

An audit of the baseline dental status and treatment need of individuals referred to Dublin Dental University Hospital for a pre-radiotherapy dental and oral assessment

PRÉCIS

Increasing numbers of patients are referred for pre-radiotherapy dental assessment. Advice and support regarding prevention of dental disease will maintain oral health and reduce the need for surgical intervention in the future.

ABSTRACT

Objectives: The objectives of this audit were to establish the baseline dental status and treatment need of pre-radiation head and neck cancer patients in Ireland.

Material and methods: A review was carried out of the dental status and treatment need of 746 adult patients who were scheduled to commence radiation therapy for head and neck cancer. These patients were referred to the Dental Oncology Treatment Centre and there were 76% male and 24% female individuals.

Results: The numbers attending the clinic increased from 20 in 1998 to 239 in 2013. The age range was 17 to 89 years, with a mean age of 57.4 years, standard deviation (SD) = 13.0 years. The diagnosis was of squamous cell carcinoma in 85% of cases and the main subsites were the larynx and tongue. Some 51% of patients smoked or had very recently quit smoking, and 25% had never smoked. A total of 97% were dentate, of whom 65% had more than 16 remaining teeth. Of the dentate patients, 66% had dental decay. Some 12% had vertical mouth opening of less than 30mm, complicating access for dental care. Moderate to severe chronic periodontitis was noted in 21%. Dental treatment need was as follows: (1) oral health instruction (OHI), diet and dry mouth advice, and jaw exercises – all dentate patients; (2) periodontal and caries preventive treatment – 86%; (3) dental extractions – 72%; (4) restorative dental care – 59%; and, (5) radiation stents – 5%.

Conclusion: This study highlights the increasing numbers of referrals for dental assessment and treatment prior to radiation treatment. The group was dentate but its oral health was generally poor. A significant number of individuals required dental extractions, and restorative and periodontal care, to render them dentally fit prior to radiation treatment. Pre-radiation dental assessment and necessary care must be provided without delay to prevent delay with the start of radiotherapy.

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Dr Denise MacCarthy

BDS NUI FDS RCS (Edin) MDentSc
Head of Division of Restorative Dentistry and
Periodontology, Dublin Dental University Hospital

Corresponding author

Dr Denise MacCarthy, Head of Division of Restorative Dentistry and Periodontology,
Dublin Dental University Hospital, Lincoln Place, Dublin 2. Email: denise.maccarthy@dental.tcd.ie

Dr Mary Clarke

FFDRCSI FDSRCPS MDentCh (OS) Dip Con Sed
Oral Surgeon/Lecturer in Conscious Sedation,
Dublin Dental University Hospital

Dr Myra O'Regan PhD

Associate Professor of Statistics,
Department of Statistics, Room 142 Lloyd
Institute, Trinity College, Dublin 2

Introduction and literature review

Malignant tumours of the head and neck account for 2-3% of all cancers diagnosed in Europe. An average of 411 head and neck cancers were registered in Ireland annually between 1994 and 2009. The broad category of head and neck cancer included 17 separate subsites in the mouth, pharynx, larynx, paranasal sinuses, nasal cavity, middle ear and salivary glands. The larynx was the most common site, with 127 cases annually, followed by tongue with 62 cases. All head and neck cancers were more common in men.¹ The World Health Organisation (WHO) has recently included oral cancer as a priority for action.² Associated risk factors include alcohol consumption and tobacco use,³ human papilloma virus⁴ and dietary factors.⁵ A modest association has been found between periodontal disease and head and neck squamous cell carcinoma (SCC) risk,⁶ however, this association has been debated by other authors.^{7,8} Radiation to the head and neck can have a dramatic effect on the oral cavity and its surrounding and supporting structures. Side effects of radiation therapy may be short term and acute including mucositis, dry mouth and oral infection. Acute radiation mucositis is the first side effect many patients experience. It may cause severe symptoms but usually resolves two to three weeks after radiation therapy ceases.

Long-term effects are caused by cellular and vascular changes in soft tissue and bone, and include radiotherapy-induced thinning of the tissues, salivary gland hypofunction, reduced remodelling capacity in bone, post-radiation dental caries, reduced mouth opening and loss of taste. In the long term, salivary gland hypofunction, perhaps the most troublesome side effect, plays a major role in the progression of dental caries, as well as causing the patient a great deal of discomfort, loss of taste and increased susceptibility to infection. It has been reported that 91.8% of patients who had radiotherapy presented with a degree of salivary gland hypofunction.⁹ There are quantitative and qualitative changes in saliva flow post radiation, making it difficult to chew and swallow solid food. There is an alteration in taste sensation so food is less palatable, which may contribute to poor nutrition. In some subjects, salivary function returns after a few months. In others, it may take years to return, or may never return. The other major side effect of radiation therapy is altered bone resulting in a long-term risk of osteoradionecrosis (ORN), a severe complication resulting from changes in vascularity and viability of osteocytes, osteoblasts and fibroblasts. Finally, there may be reduced opening of the jaws, causing difficulty in the provision of dental care in the long term.¹⁰

Prevention of ORN is one of the most important goals of dental care prior to radiotherapy. It is well documented that post-radiation dental caries is a common risk and an increased incidence of dental caries (DMFT) in post-radiotherapy patients has been reported.¹¹ Teeth of poor prognosis should be identified and extracted pre radiotherapy in order to decrease the risk of ORN in the future. It was reported that only 11.2% of regular dental attenders were considered to be dentally fit at pre-radiation dental assessment.¹² In a Brazilian low socioeconomic population, pre-radiation dental care did not prevent post-radiation problems due to the absence of compliance with oral hygiene and supportive care.¹³ Individuals with severe periodontitis at baseline assessment were found to have an increased risk of ORN, especially if the affected teeth were not extracted before radiotherapy,¹⁴ and an increased level of ORN in furcation sites has been reported.¹⁵ Tooth loss and greater periodontal attachment loss occur in teeth that are included in high-dose radiated sites of patients treated with radiotherapy.¹⁶

Treatment of cancers of the head and neck has included surgery, radiotherapy,

chemotherapy and combinations of these therapies. In recent years, intensity-modulated radiation therapy (IMRT) has made it possible to restrict the high-risk region to the volume of jawbone adjacent to the tumour. With the development of IMRT, it is important to have a risk-adapted dental care approach dividing the mouth into high-risk areas, intermediate/low-risk areas and no radiation-specific risk areas.¹⁷ Consultation with the medical oncology team regarding details of chemotherapy, and the field and dose of radiation planned, is essential in the planning of dental and oral care.^{18,19}

Patient management regarding oral disease prior to radiation therapy has to accomplish a number of goals: "(1) to identify existing oral disease and potential risk of oral disease, (2) to remove infectious dental/oral foci before the start of radiation therapy, (3) to prepare the patient for the expected side effects with information about them, (4) to establish an adequate standard of oral hygiene to meet the increased challenge, (5) to provide a plan for maintaining oral hygiene and caries preventive treatment, for oral rehabilitation, and for follow-up, (6) to inform the patient about the availability of any financial support for dental treatment, and finally (7) to establish the necessary multidisciplinary collaboration within the health care system so that oral symptoms and sequelae before, during and after the radiation therapy can be reduced or alleviated".²⁰

As well as the assessment of dental disease, emotional, quality-of-life, socioeconomic and medical issues must also be considered.²¹ A higher suicide risk was recorded for individuals with head and neck cancer than among the general population or the larger cancer population.²² A study of support needs and quality of life in oral cancer concluded that needs are highly subjective and varied, and include physical and oral health needs, dysphagia, nutrition, weight loss, appearance, body image, anxiety, depression and alcohol use.²³

The oral problems associated with radiation therapy can be prevented or minimised through optimal management.²⁴ Dental assessment and treatment prior to radiation therapy must be an accepted aspect of care for the head and neck cancer patient.²⁵ Due to the fact that these patients are more susceptible to caries, control of diet and instigation of correct oral home care is of utmost importance. Every effort is made to preserve the dentition as a lack of teeth is associated with a worse quality of life and a risk of weight loss in the years post treatment.²⁶ Without the patient's understanding and compliance, rapid progression of oral and dental disease is inevitable. Compliance with dental care in these patients pre diagnosis is often poor and difficult to improve despite efforts by the cancer team.²⁷ A "patients' concerns inventory" revealed that post head and neck cancer patients had concerns regarding dental health/teeth, chewing, eating, and pain in the head and neck region.²⁸ Caries prevention involves restriction of cariogenic foods in the diet, daily use of topical fluoride gels,²⁴ rigorous oral hygiene, artificial saliva preparations, and sugar-free gum. Lifelong compliance is required. A survey of prevention and treatment regimens for oral sequelae resulting from head and neck radiotherapy used in Dutch radiotherapy units demonstrated a great diversity between institutes. The most comprehensive counselling was performed by centres with an active dental team, especially if a dental hygienist was on the team.²⁹

Following completion of radiotherapy, most patients will be referred back to their general dental practitioners for their routine dental treatment. Major challenges in establishing and maintaining oral health in these situations in the post head and neck radiotherapy patient are outlined by Schiodt and Hermund: "(1) informing of the patient, (2) timing the co-ordination between all the

Table 1: Changing referral pattern of head and neck cancer patients, 1997-2006.

	1997-1998 %	1999-2000 %	2005-2006 %
Pre radiotherapy	34	68	79
Post radiotherapy	66	29	16
During radiotherapy	0	3	5

health care workers involved, (3) establishing an adequate schedule for dental treatment and follow-up, and (4) securing patient compliance to prevent or reduce the oral side effects".²⁰

Financial constraints are often an important factor in the provision of long-term care.

The aim of this paper is to investigate the pre-radiotherapy baseline dental status and treatment needs in a group of head and neck cancer patients.

Materials and method

A dental oncology treatment centre to provide oral and dental care to head and neck cancer patients was established in the Dublin Dental University Hospital (DDUH) in 1997/98.

This is a retrospective, observational audit of patients referred for a pre-radiotherapy dental assessment. The research questions were to establish the pre-radiotherapy baseline dental status and treatment needs in this group of head and neck cancer patients. It is hoped that this information will be used for future service planning. Inclusion criteria were a diagnosis of head and neck cancer at time of assessment, planned radiation therapy and a complete data set in the case notes.

Patients referred to the DDUH for pre-radiation dental assessment and treatment were assessed with as little delay as possible and the necessary treatment provided. Baseline dental records of 746 pre-radiotherapy patients who were referred to the DDUH over a 12-year period were recorded. Records included details of place of residence, age, gender, cancer diagnosis and site, smoking habits, dental and periodontal status, saliva flow rate and treatment need. Cancer stage was not reported as this information was not always provided by the referring oncologist.

The smoking patterns were recorded as: current smokers; recently quit – usually following cancer diagnosis; quit more than one year; and, never smoked.

The dental records of the dentate individuals were recorded and included caries status, range of mandibular opening and periodontal status. The periodontal status was assessed using the Community Periodontal Index of Treatment Need (CPITN). Periodontal probing records were not taken for 15 dentate patients due to significant medical conditions.

Dental plaque and gingival bleeding scores were recorded as present or absent at four sites around all teeth. Resting and stimulated saliva flow rates were measured. Patients were asked to drool into a beaker for five minutes and the resting flow rate was assessed. Stimulated flow was generated by chewing a 1.5cm² piece of rubber dam.

Dental treatment need was assessed by factors relating to oral health (diet, oral hygiene and saliva flow), functional issues (mandibular movement), dental caries and periodontal condition, prosthodontic needs such as dentures and radiation stents, and dental extractions.

All patients who attended for pre-radiation dental assessment and had a

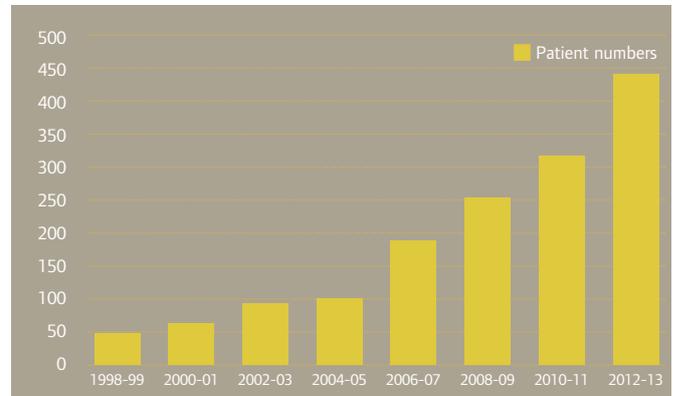


FIGURE 1: Patients referred for pre-radiation dental assessment 1998-2013.

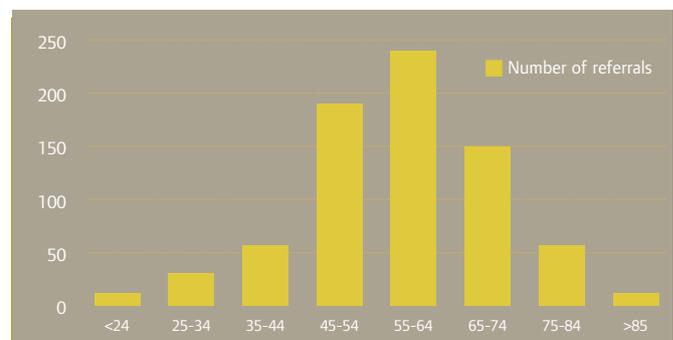


FIGURE 2: Age range (years) of individuals referred for a pre-radiation dental assessment (n=746).

complete data set were included in the study. The records were entered onto an Excel spreadsheet by the examining clinician at the time of assessment. All records were included in this audit. During the period of this report, all outcome measures were recorded by one clinician. Standard clinical records were used to objectively determine the baseline dental status of each patient. This is an audit of a patient group and appropriate descriptive statistics are used to describe the sample.

Results

The head and neck cancer dental oncology treatment centre was established in 1997/98. The early years had a high percentage of patients referred for dental assessment and management of post-radiation dental caries. The attendance pattern has changed, with the clinic now seeing predominantly pre-radiotherapy individuals. The pre-radiotherapy patient referrals increased from 34% in 1997-98 to 79% in 2005-06, and from 66% post-radiotherapy patients in 1997-98 to 16% in 2005-06 (Table 1).

The numbers of referrals for pre-radiotherapy dental assessment increased each year (Figure 1). There were 746 patient records reviewed for this report, with 178 (24%) females and 568 (76%) males. The pre-radiotherapy patient numbers referred to our clinic increased from 48 in 1997/98-99 to 253 in 2008-09 and 441 in 2012-13 (Figure 1).

The age range was from 17 to 89 years of age, with a mean age of 57.4 years, standard deviation (SD) = 13.0 years. The majority were in the 45 to 74 age group, but there was a marked number of individuals in the younger age groups (Figure 2).

Table 2: Diagnosis of tumour.

	%	
Squamous cell carcinoma	85.4	
Adenoid cystic carcinoma	5	* Other included: carotid body tumour 2 fibroxanthoma 1 Merkel cell tumour 2 myoepithelioma 1 neuroblastoma 2 oligodendroglioma 1 plasmacytoma 1 schwannoma 1
Non-Hodgkin's lymphoma	2.5	
Pleomorphic adenoma	1.3	
Sarcoma	1.2	
Hodgkin's lymphoma	1.1	
Melanoma	1.1	
Mucoepidermoid carcinoma	0.8	
Basal cell carcinoma	0.1	
Other *	1.5	
Total number of cases	746	

Table 3: Site and subsite of tumour.

Site	%	Subsite (number)
Mouth	29.4	Tongue (109), floor of mouth (46), lips (16), retromolar (14), buccal mucosa (11), alveolar (10), hard palate (7), mandible (4), gingival (2)
Larynx	20.4	Supraglottic (120), larynx (27), subglottic (5)
Oropharynx	18.5	Tonsil and base of tongue (86), oropharynx, back and side walls of pharynx (31), soft palate (12), hypopharynx (9)
Neck node	10.1	Unknown primary
Nasopharynx	9.1	Nasopharynx (35), sinuses (21), nose (12)
Salivary glands	8.6	Parotid (53), submandibular (11)
Ear, eye	2.7	
Other	1.2	Thyroid (3), forehead (2), brain (1), carotid body (1), cheek (1), ethmoid sinus (1), temporal (1)
Total	746	

Table 4: Dentate individuals with teeth present, decayed and requiring extractions.

Number of teeth	Teeth present (%)	Teeth decayed (%)	Teeth requiring extraction (%)
0	NA	33.8	24
1-5	5.6	50.0	52.1
6-10	11.8	11.8	17.6
11-15	17.1	3.0	4.5
16-20	20.0	1.3	1.2
21-25	24.4	0.1	0.5
>25	21.1	0	0.1
Total no. of patients	720	720	720

Place of residence indicated that 43% of patients lived in Dublin and 40% in the rest of Leinster. The remaining 17% lived in Ulster, Connacht and Munster (Figure 3). The tumour diagnosis was squamous cell carcinoma in 85% and adenoid cystic carcinoma in 5% of cases (Table 2).

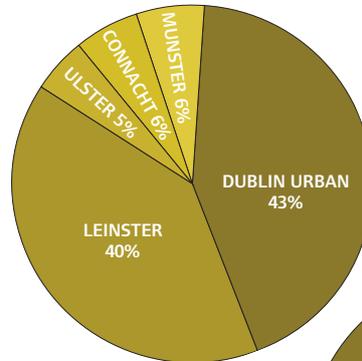


FIGURE 3: Place of residence of patients referred for pre-radiation dental and oral assessment.

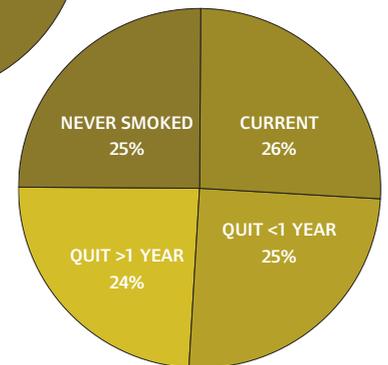


FIGURE 4: Smoker status.

Table 5: Range of mandibular movement (n=246).

Range of mandibular movement	%
<20mm	3.9
21-30mm	7.9
31-40mm	40.7
41-50mm	41.7
>50mm	5.8
Total no. of patients	N = 746

The most common tumour site was the mouth (29%), followed by the larynx (20%). The most common subsite was the supraglottic larynx, followed by the tongue (Table 3).

Smoking history revealed that 26% were current smokers and 25% had recently quit at the time of cancer diagnosis (Figure 4).

There were 720 dentate and 26 edentulous patients. Of the dentate patients, 18% had 1-12 teeth, 37% had 11-20 teeth and 24% had 21 teeth or more. At total of 34% of the dentate patients were caries free, 62% had up to 10 carious teeth and 4.5% had more than 10 carious teeth (Table 4). Some 52% of dentate individuals required one to five teeth extracted and 20% required more than six dental extractions.

In all, 12% of patients had mandibular vertical opening of less than 30mm and 47% had mandibular opening of greater than 40mm (Table 5).

The periodontal status was assessed using the CPITN. Highest and lowest scores per individual are reported in Table 6. A highest CPITN score of 0 or 1 was recorded in 5.6% of patients, indicating gingival health or gingivitis without periodontal attachment loss in that group. A lowest CPITN score of 3 or 4 was recorded in 20.9% of patients, indicating moderate to severe levels of chronic periodontitis in that group.

Table 6: Community Periodontal Index of Treatment Need – highest and lowest per individual.

CPITN score	Highest per individual (%)	Lowest per individual (%)
0	0.1	6.8
1	5.6	31.8
2	25.8	40.5
3	36.7	16.2
4	31.8	4.7
Total no. of patients	705	720

Table 7: Dental plaque and gingival bleeding scores.

Individuals affected (%)	Plaque score	Bleeding score
<20%	2.8	9.6
21-40%	14.8	40.4
41-60%	20.4	32.5
61-80%	20.8	12.7
81-100%	41.2	4.8
Total no. of patients	720	705

Some 82% of individuals had a plaque score of greater than 41%. Half had a bleeding score of greater than 41% (Table 7).

Resting and stimulated saliva flow rates are reported in Table 8. A total of 95% were within the normal range for unstimulated saliva of 0.2-0.9ml/minute. In all, 93% were within the normal range for stimulated saliva of greater than 1-2ml/minute.

Treatment need at baseline is presented in Table 9. Dietary, oral hygiene and dry mouth advice was required by all patients. Caries preventive therapy and periodontal therapy was recommended for all dentate patients, with more advanced periodontal care required by 21%. Dental extractions were required for 72% of patients, with 52% requiring between one and five extractions. Restorative treatment, including caries restoration, dentures and radiation stents, was required for 64% of patients.

Discussion

The information presented in this paper represents the baseline dental status of pre-radiotherapy patients attending the head and neck cancer dental oncology treatment centre in the DDUH.

The records of 746 patients were reviewed, with 178 (24%) females and 568 (76%) males. The age range was from 17 to 89 years of age (Figure 2). The demographic trends regarding gender, age, cancer diagnosis and site reported in the audit are in line with other reported studies.³⁰

The Irish Cancer Registry reports an annual incidence of head and neck cancer of 411 cases.¹ The patient numbers attending the clinic increased from 48 in 1998/99 to 441 in 2012/13 (Figure 1). This increase in referrals is related to the inclusion of a pre-radiotherapy dental assessment as “best practice” for

Table 8: Saliva flow rate in 746 patients.

Saliva flow ml/min	Unstimulated(%)	Stimulated(%)
<0.2ml/min	3.4	0.9
0.2-0.5ml/min	53.5	3.2
0.6-0.9ml/min	41.2	2.6
1-1.9ml/min	1.5	83.5
2-2.9ml/min	0.4	8.7
>3ml/min	0	1.1

Table 9: Treatment required at baseline for 746 patients.

Treatment	Required (%)
Dietary, oral hygiene, dry mouth advice	100
Jaw mobilisation exercises	53
Periodontal treatment	96
Fluoride/chlorhexidine therapy	86
Extractions	
1-5 teeth	52
6-10 teeth	14
11+ teeth	06
Restorative dental treatment	45
Dentures	14
Radiation stent	5*

*Radiation stents are being prescribed more commonly in recent years with the use of intensity-modulated radiation therapy (IMRT).

head and neck cancer patients.²⁵

In a separate review of pre-radiotherapy referrals to our clinic, the number of patients seen within seven days was 51% in 2007 and 78% in 2012. Those who had a longer waiting time for baseline appointments usually had a medical complication causing the delay.³¹

The place of residence in Ireland is of interest when planning the delivery of the dental oncology service. The pre-radiotherapy dental assessment and treatment is done in the DDUH Dental Oncology Treatment Centre while the patients are attending for their cancer treatment in Dublin. Patients living in Leinster (40%) had to travel between 20 and 80 miles for treatment. Patients living in Ulster, Connacht and Munster (17%) had to travel between 60 and 200 miles for treatment (Figure 3). The provision of long-term, post-radiotherapy routine dental care should be delivered in the local community.

Some 51% of our study group were current smokers or very recently quit smokers. This is higher than the national prevalence in Ireland, which was approximately 25% during the same period.³²

In all, 720 patients were dentate and 26 were edentulous (Table 4). Of the dentate individuals, 65% had more than 16 remaining teeth, making this a reasonably-dentate population requiring dental care into their future lives. Approximately 34% of individuals were caries free – this is higher than other reported studies¹² and may be related to water fluoridation in Ireland. Dental extractions or restorations were required, as 62% of individuals had up to 10 carious teeth and 4% had more than 10 carious teeth, which is broadly in line with other reports of head and neck cancer patients.³³ It is also in line with reported dental treatment need in the Irish population, with 65% of males and 56% of females requiring some dental treatment.³⁴

A total of 24% did not need to have any teeth extracted and 55% required between one and five teeth extracted pre radiotherapy, which is similar to other reported needs.³⁰ It is very important that necessary dental extractions are completed quickly to reduce delay in the urgent commencement of the radiation therapy. In an audit of the number of days from initial assessment to completion of dental extraction for a subset of 141 individuals in 2012, 24% had the necessary dental extractions on the day of assessment, 56% had the extractions completed within one week, 13% within two weeks and 5% had a delay of greater than three weeks.³¹ Some 18% of individuals waited more than eight days for dental extractions, which inevitably delayed the start of radiation treatment.^{35,36,37}

Vertical mandibular opening was recorded with the inter-incisal distance in millimetres (**Table 5**) – 12% of individuals had vertical mouth opening of less than 30mm, which is a severe limitation, indicating that the provision of dental care would be more difficult, if not impossible, in the future. Vertical opening of between 30mm and 40mm was recorded in 41% of individuals, which would also be of concern. The restricted mouth opening in this patient group may be related to position and size of tumour, or if the patient was post surgery in the head and neck region. It is urgent to initiate jaw stretching exercises at an early stage to prevent restriction in opening in the long term. The use of the TheraBite appliance (TheraBite Jaw Motion Rehabilitation System) should be considered.

The periodontal status was assessed using the CPITN – highest and lowest scores per individual are reported in **Table 6**. A highest CPITN score of 0, 1 or 2 was recorded in 31.4% of patients, indicating gingival health, gingivitis or presence of calculus. This indicated the need for oral hygiene instruction and scaling as the periodontal treatment need for this patient group. A lowest CPITN score of 3 or 4 was recorded for 21% of patients, indicating moderate to severe levels of chronic periodontitis. In this group, the treatment need will be complex periodontal care and possibly extraction. Extraction is indicated for furcation involved teeth that are in the radiation field, as these teeth are more likely to develop post-radiation ORN.¹⁵ These figures for the incidence of periodontal disease are in line with previous studies in general population groups in Ireland and abroad.^{34,38} Periodontal probing records were not taken for 15 dentate patients due to significant medical history. The plaque and bleeding scores (**Table 7**) indicated generally poor oral hygiene in this group of patients and the need for oral hygiene instruction. Saliva flow rates, both resting and stimulated, were generally within normal range in the pre-radiation group (**Table 8**).

The treatment need in this group was recorded at baseline (**Table 9**). All patients needed advice about prevention of dental disease including dietary advice, oral hygiene instruction and advice regarding dry mouth. Jaw stretching exercises were needed by 53% of individuals – it is essential to start physiotherapy as soon as possible to increase mandibular opening when necessary. Periodontal treatment and caries preventive treatment were needed by all dentate patients. Pre-radiation dental extractions were indicated for 72% of patients. Restorative dental care, including fillings and dentures, was needed by 59% of patients. Mandibular positioning and shielding stents were requested by the radiation oncologist for 5% of patients; however, requests for this service are increasing due to the use of IMRT. Retention of strategic teeth is advocated when the radiation field and dose are targeted with the use of IMRT.¹⁷ However, a comprehensive, preventive dental care service must be available for long-term support of head and neck cancer survivors and funding is needed.

At the baseline assessment, it is necessary to form an opinion based on various dental risk factors such as past dental history, current condition of the oral cavity and dentition (oral health, caries, periodontal, restorations), mandibular mobility, attitude to health and well-being (smoking, diet, exercise), cancer treatment (surgery, radiation, chemotherapy, palliative) and, finally, the patient's own opinion. The baseline dental status is assessed and recorded before the post-radiotherapy complications of illness, depression, tiredness, lack of mobility, dry mouth, oral infection and post-radiation caries are present. We stress the essential need for excellent oral care following radiation if teeth are retained. However, it is very difficult to predict an individual's likely compliance with dental care following their cancer treatment. Financial constraints are often a considerable problem.

The need for supportive care following radiotherapy is described well by the survey of prevention and treatment regimens for oral sequelae resulting from head and neck radiotherapy used in Dutch radiotherapy units, which demonstrated a great diversity between institutes. The most comprehensive care was provided by centres with an active dental team, especially if a dental hygienist was on the team.²⁹ In a recent study on patient stratification for preventive care in dentistry, it is suggested that resources could be targeted to high-risk populations. This was calculated as being more resource efficient than in the model where the same prevention regime is applied equally across the population.³⁹ Provision of care is multi team based and needs to be carefully co-ordinated, as documented by National Institute for Health and Care Excellence (NICE)⁴⁰ and Scottish Intercollegiate Guidelines Network (SIGN).⁴¹

There can be little doubt that a functioning, healthy dentition will greatly contribute to quality of life for the head and neck cancer survivor in the long term. A diseased dentition and post-radiation oral problems will greatly increase morbidity. A group of post head and neck cancer patients was asked about their main concerns following treatment – “dental health/teeth and chewing/eating” came second to “fear of the cancer coming back”.⁴² Most of these patients requested dental care. These findings highlight the importance of oral function and well-being for quality of life including nutrition, body image, self-esteem and social interaction. This patient group often needs complex prosthodontic rehabilitation following cancer surgery,^{43,44} as well as ongoing routine dental care and oral health advice. Pre-radiation and long-term dental care should be provided as outlined by the Royal College of Surgeons of England.²⁵

Conclusion

This study highlights the increasing numbers of patient referrals for dental assessment and treatment prior to radiation treatment in Ireland. The main age range was 45-74, with a significant number of younger individuals. Some 49% were current/recent smokers, which is higher than the national average. The group was dentate, with 65% having more than 16 teeth. There was a significant treatment need, with a large number of individuals requiring dental extractions, and restorative and periodontal care. Appropriate and comprehensive treatment to control dental disease prior to radiation treatment should be provided in a timely, integrated manner for all head and neck cancer patients.²⁵ A healthy functioning dentition will also improve quality of life in the long term.⁴² This long-term care must be provided with collaboration between specialist units and community/general dental practices.

Recommendations for the provision of pre-radiation oral and dental care:

1. Pre-radiotherapy oral and dental assessments should be provided by a dental specialist at the time of radiotherapy planning in the oncology unit. Decisions regarding the need for, and placement of, dental implants should be made at this time^{45,46} and impressions for radiation stents, if required.
2. Urgent dental extractions should be completed as soon as possible, within one week of assessment. The patient can then proceed to planning for radiation therapy.
3. Advice should be given regarding prevention of oral and dental disease, including the need for excellent oral hygiene, healthy diet, smoking cessation, fluoride and antiseptics daily use, exercises to maintain the range of mandibular movement, management of dry mouth, and the risk of ORN.⁴⁷ Treatment of dental caries and periodontal disease should also be initiated. The role of teamwork is essential in the delivery of this aspect of care.
4. Oral rehabilitation of post-surgical defects must be provided by a maxillofacial prosthodontist and maintained in collaboration with community/general dental practice.
5. Regular, long-term supportive and maintenance care should be provided in collaboration with the community/general dental service.

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