Dental Management of the Older Patient

Aim: This article will discuss the management of the older patient in dental practice; ageing of the population and increasingly prolonged retention of teeth has brought new challenges to dentistry. This is a complex topic and this paper highlights some of the issues associated with the older patient.

Objectives: On completion of this verifiable CPD article the participant will be able to demonstrate, through completion of a questionnaire, the ability to:

- Demonstrate knowledge of some of the barriers to oral health experienced by the older patient
- Identify some of the social factors that could influence access to dental care for the older patient
- Identify mucosal conditions that become more common with age
- Demonstrate an understanding of the increased risk of root caries in older age
- Demonstrate knowledge of managing prosthodontic care in the older patient

Introduction

Adult health surveys worldwide highlight that the demographics of the adult population are changing dramatically. Older people are predicted to have increasingly longer life expectancies. By 2033 it is anticipated that 23% of the population will be aged 65 or over. There is an increasing trend for tooth preservation and older age groups are retaining their teeth longer which has brought new challenges to dentistry. The rate of edentulism in England and Wales has decreased from 37% in 1967 to 6% in 2009. Therefore, the older population are more likely to have a heavily restored dentition and age related medical conditions. In addition, oral mucosal conditions are more prevalent in older patients.

This article will discuss the management of the older patient; it will explore some of the possible medical and social factors that may affect their dental care and some of the oral factors that they may influence their treatment e.g. social factors, medical conditions, root surface caries, periodontal disease and prosthodontic care.
Although the majority of patients can be routinely managed in dental practice, some with complex medical conditions may need identifying for relevant referral.

**Barriers to oral health care**

Barriers to oral health care among older people are considerable. Impaired mobility can affect access to oral health care, particularly for those who live in rural areas with poor public transport. Domiciliary care is not universally available. Given that some older people may experience financial hardship following retirement, the cost or perceived cost of dental treatment, together with poor attitudes to oral health, may deter them from visiting a dentist.

Many older people tend to live alone, away from friends and family. The lack of social support and feelings of loneliness and isolation may affect their mental health and well being. Clearly, there is unmet need among this group and it is important that dental health care providers recognise these important psychosocial factors that underpin the health and well being of older people.

There is a need to provide sensitive oral health care that is accessible, appropriate and acceptable to them. Their general health must be taken into account when planning complex treatment that may involve surgical procedures. Special needs diagnosis and advanced treatment planning are crucial.\(^5\)

**Social Factors**

Older patient’s living arrangements can be a source of social concern that can influence access to dental care. They may be:

- Living alone in their own home
- Living with family
- Living in sheltered accommodation
- Living in a residential home
- Living in a care home
- In long stay hospital care

They may be independent, partially dependent or totally dependent. The above living circumstances can impose significant constraints on the individual’s ability to access dental care. For example, if a patient has no access to transport, not only is visiting a dental practice difficult or impossible but access to local shops and supermarkets may also be difficult. This can result in poor nutritional consequences that may influence susceptibility to dental and other diseases.
Medical Factors

Older adults may be susceptible to an array of medical conditions, although this is not an automatic consequence of old age. However, some conditions are more common in older age such as: hypertension, diabetes mellitus, myocardial infarction, stroke and arthritis. These conditions can affect the major organs and body systems and result in a patient needing to be prescribed a plethora of medications which in turn may have potential side effects that affect oral health. For example, drug induced xerostomia. Xerostomia is an interesting and highly relevant subject matter which has previously been included as verifiable CPD for the website. For anyone who has not completed this subject it will be added to the non verifiable section of the website to be completed as non verifiable CPD alongside this article.

The incidence of some mucosal conditions increases with age. These include:

- Candidosis
- Denture related candidosis
- Angular cheilitis
- Oral ulceration

Candidosis  Denture Candidosis  Angular Cheilitis

Oral Hygiene

A variety of reasons can result in older patient’s having a decreased ability to implement satisfactory oral hygiene care. This could be because of medical conditions such as rheumatoid arthritis affecting the hands.

Xerostomia as a result of medication can lead to increased plaque accumulation. Some antidepressant medication can lead to reduced self motivation to perform oral hygiene care. Some medication can have a direct effect on the periodontal tissue resulting in gingival overgrowth the most common group of drugs that can cause this are hypertensive drugs. This, in turn can result in poor oral hygiene.

When advising older patients about their oral hygiene these factors need to be considered and unrealistic expectations should not be made. There are simple strategies such as implementing the use of power toothbrushes, water jets and...
silicone handles that can be advised to improve the removal of plaque.

Specialised Toothbrushes

Caries Management
Older patients can present with dental caries and these patients can be treated effectively and in many cases conservatively. Even patients who did not have a history of dental caries can present with primary lesions. This may be influenced by use of medication, change in diet and cognitive and dexterity problems which affect oral hygiene. Patients who have a high number of filled and missing teeth, who live in a non fluoridated area, partial denture wearers and who are not regular dental attendees can be considered at a higher risk for dental caries.7

Primary caries in older adults can present in any tooth surface but are more commonly found on the cervical areas and root surface. In addition, patients who have experienced caries in the past may present with large restorations with secondary caries that need managing.7

Root Caries
Root surface caries is a significant cause of restoration failure in the older patient.3 Recession of the gingival margin is a common finding among older patients. As the gingival margin recedes, the enamel-cementum junction becomes exposed and can become susceptible to plaque retention resulting in root caries developing.

Cementum and dentine on the root surface are less mineralised than enamel and therefore are more susceptible to demineralisation.7 Cementum or dentine have a higher critical pH than enamel and so during a cariogenic attack, demineralisation occurs at an earlier stage in the Stephan curve than that of enamel and the duration is prolonged in the Stephan curve compared to that for enamel.3

Care should be taken to differentiate between active root caries and arrested lesions. Active lesions can become arrested if oral hygiene improves. However, cavitated lesions that cause plaque accumulation should be restored.3
Caries Prevention

Evidence suggests that the management of dental caries needs to move to less invasive approaches. Older patients have not benefitted from oral health programmes in the past and clinical studies suggest that oral health education for these patients can be effective.8

The Department of Health guidance for dental teams for prevention of caries for all adults is evidence based. The blue chart identifies the recommendations and the strength of the evidence is as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Strength of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Strong evidence from at least one systematic review of multiple well-designed randomised control trial/s.</td>
</tr>
<tr>
<td>III</td>
<td>Evidence from well-designed trials without randomisation, single group pre-post, cohort, time series of matched case-control studies.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>All adult patients</th>
<th>Advice</th>
<th>EB</th>
<th>Professional Intervention</th>
<th>EB</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Brush at least twice daily, with a fluoridated toothpaste</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Brush last thing at night and at least on one other occasion</td>
<td>III,I</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• Use fluoridated toothpaste with at least 1350ppm fluoride</td>
<td>I</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Spit out after brushing and do not rinse, to maintain fluoride concentration</td>
<td>III</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The frequency and amount of sugary food and drinks should be reduced</td>
<td>III,I</td>
<td></td>
<td></td>
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<tr>
<td>Those giving concern to their dentist E.g. with obvious current active caries, dry mouth, other predisposing factors, those with special needs</td>
<td>All the above, plus: &lt;br&gt;Use a fluoride mouthrinse daily (0.05% NaF-) at a different time to brushing</td>
<td>I</td>
<td>• Apply fluoride varnish to teeth twice yearly (2.2% NaF-)</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• For those with active coronal or root caries prescribe daily fluoride rinse</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• For those with obvious active coronal or root caries prescribe 2,800 or 5,000ppm fluoride toothpaste</td>
<td>I</td>
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<tr>
<td></td>
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<td></td>
<td>• Investigate diet and assist to adopt good dietary practice in line with the eatwell plate</td>
<td>I</td>
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</tbody>
</table>

Delivering better oral health: an evidence-based toolkit for prevention

**Periodontal Disease**

Older patients show no increased risk of periodontal disease progression compared to younger individuals and periodontal treatment can be equally successful in the older age group. However, complex medical conditions, drug or other therapies, poor plaque control and reduced salivary flow can impact directly on the periodontal
tissues. Consequently, an individual treatment plan considering all the relevant factors would be required when treating the older patient.\textsuperscript{6}

Over 400 types of medication can cause xerostomia leading to an increase in plaque accumulation, therefore regular review appointments and oral hygiene monitoring is of key importance to prevent periodontal disease.

The goal for treatment should be to preserve a functional comfortable and aesthetically acceptable dentition. The basic treatment plan encompassing non-surgical periodontal therapy and oral hygiene instruction is no different from a younger patient and can be equally as successful.\textsuperscript{6}

**Gingival Recession**

Studies have shown that the progression of attachment loss in older patients is seen clinically as increasing gingival recession rather than deepening of the periodontal pockets. As previously discussed, this can increase the risk of root caries in some patients. There is also a higher risk of dentine sensitivity.\textsuperscript{6}

**Periodontal Disease and Systemic Conditions**

A number of studies have looked at the possible role of periodontal disease as a risk factor for systemic conditions. Atherosclerotic conditions, cardiovascular disease and stroke have been investigated. A link between respiratory disease and periodontitis is very relevant to the older population, in particular those in nursing homes. Two systematic reviews concluded that there was evidence of an association between oral health and pneumonia and chronic obstructive pulmonary disease.\textsuperscript{6}

This highlights the significance of maintaining good oral hygiene.

**Prosthodontic Management**

The World Health Organisation suggested that a goal for 2002 was that adults should retain at least 20 functional teeth and those that do would not require an oral prosthesis.\textsuperscript{10}To support this, some researchers suggest that older adults have different functional needs and that a complete natural dentition is not always needed and that a shortened dental arch concept can be implemented by preserving anterior teeth.\textsuperscript{11}

In addition to caries prevention strategies and conservative management of cavities, this strategy also includes the use of resin-bonded or cement-retained bridges to maintain shortened dental arches where anterior teeth are missing.

The use of bridgework instead of RPDs in this way has been shown to be an effective means of replacing missing teeth with a reduced maintenance burden.\textsuperscript{1,12}

All of these factors influence the clinician’s decision when treatment planning for the older adult.
Prosthodontic Treatment Planning

If prosthodontic replacement of teeth is required, the majority will receive removable partial dentures (RPDs) to meet functional and aesthetic demands. Due to the increased difficulties in maintaining good standards of oral hygiene with RPDs it is important that treatment planning incorporates good oral hygiene instruction to focus on plaque control.

RPDs constructed with a cobalt-chromium framework can be used to minimize gingival coverage and ensure that components do not encroach on root surfaces. Frameworks for dentures should not be overly complicated, and the minimal number of components needed to provide adequate retention and support should be provided.

Ideally, unless additions are planned, cobalt chromium frameworks are favoured over acrylic. This is due to the need for acrylic RPDs to extend over a greater area of soft tissue which can increase the risk of soft tissue trauma and unnecessarily compromise oral hygiene.

Cobalt-Chromium Partial Dentures

Acrylic Partial Dentures
Edentulism

In certain clinical situations, it is very likely that the patient will eventually lose all of his/her natural teeth. These situations can include:

- Questionable patient motivation
- Advanced periodontal disease
- Poorly controlled caries
- Advanced toothwear
- Financial considerations

It is not desirable that a patient should become edentulous in old age as it becomes increasingly difficult to successfully adapt to wearing complete replacement dentures as the patient gets older and medical health issues can impede the transition.

Consequently, the clinician should recognize when the long-term prognosis for a dentition is hopeless and plan a gradual transition to the edentulous state, this can increase the chances of successful adaptation to complete dentures.\textsuperscript{1,14}

As the older population has become better informed it is less likely that traditional treatment philosophies based around removal of teeth and replacement with traditional dentures are accepted. Conservative management of existing teeth and the availability of dental implants, implant retained overdentures are all treatment options that are available. However, as discussed, patients who will lose all their natural teeth require careful management to assist the transition to edentulousness.
References