Treatment Considerations for the Older Dentate Patient

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ABSTRACT – PENDING.

INTRODUCTION

There are currently over 11 million people in the UK aged over 65, with this projected to rise by over 40% within the next two decades to over 16 million with a quarter of the population exceeding the age of 65 by 2040. Alongside this change, the proportion of dentate adults is increasing with edentulousness having reduced to 6%, a 22% fall since 1978. An increasing number are retaining a ‘functional dentition’ of 21 teeth or more which may include complex restorative treatments including endodontically treated teeth, crowns bridges and osseointegrated implants. Consequently, older patients are more likely to experiences hard tissue pathology and failing dentistry than previous generations, presenting challenges for dental teams.

A range of complex factors result in oral hygiene deteriorating with age and the resultant dental diseases can adversely affect patients’ quality of life. The majority of adults remain independent, with less than 10% receiving social care support in 2013-14 whilst disability-free life expectancy increases. Despite this, oral diseases persist in older people and delivery of dental care can be complex. This article will discuss core issues affecting older people as well as relevant aspects of care provision to help determine when or what intervention may be appropriate for complex older adults.

FRAILTY

Frailty has been defined as ‘a dynamic state affecting an individual who experiences losses in one or more domains of human functioning (physical, psychological, social), which is caused by the influence of a range of variables and which increases the risk of adverse outcomes’. 
This presentation is increasingly prevalent in older patients, increasing with age and more commonly affecting women. The current prevalence is 14% and of 93% those classified as frail experience difficulties with mobility whilst 57% struggle with daily activities. Older patients with frailty holding different attitudes towards dental care and are less able to provide their own oral hygiene measures and transport to dental clinics. Considering these factors, there is significant potential for dental disease to develop and progress.

Figure 1: Failing crowns and bridge and retained roots in a 95 year old patient

MULTI-MORBIDITY

As individuals ages, there is greater potential to acquire comorbidities and for these to be of greater severity. Multimorbidity is defined as the presence of two or more chronic conditions including mental health conditions and symptom complexes such as frailty, dementia or chronic pain. The prevalence of multi-morbidity is significant in the older population, affecting 64.9% of those aged 65-84 and 81.9% of those aged 85 and above. Patients with dementia are likely to acquire more long-term conditions at an earlier age. Though many older adults remain independent, there are a proportion whose support and care needs are significant and who may be less suitable for routine dental treatment in a primary care setting.
Common systemic conditions include respiratory disease, coronary heart disease and type 2 diabetes with the presence or management of each potentially impacting upon the safety of dental care delivery. Management of these diseases can involve polypharmacy resulting in xerostomia and an increased risk of dental caries as well as a greater likelihood of drug interactions leading to the need for information gathering from relevant healthcare teams and a cautious approach to treatment provision.

DEMENTIA
Regardless of comorbidities and frailty, most older patients retain full cognitive function and are able to make informed decisions regarding their preferred approach to dental care. This ability is lost for some, due to acquired cognitive impairment, usually dementia. Dementia is a chronic or progressive syndrome in which cognitive function declines to a greater extent than would be expected during normal ageing, affecting 850,000 people in the UK of which 539,062 have formal diagnoses. The prevalence of dementia is expected to reach 1 million by 2025 and 2 million by 2050. As a result of this, an increasing number of dental patients who attend for dental care may be affected with a typical presentation of poorer oral health than those without dementia.

The rate of dementia progression is unpredictable and on this basis, there can be benefits in discussing and providing proactive dental disease management to prevent need for intervention at a later and more advanced stage of a patient’s disease. As dementia progresses, comprehensive clinical and radiographic examination can be impeded and pain identification can become particularly challenging. The presence of pain can however be a key justification for intervention yet in advanced dementia the decline in cognition can lead to limited cooperation with treatment and limit the safety of treatment under local anaesthesia.

ACCESS TO DENTAL SETTINGS
The aforementioned demographic changes mean that an increasing proportion of older patient will be unable to access routine dental care. Domiciliary dental care remains an important option for certain patients, as detailed by guidelines from the British Society for Disability and Oral Health. For patients who are able to access or be brought to a dental
clinic, a comprehensive history is as important as ever, yet can be challenging to obtain. Liaison with carers, be they formal or informal, can be required. Informal carers are responsible for much of the care provided and the need for dental care can place demands on other family members who are involved in provision of transport or other means of supporting a relative with complex care needs.

**CONSENT AND MENTAL CAPACITY**

Those with mild or early dementia may be treated in general dental practice where the long-term relationship that can be established with a general dentist can be highly beneficial in detecting early cognitive change and accommodating for this during treatment provision. Some patients have fluctuating mental capacity and can still consent for treatment if supported to do so or approached at the right time in the right circumstances. Patients with dementia may lose the ability to comprehend treatment options and weight up their own decisions regarding dental care, leading to a lack of capacity to consent for treatment provision. The Mental Capacity Act 22 or other regional legislation provides a framework for determining whether a patient has capacity to consent for particular healthcare decisions; this process is well detailed elsewhere. 23,24

**PREVENTION**

Prevention of oral diseases should be a priority in older people, not only to prevent the development or progression of dental disease but to prevent the associated risks of pain and infection and the likelihood of needing complex treatment options in later life. Additionally, high plaque levels can lead to aspiration pneumonia, leading to mortality in frail or systemically unwell individuals 25. Many older people are appropriate candidates for high fluoride toothpaste, regular recalls and fluoride varnish application as a component of evidence-based practice 26. Many patients will receive informal care from family members, who, like paid carers will need to be involved in preventative efforts, particularly as a person’s ability to care for themselves can decrease. For those in residential care settings, NICE have produced guidelines which detail appropriate preventative approaches and propose oral care plans be available for all residents 27.
SAFEGUARDING

Though it should be appreciated that the role of a carer can be stressful and demanding, frail adults or those with dementia can be classified as vulnerable individuals. The World Health Organisation defines ‘Elder Abuse’ as ‘single or repeated act or lack of appropriate action, occurring in any relationship where there is an expectation of trust that causes harm or distress to an older person’ and neglected oral hygiene measures may fit this definition and indicate a wider lack of care outside of the dental setting. This topic is comprehensively detailed in other sources yet the dental team must ensure they are aware of the local channels through which their concerns should be raised if neglect or abuse is suspected.

CLINICAL GUIDELINES

The ultimate aim for older patients is, where possible, to safely achieve a pain-free functional dentition, addressing the cosmetic needs for an individual patient whilst managing the risk of future disease. For older patients in general the Seattle Care Pathway comprehensively details how to approach to care for older patients with different degrees of dependence (Fig 3). Additionally, FGDP guidance ‘Dementia-Friendly Dentistry’ elaborates on treatment options for patients with varying stages of dementia and details key considerations and adaptions for patient care and appropriate treatments.

Generally, for those with greater dependence or more significant comorbidities or frailty, active invasive dental treatment becomes less appropriate due to impact of and upon these medical and social factors. When a patient is experiencing pain or infection then intervention is certainly warranted as yet for asymptomatic older individuals, the balance of risk and benefit shifts as intervention, or the way in which this is facilitated is of greater risk, whilst full mouth reconstruction is often not feasible. Even provision of basic treatment can infer minimal benefit for asymptomatic patients approaching later life.

MINIMALLY INVASIVE TREATMENT AND SYMPTOMATIC MANAGEMENT

Minimally invasive symptomatic management on a tooth-by-tooth basis is advocated for those with greater levels of dependence, and certain aspects of this may be able to be delivered in a domiciliary setting. This is often basic treatment as simple as smoothing off
sharp or broken dental tissue, easing dentures or basic restorations. The atraumatic restorative technique can be highly effective in older patients where it is appropriate to leave teeth in situ to avoid adverse effects of extractions \(^{33}\). Extractions can be suitable, though a full risk-assessment of both the procedure and the approach to its delivery is paramount.

![Figure 2: Extensive dental disease in an 86-year-old patient with fronto-temporal dementia](image)

**ROUTINE TREATMENT**

Many older patients are suitable for a full complement of dental procedures, under local anaesthesia. Where this is possible, there is no indication to deviate from a normal standard of patient-centred care delivery based on informed consent though some patients may be more likely to experience diseases or poorer oral hygiene which may contraindicate specific treatments. Similarly, tooth retention can be of greater importance in specific situations, such as due to current or historic use of bisphosphonate or anti-angiogenic medications where surgical producers should be avoided where possible \(^{34}\). Where oral conditions and patient’s tolerance of complex procedures is adequate, routine care can be delivered as for any age group with the support of dental care professionals in prevention strategies.
COMPLEX MANAGEMENT

When treating older patients, the treatment itself, the approach by which it is provided or the combination of these can be complex. Due to the risk of intervention as opposed to complexity itself, there must be a clear justification for providing complex treatment or using complex approaches. In these instances, referral to hospital or specialist settings is warranted.

Local anaesthetic should be considered as the first-line approach for treatment as this is generally safe and can enable completion of dental treatment of varying degrees of complexity. Factors such as extreme anxiety or advanced dementia may limit the suitability of local anaesthesia alone and in this situation, there is a place for conscious sedation by either inhalation or intravenous routes. As part of planning these approaches, a comprehensive and detailed history is essential which can often require liaison with a range of healthcare teams including anaesthetists for those with more significant comorbidities. Intravenous sedation can be appropriate for older patients though caution is needed with benzodiazepines to which older people can become increasingly sensitive. Inhalation sedation is appropriate for a larger proportion of adults with comorbidities, yet may be insufficient to provide anxiolysis for more complex treatment provision. When symptoms prevail and treatment need is extensive, general anaesthesia can be appropriate when the benefit of its use outweighs the increasing risk associated with age and the consideration that the systemic impact of general anaesthesia can be long-lasting and can include cognitive dysfunction even months after surgery.35

These risks propose a need to avoid repeated general anaesthesia which limits the range of treatments that can be provided by this approach. Treatment should be definitive and predictable, so is typically limited to scaling, extractions or simple restorations. Extensive treatment can be facilitated by this approach, yet the impact of this can be significant, with dental clearances sometimes required such as for the dentition highlighted in Fig 2. The impact on future function and appearance requires due consideration and the treatment provided must always be in the patients’ best interests. The decision to provide these more complex approaches to treatment is not taken likely and requires a careful balance of benefit.
and risk with a comprehensive consent process, or for those lacking capacity a detailed assessment involving a third party that planned treatment and the planned approach is in the patients’ best interest.

WORKFORCE PLANNING

To accommodate the growing older population who are retaining greater numbers of teeth with complex restorative treatments there is a need for an adequately trained and appropriately sized workforce. Within this, dentists with additional and specialist skills will need to be accessible via clearly defined patient-centred care pathways facilitated by Managed Clinical Networks. For these dentists, support from dental care professionals and adequate clinical time and facilities are essential to deliver appropriate care for this group of patients.

CONCLUSION

The safety and suitability of active interventional treatment can vary substantially, with some older people able to entirely tolerate routine dentistry and others being highly complex either in terms of medical background, cognitive status and cooperation or dental rehabilitation. Where local anaesthetic can be tolerated, this is typically the safest and most desirable option whether for symptomatic management or routine care delivery yet there is still a place for conscious sedation or general anaesthesia for those where cooperation with local anaesthesia is limited. An informed and considered decision not to offer treatment can be entirely appropriate. In all treatment options for all patients, risks and benefits of both treating and deciding not to treat must be carefully weighed up to ensure the safety of the patient whilst ensuring a comfortable oral status in later life.
<table>
<thead>
<tr>
<th>LEVEL OF DEPENDENCY</th>
<th>None</th>
<th>Pre</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tr>
<td><strong>Assessment</strong></td>
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<td>Adopt appropriate recall intervals</td>
<td>Identify conditions threatening oral health. Develop strategic oral healthcare plan to include professional and self-care</td>
<td>Identify cause of increasing dependency (e.g. stroke, polypharmacy, dementia) Increase frequency of recall</td>
<td>Participate with other medical services to assess health risks generally Reassess long-term viability of oral health-related prevention</td>
<td>Examine patients’ physical cognitive and social context for barriers to emergency palliative and elective oral care. Monitor the burden of oral care on the patient and others Increase vigilance for signs of elder abuse</td>
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<tr>
<td><strong>Treatment</strong></td>
<td>Routine</td>
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<td>Consider long-term viability of restorations and prostheses. Plan treatment outcomes for easy maintenance</td>
<td>Identify, repair or replace strategically important teeth guided by the principle of the ‘shortened dental arch’, with or without implants, to maintain oral function. Plan for ongoing maintenance, including restorative and surgical treatments, to maintain function and prevent or</td>
<td>Repair and maintain strategically important teeth with conservative treatments (e.g. atraumatic restorative technique (ART) with fluoridated glass-ionomer materials, and design oral prostheses to simplify oral hygiene and prevent infection Use prosthodontic attachments between overdentures and abutment teeth or implants to simplify hygiene and maintenance</td>
<td>Offer palliative treatment on demand from the patient to control pain and infection and maintain social contacts and activities</td>
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*Figure 3: Paraphrased Assessment and Treatment Sections of Seattle Care Pathway (Pretty et al., 2015)*
Figure 4: Process of assessment and treatment decisions for complex older patients

<table>
<thead>
<tr>
<th>TREATMENT INDICATED</th>
<th>TREATMENT LESS APPROPRIATE</th>
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<tbody>
<tr>
<td>Active pain or infection in a patient who</td>
<td>When there has been a long-term absence of symptoms and treatment provision is associated with excess risk to wellbeing or significant safety concerns</td>
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<td>will allow treatment</td>
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<td>Patients who can consent for treatment and</td>
<td>When treatment is not in the best interests of a patient, including those who cannot consent for their own treatment</td>
</tr>
<tr>
<td>where treatment is safe and suitable</td>
<td></td>
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REFERENCES


Pretty IA, Ellwood RP, Lo ECM, MacEntee MI, Müller F, Rooney E et al. The Seattle Care


