting the recovery of swallowing function were analyzed. According to univariate analysis, age, extent of glossectomy, neoplasm staging, and nursing scheme were the risk factors affecting the patients' wallowing function (P < 0.05, **Table 4**). Indexes with notable differences were assigned (**Table 5**). According to multivariate logistic regression analysis, the extent of glossectomy and nursing scheme were independent risk factors affecting the recovery of swallowing function (P < 0 05, **Table 6**).

Discussion

Maintaining oral hygiene is challenging in patients with TC after operation, because the lesions affect an extensive range [17]. Therefore, serious complications such as oral infection and vascular crisis of musculocutaneous flap may be induced, which compromises the prognosis of patients [10]. The traditional oral nursing methods have limitations to some extent, which cannot effectively reduce the occurrence of oral infection and vascular crisis of musculocutaneous flap [18]. Therefore, the selection of appropriate nursing schemes is of great significance to reduce postoperative complications.

Originating in the 1990s, the MDT mode was initially proposed by a team of American medical experts [19]. This model brings together experts from various departments, such as surgery, internal medicine, radiotherapy, radiology, pathology, and endoscopy, to form a relatively stable treatment group [20]. Under this mode, a specific disease is regularly discussed among experts, resulting in the proposal of an optimal treatment plan tailored to the patient's condition. This plan is then strictly implemented by either an individual responsible department or in collaboration with other departments. Furthermore, the treatment feedback from patients is regularly collected and addressed, leading to continuous revisions of the existing intervention measures [21].

The MDT nursing mode is a patient-centered approach that relies on close cooperation among team members to develop a standardized, personalized, and continuous comprehensive nursing strategy [22]. While there have been numerous studies on the postoperative care for patients who have undergone radical

Table 4. Univariate analysis of factors impacting the recovery of swallowing function

Factors	Non-improvement group (n = 16)	Improvement group (n = 72)	χ^2 value	*P* value
Age			5.634	0.017
≥ 50 years old	2	32		
< 50 years old	14	40		
Gender			2.572	0.108
Male	8	51		
Female	8	21		
BMI			0.204	0.651
≥ 25 kg/m^2	7	36		
< 25 kg/m^2	9	36		
Extent of glossectomy			7.460	0.006
≥ 50%	4	45		
< 50%	12	27		
Cervical lymph node dissection			0.842	0.358
Bilateral	3	22		
Unilateral	13	51		
Neoplasm staging			5.723	0.016
Stage I	5	46		
Stage II	11	26		
Oral hygiene			0.067	0.966
Excellent	7	29		
Good	6	29		
Poor	3	14		
Survival rate for myocutaneous flap			2.144	0.143
Survived	12	64		
Not survived	4	8		
Nursing scheme			8.809	0.003
MDT nursing	3	43		
Routine nursing	13	29		
Quality of life scores 5 d after operation	91.68±8.22	95.26±9.15	1.440	0.154

Note: BMI: Body mass index; MDT: multidisciplinary team.

Table 5. Assignment

Factors	Assignment
Age	50 years old = 0, ≥ 50 years old = 1
Extent of glossectomy	< 50% = 0, ≥ 50% = 1
Neoplasm staging	Stage I = 0, Stage II = 1
Nursing scheme	MDT nursing = 0, routine nursing = 1
Swallowing function score	Swallowing function score ≤ 2 = 0, swallowing function score > 2 = 1

Note: MDT: multidisciplinary team.

resection of TC [23-26], most of them focus on single-discipline nursing schemes, with few reports on the MDT nursing mode. In contrast, this study employed the MDT nursing mode and discovered significant improvements in swallowing function, oral hygiene, QoL, and flap survival rate. These findings suggest that MDT nursing can effectively enhance swallowing function, oral hygiene, QoL, and flap survival rate after operation. We believe that this is attributed to the integration of expertise and advantages from various disciplines, fostering

Table 6. Logistics regression analysis

Factors	β value	Standard error	χ^2 value	*P* value	OR value	95% CI	
						Lower limit	Upper limit
Age	-1.334	0.848	2.473	0.116	0.264	0.050	1.389
Extent of glossectomy	-1.953	0.729	7.184	0.007	0.142	0.034	0.592
Neoplasm staging	1.164	0.694	2.810	0.094	3.201	0.821	12.477
Nursing scheme	2.035	0.761	7.150	0.007	7.652	1.722	34.003

teamwork and effective communication. As a result, healthcare professionals were able to gain a better understanding of patient needs and provide quality services. Moreover, this mode emphasizes the continuous evaluation and optimization of treatment efficacy, facilitating professional growth and interdisciplinary knowledge integration among medical personnel [26, 27].

Dysphagia can have various adverse consequences, including aspiration, choking, and aspiration pneumonia, all of which significantly impact the QoL of patients. Previous research has revealed that after the treatment of malignant tongue tumors, the incidence of dysphagia and aspiration can be as high as 59%. Additionally, deaths resulting from aspiration pneumonia account for 19% of non-tumor-related deaths in patients with oral malignant tumors [28]. This study also analyzed the risk factors associated with swallowing dysfunction in patients. The extent of glossectomy and the nursing scheme were identified as independent factors influencing the recovery of swallowing function. The extent of glossectomy primarily affects the recovery of swallowing function after the operation due to the loss of tongue structure and function [29]. Tongue functions, such as chewing, swallowing, and pronunciation, are vital for maintaining a good QoL. Extensive glossectomy can lead to reduced tongue muscle strength, decreased tongue flexibility, and impaired swallowing coordination, resulting in food retention in the throat and an increased risk of aspiration and choking [30].

Dysphagia can cause difficulties in eating, hinder nutritional intake, and ultimately compromise the overall health and rehabilitation process. Therefore, to minimize the impact of resection scope on patients' swallowing function, doctors and treatment teams should develop individualized treatment plans before the operation. Implementing a MDT nursing mode, swallowing function can be improved through early swallowing training and feeding intervention. Swallowing function training includes cold oral stimulation and hypothermic stimulation before swallowing, to help patients restore oral perception, reduce excessive saliva secretion, and enhance sensitivity to food. Consequently, it becomes easier to trigger the swallowing reaction in the early stage. Additionally, early exercise training of lip and tongue muscles can enhance the activity of swallowing organs, improve the sensitivity of swallowing reflex, and prevent the unnecessary atrophy of subpharyngeal muscles. This, in turn, improves the efficiency of food mastication and transportation in the oral cavity, leading to an overall improvement in swallowing function.

Of course, this study still has some limitations. For example, the sample size is relatively small, so a study with larger sample size is required for further confirmation. In the future, we will continue to explore nursing schemes for patients after radical resection of TC in order to provide them with more high-quality and efficient nursing services.

To sum up, this study has confirmed through retrospective analysis that MDT nursing mode can affect the swallowing function of patients after radical resection of TC and improve their oral cleanliness, and MDT is a protective factor for swallowing function in the patients after radical resection.

Acknowledgements

This work was supported by Scientific Research Foundation of Science and Technology Department of Sichuan Province (2021YFS-0217).

Disclosure of conflict of interest

None.

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References

[1] Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A and Bray F. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin 2021; 71: 209-249.

[2] Siegel RL, Miller KD, Fuchs HE and Jemal A. Cancer statistics, 2021. CA Cancer J Clin 2021; 71: 7-33.

[3] Siegel RL, Miller KD, Wagle NS and Jemal A. Cancer statistics, 2023. CA Cancer J Clin 2023; 73: 17-48.

[4] Siegel R, Ma J, Zou Z and Jemal A. Cancer statistics, 2014. CA Cancer J Clin 2014; 64: 9-29.

[5] Chen W, Zheng R, Baade PD, Zhang S, Zeng H, Bray F, Jemal A, Yu XQ and He J. Cancer statistics in China, 2015. CA Cancer J Clin 2016; 66: 115-132.

[6] Matsuo K, Akiba J, Kusukawa J and Yano H. Squamous cell carcinoma of the tongue: subtypes and morphological features affecting prognosis. Am J Physiol Cell Physiol 2022; 323: C1611-C1623.

[7] Society of Oral Maxillofacial Head and Neck Oncology, Chinese Stomatological Association. Expert consensus on surgical treatment of tongue squamous cell carcinoma. Zhonghua Kou Qiang Yi Xue Za Zhi 2022; 57: 836-848.

[8] Luo D, Shi F, Wang S, Yang J and Zhou R. Tongue squamous cell carcinoma resists hyperthermia treatment by promoting Id-1 expression mediated EMT. Bull Cancer 2022; 109: 886-894.

[9] Landin D, Nasman A, Jara SJ, Hammarstedt-Nordenvall L, Munck-Wikland E, Dalianis T and Marklund L. Post-treatment neck dissection of tonsillar and base of tongue squamous cell carcinoma in the era of PET-CT, HPV, and p16. Viruses 2022; 14: 1693.

[10] Cai YC, Li C, Zeng DF, Zhou YQ, Sun RH, Shui CY, Pei J, Liu W, Wang X, Jiang ZH, Tang ZQ, Jiang J and Wang W. Comparative analysis of radial forearm free flap and anterolateral thigh flap in tongue reconstruction after radical resection of tongue cancer. ORL J Otorhinolaryngol Relat Spec 2019; 81: 252-264.

[11] Chotipanich A and Wongmanee S. The infrahyoid myocutaneous flap for reconstruction after oral cancer resection: a retrospective single-surgeon study. World J Otorhinolaryngol Head Neck Surg 2018; 4: 273-277.

[12] Righini S, Festa BM, Bonanno MC, Colombo V and Luca N. Dynamic tongue reconstruction with innervated gracilis musculocutaneos flap after total glossectomy. Laryngoscope 2019; 129: 76-81.

[13] Luo H, Wang T, Xiao L, Wang C and Yi H. Multiple disciplinary team management of rare primary splenic malignancy: two case reports. World J Clin Cases 2022; 10: 10535-10542.

[14] Caba L, Florea L, Braha EE, Lupu VV and Gorduza EV. Monitoring and management of bardet-biedl syndrome: what the multi-disciplinary team can do. J Multidiscip Healthc 2022; 15: 2153-2167.

[15] Brodsky MB, Suiter DM, Gonzalez-Fernandez M, Michtalik HJ, Frymark TB, Venediktov R and Schooling T. Screening accuracy for aspiration using bedside water swallow tests: a systematic review and meta-analysis. Chest 2016; 150: 148-163.

[16] McHorney CA, Robbins J, Lomax K, Rosenbek JC, Chignell K, Kramer AE and Bricker DE. The SWAL-QOL and SWAL-CARE outcomes tool for oropharyngeal dysphagia in adults: III. Documentation of reliability and validity. Dysphagia 2002; 17: 97-114.

[17] Wu K, Zhang S and Wu HJ. A precise glossectomy for tongue cancer adjacent to or crossing the midline: a novel anatomical unit resection surgery. Int J Oral Maxillofac Surg 2023; 52: 725-734.

[18] Chiang TC, Huang MS, Lu PL, Huang ST and Lin YC. The effect of oral care intervention on pneumonia hospitalization, staphylococcus aureus distribution, and salivary bacterial concentration in Taiwan nursing home residents: a pilot study. BMC Infect Dis 2020; 20: 374.

[19] Batra U, Munshi A, Kabra V and Momi G. Relevance of multi-disciplinary team approach in diagnosis and management of stage III NSCLC. Indian J Cancer 2022; 59: S46-S55.

[20] Hedegaard SF, Tolouee SA and Azawi NH. Multi-disciplinary team conference clarifies bosniak classification of complex renal cysts. Scand J Urol 2021; 55: 78-82.

[21] Murphy A, O'Sullivan H, Stirling A, Fenlon H and Cronin C. Integrated multimodality and multi-disciplinary team approach to pre-sacral lesions. Clin Imaging 2020; 67: 255-263.

[22] Hunt SV, Pereni I, Williams M, Ford R and Garrott H. Multi-disciplinary team meetings with specialist radiologists may improve pre-operative clinico-radiological diagnostic accuracy in patients requiring orbital biopsy and offer re-

ciprocal educational opportunities. Eye (Lond) 2022; 36: 2200-2204.
[23] Warren D, Stanek J, Dsouza RM, Ciarrocca K and Brame JL. Interprofessional collaboration among dental hygiene and nursing students on the oral health of cancer patients. Nurs Educ Perspect 2022; 43: E85-E87.
[24] Jiang D, Xiao F, Liu L, Meng Z and Zhang C. Effects of traditional Chinese medicine anticancer decoction combined with basic chemotherapy and nursing intervention on oral cancer patients after surgery and its effect on tumor markers and immune function. Biomed Res Int 2022; 2022: 6341381.
[25] Pai RR, Ongole R and Banerjee S. Oral care in cancer nursing: practice and barriers. Indian J Dent Res 2019; 30: 226-230.
[26] Hintze JM, Afshar S, Taghinia A, Labow B, Green M, Robson CD, Marcus K, Mack J, Perez-Atayde A and Rahbar R. A multi-disciplinary team approach to pediatric malignant mandibular tumors. Int J Pediatr Otorhinolaryngol 2023; 168: 111547.
[27] Abnett H, Tuckwell R and Evans L. Early introduction of the multi-disciplinary team through student Schwartz Rounds: a mixed methodology study. BMC Med Educ 2022; 22: 523.
[28] Szczesniak MM, Maclean J, Zhang T, Graham PH and Cook IJ. Persistent dysphagia after head and neck radiotherapy: a common and under-reported complication with significant effect on non-cancer-related mortality. Clin Oncol (R Coll Radiol) 2014; 26: 697-703.
[29] Deng W, Zhao G, Li Z, Yang L, Xiao Y, Zhang S, Guo K, Xie C, Liang Y and Liao G. Recovery pattern analysis of swallowing function in patients undergoing total glossectomy and hemiglossectomy. Oral Oncol 2022; 132: 105981.
[30] Deng W, Yang L, Xie C, Lu H, Xiao Y, Zeng B, Liang Y and Liao G. Prediction of postoperative lower respiratory tract infections in tongue cancer patients based on pretreatment swallowing function. Oral Dis 2020; 26: 537-546.