Dental evaluation prior to medical treatment:

who to refer?

INTRODUCTION

Oral health is entwined with general health. Recent research has indicated possible associations between chronic oral infections and diabetes, heart disease, lung disease, and stroke.¹ Oral health is more than clean teeth; it involves the gums and their supporting tissues, jawbones, oral mucosae, tongue, masticatory muscles, and salivary glands. Dental caries and periodontal disease, which are frequently silent, are the two leading causes of poor oral health. They are among the most common chronic diseases in the UK. The relationship between poor oral health and medical treatment is complex. Some medical treatments exacerbate oral disease; oral disease can in turn jeopardise medical treatment and systemic health.

Dental evaluation prior to medical treatment became accepted practice many years ago with regard to patients about to undergo radiation therapy for head and neck cancers.

We highlight four groups of patients about to commence specific treatments that should be referred to a dentist prior to this treatment:

- all patients with cancer prior to receiving cytotoxic chemotherapy or radiotherapy to the head and neck;
- patients awaiting transplant surgery;
- patients awaiting valvular surgery;
- patients about to receive treatment with bisphosphonates.

PATIENTS FOR REFERRAL

All patients with cancer prior to receiving cytotoxic chemotherapy or radiotherapy to the head and neck

Pre-existing or untreated oral disease has been associated with increased incidence and severity of oral and systemic complications in patients with cancer. The complications can seriously compromise health and quality of life, as well as affecting

the ability of patients to complete treatment (Box 1). Routine dental infections, which are usually self-limiting in a normal situation, can become life threatening during immunosuppressive chemotherapy (Box 2). Oral mucositis is a common reason for the interruption of chemotherapy and head and neck radiation protocols.² Head and neck radiotherapy puts the patient at risk of xerostomia (dry mouth), oral infections, oral muscle fibrosis, and osteoradionecrosis (Box 3). Oral care prior to, during, and after cancer treatment can prevent or reduce the incidence and severity of oral and systemic complications, enhancing both patient quality of life and, in some cases, survival.²

Patients awaiting transplant surgery

Most patients are severely immunocompromised from post-transplant medication and, therefore, are at increased risk of opportunistic infections. Periodontal disease is a particular issue in these patients and it includes viral, bacterial, or fungal infections associated with periodontal disease, and cyclosporin A-induced gingival enlargement.³ There is the potential for exposure of distant anatomical sites from oral cavity bacteria. Potential transplant candidates should obtain a complete dental and periodontal evaluation before an organ transplant.³ Whenever possible, all active dental and periodontal disease should be aggressively treated before transplantation.

Patients awaiting valvular surgery

While the indication for prophylactic antibiotics prior to manipulations known to cause transient bacteraemia in valvular heart disease may have changed, the general role of prevention of endocarditis is still very important in all patients with valvular heart disease. Patients about to receive a prosthetic heart valve operation should have all indicated dental treatment performed before the valve is placed because they are more susceptible to

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Box 1. Oral complications common to both chemotherapy and radiotherapy

Condition	Presentation	Implications
<ul style="list-style-type: none"> Mucositis (stomatitis) 	<ul style="list-style-type: none"> Inflammation and ulceration of mucous membranes 	<ul style="list-style-type: none"> Pain Oral and systemic infections Nutritional compromise
<ul style="list-style-type: none"> Infections due to direct tissue damage or xerostomia Myelosuppression 	<ul style="list-style-type: none"> Viral, fungal, or bacterial infections 	<ul style="list-style-type: none"> Pain Oral and systemic spread Nutritional compromise
<ul style="list-style-type: none"> Xerostomia due to thickened, reduced, or absent salivary flow 	<ul style="list-style-type: none"> Dental caries Periodontal disease Burning mouth 	<ul style="list-style-type: none"> Tooth loss Risk of oral infections Compromised chewing, speaking, swallowing, and nutrition
<ul style="list-style-type: none"> Altered development of children (particularly if aged <8 years) 	<ul style="list-style-type: none"> Altered or delayed tooth development and eruption Altered craniofacial growth 	<ul style="list-style-type: none"> Altered or compromised oral functions Psychosocial issues

Box 2. Oral complications of chemotherapy

Condition	Presentation	Implications
<ul style="list-style-type: none"> Neurotoxicity 	<ul style="list-style-type: none"> Deep aching and burning pain that can mimic toothache 	<ul style="list-style-type: none"> Compromised quality of life and oral function
<ul style="list-style-type: none"> Reduced platelet and/or clotting factors 	<ul style="list-style-type: none"> Oral bleeding 	<ul style="list-style-type: none"> Blood loss Risk of infection

Box 3. Oral complications of radiotherapy

Condition	Presentation	Implications
<ul style="list-style-type: none"> Radiation caries 	<ul style="list-style-type: none"> Rampant caries that can develop within 2 months of the commencement of radiotherapy 	<ul style="list-style-type: none"> Pain Infections (abscesses) Tooth loss Compromised oral function
<ul style="list-style-type: none"> Tissue fibrosis 	<ul style="list-style-type: none"> Triasms Infections 	<ul style="list-style-type: none"> Nutritional compromise Reduced quality of life
<ul style="list-style-type: none"> Osteoradionecrosis 	<ul style="list-style-type: none"> Pain Soft tissue breakdown Bony sequestration Pathological fractures Fistula formation 	<ul style="list-style-type: none"> Reduced healing

the jaw. Symptoms include delayed healing following a dental extraction or other oral surgery, pain, soft-tissue breakdown, numbness, paraesthesia, exposed or sequestering bone, and the formation of chronic fistulae. MRONJ most commonly occurs with intravenous (IV) bisphosphonate use, for example in patients with cancer. While rare, the potential risk of MRONJ due to oral bisphosphonates should not be neglected. There is weak evidence to support the risk of developing MRONJ following the use of oral bisphosphonates but studies have shown an incidence of 0.00038–0.21%.⁵ The risk is increased in patients taking this medication for >4 years. Dentoalveolar surgery is a major precipitating factor for the development of MRONJ, estimated at 0.5% following dental extractions. In patients taking IV bisphosphonates, this risk is increased to 1.6–14.8% following dental extractions.⁵ While bisphosphonate treatment should not be delayed, all patients due to receive oral or IV bisphosphonates should have a dental check-up including radiographs before bisphosphonate treatment to ensure they are dentally fit. Edentulous patients are included in this as ill-fitting prostheses such as dentures can lead to soft tissue trauma and breakdown, thereby increasing the risk of MRONJ.⁶ All patients who are not receiving regular dental care, or who have poor oral hygiene or concomitant risk factors such as corticosteroid use, should undergo an oral examination by a dentist either before or early following the initiation of bisphosphonate treatment.⁶

CONCLUSION

Most patients appreciate a doctor who looks out for them by identifying possible treatment-hindering dental problems and sending them to see a dentist before treatment begins. Dental pre-assessment and treatment can reduce the risk of oral complications with resultant reduced risk for systemic sequelae, and enhanced quality of life. Pre-treatment dental evaluation can also be very cost-effective. Surgical treatment for jaw reconstruction in cases of osteoradionecrosis or hospital admissions for dental sepsis during chemotherapy is expensive. GPs are able to identify these groups of patients and to refer before medical treatment begins. This will achieve optimal oral health and allow a good period of time for post-operative healing.

prosthetic valvular endocarditis.⁴ Acute and chronic dental infections and bacteraemia-prone oral healthcare procedures may contribute to the development of prosthetic valve endocarditis. All guidelines agree that regular dental surveillance is essential to promote good oral hygiene, reduce the need for invasive dental procedures, and reduce the risk of infective endocarditis.

Patients about to receive treatment with bisphosphonates

Medication-related osteonecrosis of the jaw (MRONJ) is defined as exposed, necrotic bone in the maxilla or mandible that has persisted for more than 8 weeks in patients taking bisphosphonates, and where there has been no history of radiation therapy to

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