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ORIGINAL RESEARCH

Knowledge, awareness, and practice of multidisciplinary team (MDT) involved in the rehabilitation of head and neck cancer patients regarding post-radiotherapy prosthetic options

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ABSTRACT

Background: Head and neck cancer (HNC) patients require specialized multidisciplinary team care throughout the diagnosis, treatment, and survival. To achieve rehabilitation goals, a multidisciplinary team (MDT) should have adequate information regarding post-radiotherapy prosthetic options. This enables optimal rehabilitation and improves their quality of life.

Aim: To assess the Knowledge, awareness, and practice of a multidisciplinary team involved in the rehabilitation of Head and Neck cancer patients regarding post-radiotherapy prosthetic options.

Settings and design: Descriptive survey.

Materials and methods: The URL of the questionnaire consisting of fifteen closed-ended questions was shared via the web to the MDT team practicing in Tamil Nadu and Pondicherry to obtain a response of 119 which was the predetermined sample size.

Statistical analysis: Frequency and percentages and the results were further analyzed statistically by the Chi-square test.

Results: In this study, 75% of the members of the multidisciplinary team were aware of little information on the impact of common treatment side effects of not rehabilitating and prosthetic options available, but were not practicing.

Conclusion: Prosthetic options in postradiotherapy patients provide better results in terms of retention, stability, masticatory efficiency, comfort, and psychological well-being of the patient. Hence, the awareness of MDT should be increased regarding various available options of prosthetic rehabilitation, advantages and disadvantages of prosthesis, and possibilities for retreatment in the case of failure for a successful treatment outcome.

Key words: Dentists, Head and neck cancer, Multidisciplinary Care Team, Oral and Maxillofacial Surgeons, Prosthesis, Radiation oncology

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INTRODUCTION

The term head and neck cancer (HNC) describes an array of malignancies in this region ranging from neoplasia of the paranasal sinuses to oral, pharyngeal, or laryngeal carcinoma. Worldwide, head and neck cancer is the fifth most common cancer and accounts for more than 6,50,000 cases and 3,30,000 deaths per year.[1] The average age at diagnosis ranges between 55 and 65 years, with males being affected twice as often as females.[2] The treatment of head and neck cancers consists of different treatment modalities, typically surgery, radiotherapy, chemotherapy, or a combination of these modalities. Therefore, it requires complex treatment and a multidisciplinary team (MDT) approach involving different professionals, from all relevant specialties.[3] In oncology, a multidisciplinary team (MDT) is defined as the cooperation between different specialized professionals involved in cancer care with the overarching goal of improving treatment efficiency and patient care.[3] Since MDT is not only responsible for patient assessment, treatment planning, delivery of services, and rehabilitation but also for survivorship. Therefore, the decision process should include physicians and other

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healthcare professionals with expertise in HNC management and prevention of treatment sequelae.[1] In addition to the goal of curing cancer, the restoration of lost or altered oral function and aesthetics is also a major objective. [1] Regaining oral function and aesthetics is a challenge because of limitations in the restorative treatment options due to poor support and lack of space for a prosthesis, impeded resilience of soft tissues, impaired tongue function, and loss of integrity and competence of the velopharyngeal complex, etc. [4,5] Effects of primary oncology surgery can impede rehabilitation goals. These effects include altered oral anatomy, compromised soft tissue conditions like missing or scarred tissues and bulky flaps, altered muscle attachments and muscle balance, sensitivity disorders, loss of lip competence and trismus, loss of anatomical structures, loss of bony structures and/or teeth, and alterations in facial appearance.[1] The existing literature makes it evident that the MDT does not have adequate awareness about the post-radiotherapy rehabilitation plan and also about the available prosthetic options.

MATERIALS AND METHOD

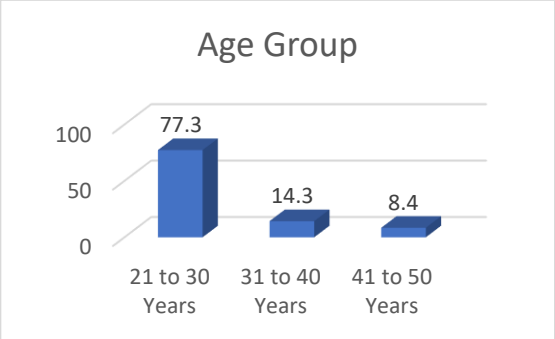
The study was conducted in an institution from March to May of 2022 with consent from the Institutional Ethical Committee (No:21/ SVMCH/IEC-22). The questionnaire involved prior consent for a participant, only those who gave their consent to participate were included in the study. Inclusion criteria involved were Oral surgeons, Prosthodontists, General surgeons, ENT specialists, speech therapists, oncologists, and plastic surgeons working in Pondicherry and Tamil Nadu who were available at the time of study and were ready to participate in the study. Exclusion criteria were those who were not available during the period of the survey. As per the criteria, convenience sampling was done and the sampling frame selected was 119 (N=119). The study participants were Oral surgeons, Prosthodontists, General surgeons, ENT specialists, speech therapists, oncologists, Radiologists, and plastic surgeons working in Pondicherry and Tamil Nadu. A Google form was circulated to all 119 participants through their Mail-Id. All the respondents were informed about the aims and objectives of the study through their email and their consent was obtained through the same. A structured questionnaire in the English language was prepared by the authors. It was validated by subject experts for face and content validity which included relevance, clarity, and completeness of each question under the aim of the study and it had good internal consistency (Cronbach alpha score=0.94). The questionnaire was circulated online using Google Forms; the link for the same was sent to all the participants through E-mail. Three reminder e-mails were sent to collect the required number of responses. The questionnaire consisted of fifteen close-ended questions with information regarding the aim of the survey. All questions were made mandatory with only one response from one device. The first five questions (Q01–Q05) were related to knowledge; the next five questions (Q05 and Q10) were related to awareness; the last five questions (Q10 and Q15) were on the practice of the MDT involved in the Rehabilitation of Head and Neck Cancer Patients regarding post radiotherapy prosthetic options.

RESULTS

The present study used a questionnaire to gauge the level of knowledge, awareness, and practice of MDT involved in the rehabilitation of head and neck cancer patients regarding post-radiotherapy prosthetic options. (Table 1).

Q1	How many cases of post-radiotherapy rehabilitation cases have you come across in your department?	a) < 50 b) 50 - 100 c) >100
Q2	Do you have access to services of a dentist & and speech therapist to assist with prosthetic rehabilitation?	a) Yes b) No
Q3	How much period of healing is required after post-radiation therapy for extraction of the tooth?	a) >6 months b) >12 months c) more than a year
Q4	How much period of healing is necessary after post-radiation therapy for dental implants?	a) >6 months b) >12 months c) more than a year
Q5	Whether extraction of teeth can be done immediately after radiation therapy?	a) Yes b) No
Q6	Are you aware that all dental conditions (infection, mobile teeth, abscess, etc) need to be treated before radiotherapy?	a) Yes b) No
Q7	Are you aware that hyperbaric O2 is necessary for patients with osteoradionecrosis?	a) Yes b) No
Q8	Are you aware of various prosthetic rehabilitation options in post-radiotherapy patients?	a) Yes b) No
Q9	Are you aware that surgical obturators should be fabricated before head and neck surgery patients?	a) Yes b) No
Q10	Are you aware of the velo-pharyngeal prosthesis in soft palate rehabilitation?	a) Yes b) No
Q11	Following surgical treatment are the patients referred for dental rehabilitation?	a) Yes b) No
Q12	Do you involve a multidisciplinary team (MDT) in treatment planning?	a) Yes b) No
Q13	Do you recommend radiation shields for protecting vital structures for all prostheses?	a) Yes b) No
Q14	Do you evaluate salivary quality & and quantity after radiotherapy?	a) Yes a) No
Q15	Do you refer post-radiation xerostomia patients to dentists for management?	a) Yes b) No

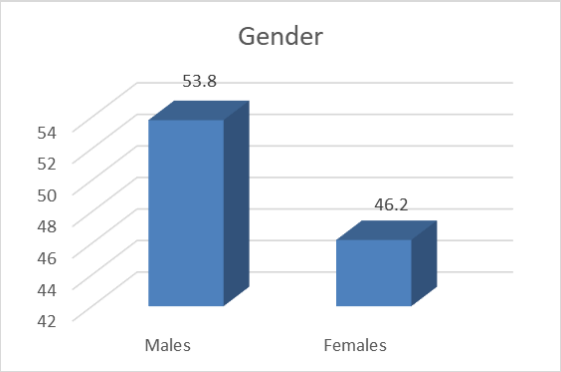
Table 1: Questionnaire



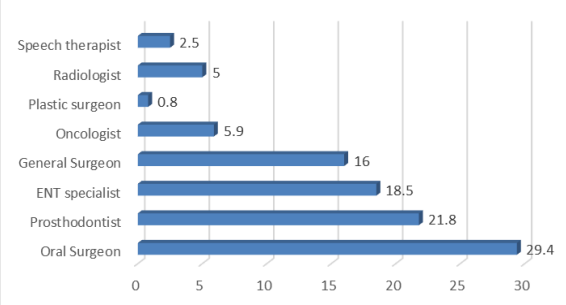
Graph 1: Distribution of participants according to age groups.

119 MDT responses were obtained. In the present study, 77.3 % of the participants were 21-30 years old (Graph 1) and males (55.2 %). (Graph 2) Out of the MDTs who participated in the survey, 26.4% were oral surgeons and others included Prosthodontists (21.8%), General surgeons (19.5%),

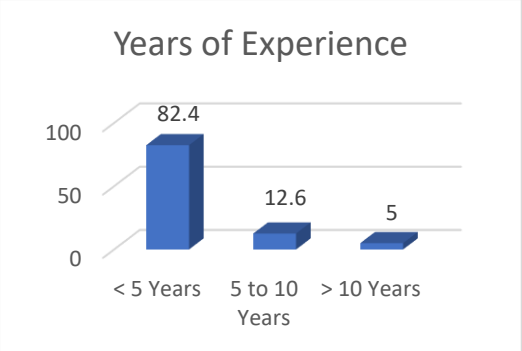
ENT specialists (14.9%), and a few speech therapists, oncologists, and plastic surgeons (Graph 3). 82.8% had experience of fewer than 5 years, 11.5% had 5-10 years, and the remaining of >10 years. (Graph 4) Responses also showed that while 84 % of respondents had their patients seen by dedicated multidisciplinary teams, the composition of clinicians on these teams was varied. (Graph 5)



Graph 2: Distribution of participants according to gender.

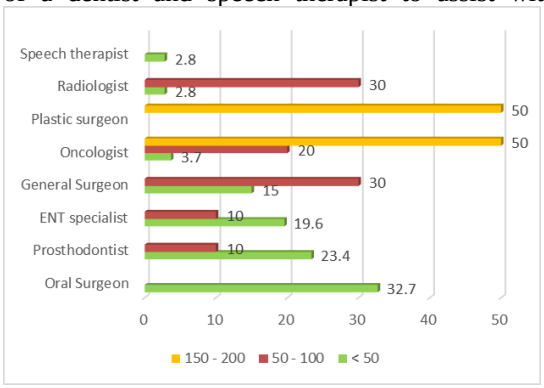


Graph 3: Distribution of participants according to discipline.



Graph 4: Experience in years

The inclusion of participation of head and neck specialist nurses, speech and language therapists, and dieticians was less frequent when compared to other specialists in the MDT. The participants revealed that they were getting more number (89.9%) of Post radiotherapy rehabilitation cases in their department and 84% had access to the services of a dentist and speech therapist to assist with



Graph 5: Distribution of the number of patients according to participant's discipline.

prosthetic rehabilitation. 70.6 % of participants were aware that more than 6 months of healing time is required for extraction of the tooth after the radiation therapy, however, many (56%) were not aware that more than 1 year time period of healing is necessary after the radiation therapy for dental implants. The 84.9% were aware that dental conditions, e.g. infection, etc. need to be treated before starting radiotherapy procedures for the patients and that hyperbaric oxygen is necessary for patients with osteoradionecrosis respectively. Only 59.7% of them (out of which 50% of dentists) were aware of various prosthetic rehabilitation options in post-radiotherapy patients. 73.1% (out of which the majority of dentists) were aware that surgical obturators should be fabricated before head and neck surgeries.

	Yes	No	Total	Chi-Square	P Value
	N (%)	N (%)	N		
Oral Surgeon	23 (27.4)	12 (34.3)	35	10.54	P = 0.16 (NS)
Prosthodontics	22 (26.2)	4 (11.4)	26		
ENT Specialist	14 (16.7)	8 (22.9)	22		
General Surgeon	11 (13.1)	8 (22.9)	19		
Oncologist	6 (7.1)	1 (2.9)	7		
Plastic Surgeon	1 (1.2)	0	1		
Radiologist	6 (7.1)	0	6		
Speech Therapist	1 (1.2)	2 (5.7)	3		
Total	84 (100)	35 (100)	119		

level of significance at P < 0.05; N-Number; %-Percentage

NS-Not significant using the Chi-Square test

Table 2: Distribution of responses for involving MDT according to discipline

More than half of them (52.9%) were aware of the option of velopharyngeal prosthesis in soft palate rehabilitation. 79 % of MDTs only used to refer patients for prosthetic rehabilitation after

surgical treatment and 70.6% of them used to involve MDT in treatment planning. 79 % of them used to recommend radiation shields for head and neck cancer, used to evaluate salivary quality and quantity after radiotherapy (73.1%), and used to refer post-radiation xerostomic patients to dentists for management (75.6%). It was found that among those categories of discipline that involve MDT in treatment planning, 27.4% were oral surgeons, 26.2% were prosthodontists and 16.7% were ENT specialists. However, it was also found that 34.3% of oral surgeons, 22.9% of ENT specialists, and 22.9% of general surgeons do not involve MDT in treatment planning. This was not statistically significant (P = 0.16). (Table 2)

DISCUSSION

The present study aimed to assess the Knowledge, awareness, and practice of multidisciplinary team (MDT) involved in the Rehabilitation of Head and Neck Cancer Patients regarding post-radiotherapy prosthetic options and achieve rehabilitation goals. A multidisciplinary approach, from the initial planning to the implementation of treatment, based on a patient's constellation of findings and personal wishes, is the prerequisite for therapeutic success and has been shown to improve patient treatment and overall survival in head and neck cancer patients.[7] The need to assess and treat head and neck cancer patients in conjunction with a multidisciplinary team (MDT) has long been cited by Ali et al. This concept is accepted worldwide as the "gold standard" of cancer care.[8] Van Huizen et al reported that multidisciplinary first-day consultation intends to shorten the time between diagnosis and treatment of oral cancer.[9] However, limited studies have explored the status of awareness among medical professionals regarding the prosthetic rehabilitation of head and neck cancer patients. Radiotherapy is the backbone of the multimodality treatment in HNC. Dental attention for HNC patients is essential and must be incorporated into each stage of the oncologic process. This process has different and independent stages where it is important to control the potential complications that can occur in the oral cavity after chemotherapy and radiotherapy.[3] In our study 75 % of the participants were aware of the period gap for doing extractions, however, they were not aware of the gap required for implant placement post radiotherapy. Claudy et al reported that dental implant placement between 6 and 12 months after radiotherapy was associated with a 34% higher risk of failure and therefore suggested waiting periods over one year after radiotherapy. 10Maxillofacial Prosthodontists should be included in the multidisciplinary first-day consultation and should be involved from the beginning, as their role in this process is essential and guiding.[1] A significant difference in answering this question was observed in our study about the participants' field of expertise and work environment. Head and neck MDT and HNC units are effective tools to facilitate collaboration between professionals and hence improve care outcomes. HNC patients not only suffer from the visible nature of their disease but also disfigurement and dysfunction resulting from surgery and radiotherapy. As a consequence of these difficulties, patients can experience depression, social anxiety, reduced self-esteem, sexual difficulties, and a generalized sense of reduced quality of life.[3] In our study, the dental team was more aware than the medical team regarding the treatment options of prosthetic rehabilitation for HNC patients after radiotherapy. Future studies can be done including some open-ended questions to assess their perception regarding the management of such cases by the Prosthodontists.

CONCLUSION

The multidisciplinary team should be regarded as the foundation of head and neck cancer patient management. As treatment planning differs about the participants' field of expertise and work environment, treatment of head and neck cancer patients (condition after radiotherapy) should be centralized to enhance the experience of the practitioners. Patients might also benefit from a multidisciplinary team since the dental team is more aware of prosthetic rehabilitation. There is a need for interdisciplinary seminars and continuing medical and dental programs to update the new developments to the team for successful maxillofacial rehabilitation and improving the quality of life for head and neck cancer patients.

CONFLICT OF INTEREST:

There was no conflict of interest

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