

Oral Assessment and Management of the Patient with Head and Neck Cancer



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KEYWORDS

• Head and neck cancer • Oral cavity • Oral health • Quality of life

KEY POINTS

- Patients undergoing treatment of head and neck cancer (HNC) risk developing significant acute and chronic changes of the oral cavity and the head and neck region.
- Understanding the cause and pathophysiology to predict and manage the course of these changes can improve the impact on survivorship.
- Although treatment approaches for HNC are evolving rapidly, peer-reviewed evidence in the prevention, identification, and management of their sequelae is currently limited.
- Current understanding is limited to case reviews and anecdotal clinical experience.

INTRODUCTION

Patients undergoing treatment of head and neck cancer (HNC) risk developing significant acute and chronic changes of the oral cavity and the head and neck region. The treatment modalities of surgery, radiation therapy (RT), and chemotherapy, alone or in combination, result in significant acute and chronic changes of the oral cavity. These alterations are not limited to the hard tissue (teeth and alveolar bone) and oral mucous membrane, but also affect the soft tissues of the head and neck. The consequences of cancer treatment can significantly impair the quality of life of patients with HNC. Therefore, understanding the cause and pathophysiology to predict and manage the course of these changes can improve the impact on survivorship.

The role of oral health providers in the management of patients with HNC covers a wide variety of services from the time of diagnosis through survivorship.¹ This article offers considerations and recommendations for patients before, during, and after treatment of HNC to maintain oral health, compensate for treatment consequences, and improve quality of life. Although treatment approaches for HNC are evolving rapidly, peer-reviewed evidence in the prevention, identification, and management of their sequelae is currently limited. Newly approved immunotherapeutic approaches in the treatment of HNC, although promising oncologically, may further complicate the course of treatment. Current understanding is limited to case reviews and anecdotal clinical experience. Here, we present evidence-based recommendations and expert opinion.

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ASSESSMENT AND MANAGEMENT BEFORE CANCER TREATMENT

Evaluation of the oral cavity in patients before treatment of HNC aims to determine immediate dental and mucosal needs while especially considering complications that might be anticipated with cancer treatment. Although not all oral complications of cancer treatment can be prevented, their timely recognition, diagnosis, and appropriate management can significantly improve the quality of life in survivors of HNC. An important consideration is the historically increased incidence of HNC in socioeconomically deprived populations and the unfortunately associated greater risk of dental infections in these patients.^{2,3} Acute odontogenic infection during cytotoxic chemotherapy can potentially threaten life. In addition, periapical and periodontal infections, and dental extractions, may predispose patients to developing osteoradionecrosis (ORN) of the jaw after RT.^{4,5}

Although a comprehensive oral assessment and management should be completed before cancer treatment, the time required to complete that management must be carefully considered to avoid a potential delay in beginning cancer treatment that might impact the overall survival. A retrospective analysis of the National Cancer Database for the interval from the time of diagnosis to the time of beginning curative treatment, defined as the time to treatment initiation (TTI), in patients with HNC showed a median of 20 to 28 days for HNC stage I through IV.⁶ Several studies have reported a significant increase in the risk of death in patients with delayed TTI compared with those with faster access to curative treatment.⁶⁻⁸ Murphy and colleagues⁶ reported that a TTI equal or greater than 91 days increased the risk of overall mortality of patients with HNC by 23% (95% confidence interval, 15%–32%) when compared with people with a TTI equal to or less than 30 days.

Saliva at Baseline

Saliva has essential functions in maintaining oral health, which are classified into overlapping categories: (1) lubrication, (2) protective, (3) wound healing, (4) taste and smell and (5) digestion, and (6) tooth remineralization.⁹ Salivary flow has been estimated to range from 0.3 to 0.4 mL/min at rest and 1 to 2 mL/min on stimulation.¹⁰ In a state of salivary hypofunction, which is generally defined as resting flow of less than 0.1 mL/min, salivary functions are compromised.

Individuals may be at increased risk of developing dry mouth before receiving treatment of HNC. HNC has a greater incidence in older patients, in whom dry mouth is a common side effect of

polypharmacy.¹¹ A few examples of medications that may cause hyposalivation include anticholinergic drugs (tricyclic antidepressants, antipsychotics, antihistamines, and anticholinergic drugs for overactive bladder), sympathomimetic drugs (antidepressants, appetite depressants, and β_2 -agonist bronchodilators), antihypertensive medications, cytotoxic drugs, opioid and benzodiazepines, and antimigraine agents.¹¹ Underlying systemic diseases, such as Sjögren syndrome, diabetes mellitus, rheumatoid arthritis, and hypothyroidism, have also been independently associated with hyposalivation.¹¹ Although some authors have shown clearly impaired function of salivary glands in older patients, others attribute these findings to the confounding effects of medications.¹²⁻¹⁴ Although saliva is composed mostly of water (99%), the quality and composition of the saliva are also essential contributors to oral health.¹⁵

Although only a small number of patients with HNC (6%) reported dry mouth before treatment, decrease in the amount of saliva during and after treatment in patients with pre-existing dry mouth justifies evaluation of salivary flow before cancer treatment.¹⁶ In addition, given the individual differences, measuring stimulated and unstimulated saliva before initiation of treatment of HNC provides a better understanding of patient's baseline and helps tailor the best possible care for each patient.¹⁶ As a whole, it is recommended that a pretreatment baseline evaluation of the stimulated and unstimulated salivary flow be conducted to better document this morbidity and offer an intervention based on objective measurement of dysfunction.

Temporomandibular Joint Health and Mouth Opening at Baseline

Temporomandibular joint function is affected as a late effect of RT.¹⁷ Secondary to radiation, the masseter, temporalis, and pterygoid muscles can experience inflammatory changes that can lead to muscle fibrosis. The effect of RT on muscle function may be compounded with postsurgical scarring and result in limited mouth opening (trismus) with a potentially progressive course.¹⁸

Trismus impacts activities of daily living, such as eating, speaking, or performing routine oral home care. Trismus can also become a barrier to accessing regular professional dental care. These complications may result in rapid deterioration of oral health with profound consequences on the quality of life of cancer survivors.

Accordingly, baseline measurement of mouth opening and continued monitoring is recommended for patients with HNC. Progressive loss of mouth opening is addressed proactively through

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