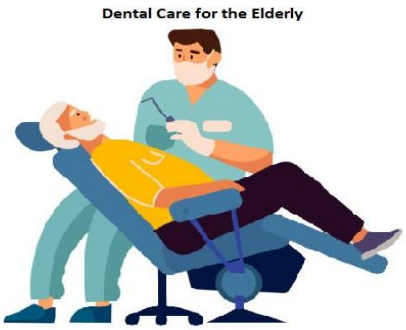
Dental Care and the Elderly

Aims: 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 article 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:

- Have 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.
- Have an increased understanding of Delivering Better Oral Health recommendations for caries management and prevention of periodontal disease.

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.[1] By 2050 it is anticipated that almost one in five people will be over the age of 65 equating to 1.6 billion.[2] There is an increasing trend for tooth preservation and older age groups are retaining their teeth longer which has brought new challenges to dentistry.[3] The rate of edentulism in England and Wales has decreased

from 37% in 1967 to 6% in 2018.[4] 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.[5]

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.[6]

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.

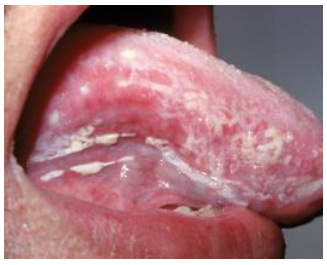
They may be independent, partially dependent, or totally dependent. The above living circumstances can impose significant constraints on the individual's ability to access dental care. For example, if a patient has no access to transport, not only is visiting a dental practice difficult or impossible 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

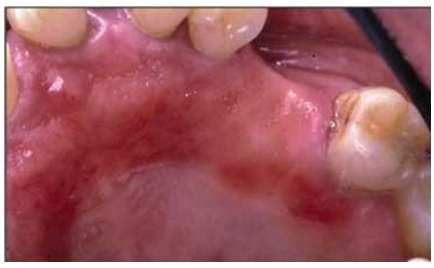
Older adults may be susceptible to an array of medical conditions, although this is not an automatic consequence of old age. However, some conditions are more common in older age such as: hypertension, diabetes mellitus, myocardial infarction, stroke, and arthritis. These conditions can affect the major 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.[4]

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

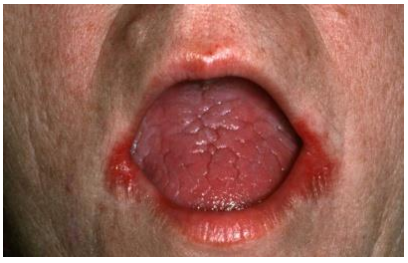
- Candidiasis
- Denture related candidiasis
- Angular cheilitis
- Oral ulceration



Candidiasis



Denture Candidiasis



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.[4]

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.[7] 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.[8]

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.[8]

Gingival Recession

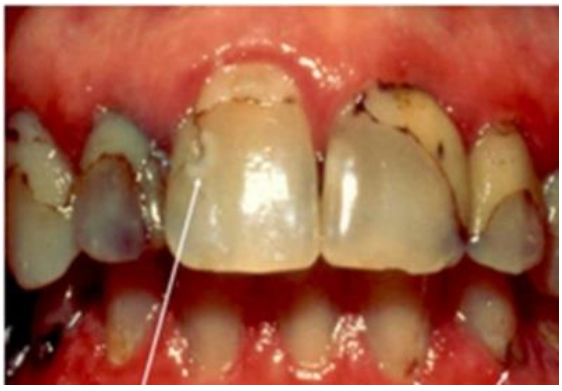
Studies have shown that the progression of attachment loss in older patients is seen clinically as increasing gingival recession rather than deepening of the periodontal pockets. As previously discussed, this can increase the risk of root caries in some patients. There is also a higher risk of dentine sensitivity.[7]

Root Caries

Root surface caries is a significant cause of restoration failure in the older patient.[4] 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.[8] 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.[4]

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.[4]



Root Caries

Caries Prevention – Delivering Better Oral Health

Evidence suggests that the management of dental caries needs to move to less invasive approaches. Recent thinking suggests that all patients should be given the benefit of advice, care, and support to improve their general and oral health, not just those thought to be at risk.

Delivering Better Oral Health was developed with the support of the 4 UK Chief Dental Officers. This guidance is issued jointly by the Department of Health and Social Care, the Welsh Government, the Department of Health Northern Ireland, Public Health England, NHS England and NHS Improvement, and with the support of the British Association for the Study of Community Dentistry.[10]

Whilst this guidance seeks to ensure a consistent UK wide approach to prevention of oral diseases some differences in operational delivery and organisational responsibilities may apply in Wales, Northern Ireland, and England. In Scotland the guidance will be used to inform oral health improvement policy.

The summary tables list the advice and actions that should be provided for all patients to maintain good oral health. They also outline the additional support that should be offered to people identified as being at higher risk of dental disease.

The strength of the evidence and recommendations is based on the GRADE (Grading of Recommendations, Assessment, Development and Evaluations). This is a method of assessing the certainty in evidence and the strength of recommendations in health care.

These include:

Strong recommendations – it is believed desirable consequences outweigh undesirable, typically based on high or moderate certainty evidence.

Conditional recommendations –the effectiveness of an intervention (low or very low certainty evidence) or the balance between benefits and harms is unclear.

Good practice – clinical opinion suggests this advice is well established or supported. No robust underpinning research evidence exists. Good practice points are primarily based on research of related topics and/or clinical consensus, expert opinion and precedent, and not on research appropriate for rating the certainty or quality of the evidence.[10]

Delivering Better Health – Prevention of Dental Caries[10]

All adults

Recommendation	Strength of Recommendation
Brush teeth at least twice daily: **• last thing at night (or before bedtime) and on at least one other occasion** **• with toothpaste containing 1,350 to 1,500ppm fluoride** **• spitting out after brushing rather than rinsing with water, to avoid diluting the fluoride concentration**	Strong
Minimise the amount and frequency of consumption of sugar-containing food and drinks	Strong
Avoid sugar-containing foods and drinks at bedtime when saliva flow is reduced, and buffering capacity is lost	Conditional
Professional intervention	
Assign a recall interval ranging from 3 to 24 months, based on oral health needs and disease risk	Conditional

Adults giving concern because of dental caries risk

Recommendation	Strength of Recommendation
All the above, plus: **Advice**	
Support toothbrushing where required (for example carer assistance, specialised brush, non-foaming toothpaste)	Good practice

Use a fluoride mouth rinse daily (0.05% NaF; 230 ppmF) at a different time to toothbrushing	Conditional
Professional intervention	
Apply fluoride varnish to teeth 2 times a year (2.26% NaF)	Strong
For those with active coronal or root caries, consider recommending or prescribing daily fluoride rinse (0.05% NaF; 230 ppmF, to be used at a different time from toothbrushing) until dental caries risk is reduced	Conditional
For those with obvious active coronal or root caries, consider prescribing 2,800 or 5,000ppm fluoride toothpaste until dental caries is stabilised and risk is reduced	Conditional
Where a patient is prescribed medication frequently or long term, liaise with medical practitioner to request that it is sugar free	Good practice
Investigate diet and assist adoption of good dietary practice in line with the Eatwell Guide	Good practice
Assign a shortened recall interval based on dental caries risk	Conditional

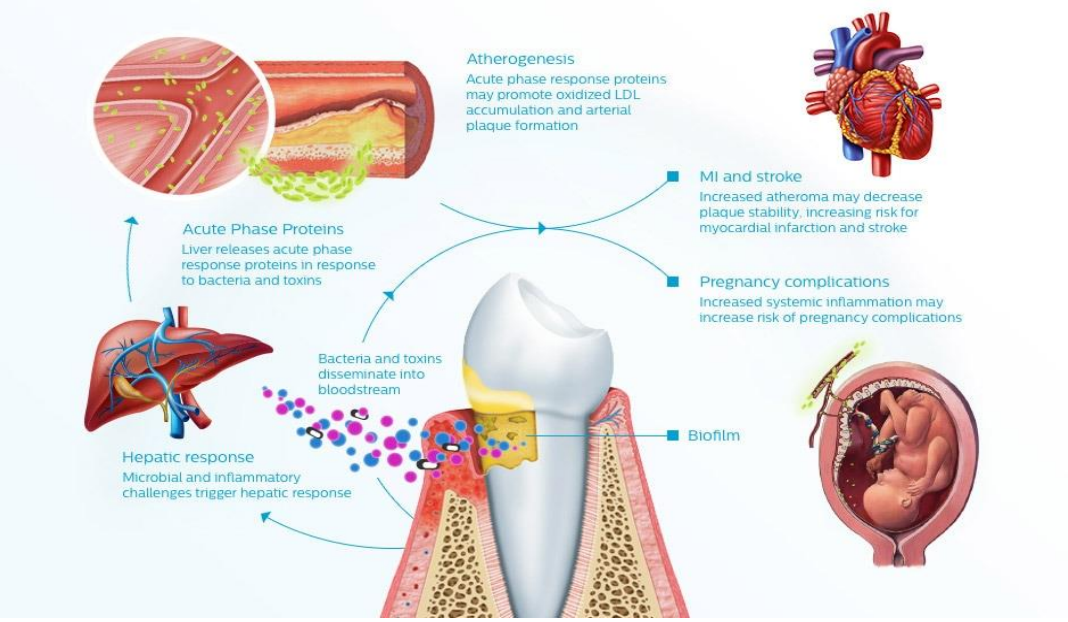
Periodontal Disease

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.[7] 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.[7]

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.[7]

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.[7] This highlights the significance of maintaining good oral hygiene.

Delivering Better Health – Prevention of Periodontal Disease (to be used in addition to dental caries prevention)[10]

All Patients

Recommendation	Strength of Recommendation
Advice	
Self-care plaque removal: **Daily, effective plaque removal is critical to periodontal health**	Conditional
Remove plaque effectively using methods shown by the dental team. This will prevent gingivitis (gum bleeding or redness) and reduces the risk of periodontal disease	Good practice
Toothbrushing and toothpaste: Brush gum line and each tooth at least twice daily (last thing at night or before bedtime and on at least one other occasion)	Good practice
Recommendation	
Toothbrush type	
Use a manual or powered toothbrush	Strong
Use a small toothbrush head, medium texture	Conditional
Around orthodontic appliances and bridge, plaque control should be undertaken using the aids suggested by the dental team	Good practice
Professional intervention	

Advise best methods of plaque removal to prevent gingivitis and achieve lowest risk of periodontitis and tooth loss	Conditional
Use behaviour change methods with oral hygiene instruction	Conditional
Recommendation	**Strength of Recommendation**
Correct factors that impede effective plaque control including supra and subgingival calculus, open margins and restoration overhangs and contours, which prevent effective plaque removal	Good practice
For people with extensive inflammation, start with toothbrushing advice, followed by interdental plaque control	Good practice
Assess patient, parent, or carer's preferences for plaque control: **• decide on manual or powered toothbrush** **• demonstrate methods and types of brushes** **• assess plaque removal abilities and confidence with brushing** **• patient sets SMART goals for toothbrushing for next visit**	Good practice

10

Prosthodontic Management

The World Health Organisation suggested a goal that adults should retain at least 20 functional teeth and those who do would not require an oral prosthesis.[11] 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.[12]

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 removable partial dentures (RPDs) in this way has been shown to be an effective means of replacing missing teeth with a reduced maintenance burden.[1,13]

All of these factors influence the clinician's decision when treatment planning for the older adult.

Implants

Many elderly patients now decide to have dental implants in preference to prothesis. There is robust evidence that dental implant therapy in elderly patients is a long-term treatment option and in terms of implant survival it is a clinically acceptable choice for some patients with minimal complications. Therefore, age alone should not be a limiting factor for dental implant therapy.[14]

After studying patients between 66 and 93 years of age, Becker et al reported that older individuals receiving dental implants had excellent implant survival rates, low periodontal disease index scores, minimal changes in interproximal bone health, and outstanding quality of life scores.[15]

Prosthodontic Treatment Planning

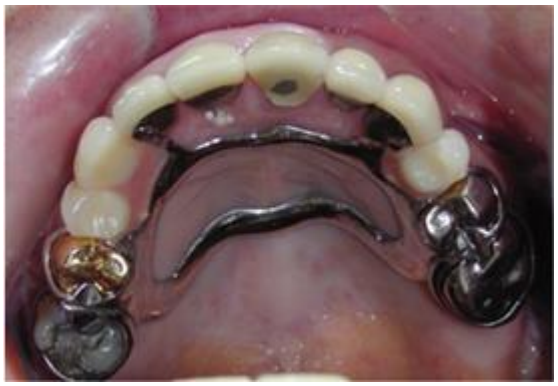
If prosthodontic replacement of teeth is required, the majority will receive RPDs to meet functional and aesthetic demands.[1] Due to the increased difficulties in maintaining good standards of oral hygiene with RPDs it is important that treatment planning incorporates good oral hygiene instruction to 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

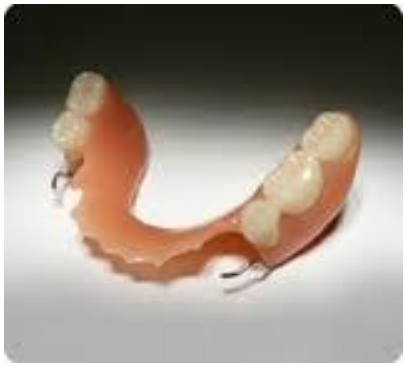
for dentures should not be overly complicated, and the minimal number of components needed to provide adequate retention and support should be provided.[16]

Ideally, unless additions are planned, cobalt chromium frameworks are favoured over acrylic.[1] 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 tooth wear
- 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 recognise 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.[1,17]

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.

Personal Development Plan and Reflective Learning

This CPD is linked to the following GDC Enhanced CPD Development Outcome:

C. Maintenance and development of knowledge and skill within your field of practice.

D. Maintenance of skills, behaviours and attitudes which maintain patient confidence in you and the dental profession and put patients' interests first.

Reflective learning is now a requirement of the GDC Enhanced Professional Development Scheme. As such, you will now have the opportunity to answer some reflective learning questions, if you complete these now you will fulfil the requirements of the GDC. These will be

1) What did you learn (or confirm) from the activity that was helpful or relevant to your daily work and patients?
2) Comment on any changes/updates needed in your daily work
3) How has completion of this CPD article benefitted your work as a DCP?

Further reading

https://www.dentalhealth.org/dental-care-for-older-people

Xerostomia

Current Consensus of Dental Implants in the Elderly—What Are the Limitations? | SpringerLink

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