General medicine and surgery for dental practitioners. Part 1 – the older patient

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IN BRIEF

- Frail older people require special consideration in order to successfully receive the healthcare they require.
- Older people often suffer with multiple medical problems and are taking multiple medications.
- Physical disability, impaired vision and hearing and reduced mental function cause practical difficulties.
- Liaison with the patient's carers and general medical practitioner is vital.

PRACTICE

This paper is the start of a series on general medicine and surgery for dental practitioners. It follows on from a previous series, published in the *British Dental Journal* in 2003. The proportion of older people in the UK population has been on the increase for several years. Dental practitioners who treat the general public often see older patients on a regular basis. This paper considers aspects of clinical management in the older patient with particular reference to the presentation of disease and factors to be considered in prescribing medication.

INTRODUCTION

A significant proportion of any general dentist's work will be with those over retiring age, but it is the over 80 age group that has the largest population growth rate, and which often presents with multiple ongoing medical problems requiring multiple medications, and with disabilities requiring special consideration.

GENERAL MEDICINE AND SURGERY FOR DENTAL PRACTITIONERS

1. **The older patient**
2. Metabolic disorders
3. Skin disorders (A)
4. Skin disorders (B)
5. Psychiatry
6. Cancer, radiotherapy and chemotherapy

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POINTS IN THE HISTORY

One definition of ageing is 'the gradual development of changes in structure and function that are not due to preventable disease or trauma, and that are associated with decreased functional capacity and an increased probability of death'. Although this definition of the pure ageing process excludes age-related disease, older people suffer from a wide range of medical conditions and accumulate long term consequences of past illnesses. Some common medical problems of old age are listed in Table 1.

It is essential to know an older person's medical background when assessing or treating any new health problem. Many of the conditions listed in Table 1 have a direct effect on the delivery of dental treatment. To take the example of common cardiovascular disorders, in patients with ischaemic heart disease, angina may be brought on by the stress of dental treatment, and may need to be treated in the surgery with sublingual nitrates. Lying flat may aggravate breathlessness in heart failure patients. Those with atrial fibrillation are likely to be on anticoagulants, and may have ischaemic heart disease, heart failure or underlying valvular conditions.

Table 2 lists certain features which distinguish illness in older people from that in the younger population. Older people often present with atypical symptoms, or nonspecific presentations of disease.

Table 1 Common medical conditions of old age

Cardiovascular
• Ischaemic heart disease – angina/myocardial infarction • Heart failure • Atrial fibrillation
Respiratory
• Chronic obstructive pulmonary disease (COPD) • Respiratory infections
Gastrointestinal
• Gastro-oesophageal reflux • Peptic ulceration • Constipation
Genitourinary
• Incontinence • Urine frequency • Obstructive uropathy due to prostate disease
Musculoskeletal
• Arthritis • Osteoporosis and fractures • Muscle weakness
Neurological/Psychiatric
• Poor vision • Deafness • Poor memory/confusion/dementia • Depression/agitation/anxiety • Parkinson's disease • Strokes
Metabolic/Endocrine
• Diabetes mellitus (type 2, non-insulin-dependent) • Hypothyroidism
Neoplastic
• Common cancers in old age include breast, lung, gastrointestinal tract and prostate.

For example, loss of appetite and weight may have many potential causes including physical illness such as cancer, mental illnesses including depression, and oral conditions. It is therefore important to obtain as clear a picture as possible of the presenting complaint.

The adverse effects of ageing and illness on functional ability result in the so-called 'giants of geriatric medicine', listed in Table 3. They all have obvious practical consequences for the delivery of dental care, and the practitioner should enquire whether any special consideration needs to be given, for example assistance with mobility or toilet use.

A commonly-used framework of headings for taking a medical history is given in Table 4. Obtaining a clear and full history from an older person can be difficult. The complexity of their medical history itself may result in omission or misunderstanding on the patient's part. Communication may be impeded by visual impairment or deafness. The patient may suffer from impaired memory, poor concentration or frank dementia. Therefore, it is important to recognise these problems, seek a corroborative history from a relative or carer, and to confirm medical details with the patient's general medical practitioner.

Since illness is often associated with loss of function or independence, it is important to enquire about the impact of the condition on the patient's life. This may often be quite disproportionate to the apparent seriousness of the underlying condition. For example, a relatively minor oral infection in a frail older person may result in the person stopping eating and drinking, becoming dehydrated and consequently requiring emergency hospital admission. Conversely, the older person's stoicism and expectations of ill health can sometimes result in late presentation of advanced disease, the symptoms of which had wrongly been accepted as a natural consequence of old age.

Social circumstances and support are important considerations for older people with reduced physical or mental function. The ability to co-operate with aspects of dental treatment such as maintaining oral hygiene or taking prescribed medication may be impaired. Aids and appliances can significantly enhance an older person's independence with activities of daily living. Written instructions and reminders may be helpful in those with impaired memory. Actual physical help or supervision from a carer is needed when other measures fail. It is therefore essential to ascertain details of the support that is available to the patient, for example whether they live with an able relative, have carers visiting them in their home, or live in a protected institution with 24 hour care. Over 20% of those over 85 years of age will live in a residential or nursing home or sheltered housing.

Drug-related problems are common in older people. Compliance is often poor, and the list of medications provided by the general medical practitioner may differ significantly from what the patient is actually taking. Therefore, obtaining a correct drug history often requires effort beyond simply transcribing a list from the GMP, or asking the patient what they take. Checking through a prescription list with the patient and their carer and reading the labels of medications or dosing boxes brought by the patient are valuable ways of obtaining correct information.

Table 2 Features of illness in older people

- Nonspecific presentation
- Multiple pathology and consequent polypharmacy
- Interaction between conditions and between medications
- Loss of functional independence
- Impaired homeostasis, resistance to disease and recovery.

Table 3 Giants of geriatric medicine

- Incontinence
- Instability (falls)
- Immobility
- Intellectual impairment (dementia and delirium).

Table 4 Elements of a medical history

- Presenting complaint
- History of presenting complaint
- Past history (including ongoing chronic problems)
- Review of other systems
- Family history
- Social history
- Treatment history – drugs and allergies.

EXAMINATION OF THE OLDER DENTAL PATIENT

Specific points in the examination of patients with the medical conditions listed in Table 1 have been covered in the first series of general medicine and surgery papers.[1–8] This section will therefore concentrate on the more general features in older people, and assessment of their function and ability.

An idea of an older person's physical function can be obtained by general observation. Do they appear well-nourished? Is their gait strong and steady, or do they use walking aids? Do they appear breathless on walking? Are there obvious bone or joint deformities from arthritis or osteoporotic fracture? How good is their manual dexterity when removing their coat or signing forms? Can they see and hear adequately?

Observation may be used to deduce the mental function of elderly patients informally. Do they appear orientated to their surroundings, able to concentrate and converse appropriately? Are they clean and appropriately dressed? Are their answers to questions clear and plausible?

There are pitfalls in the use of general observation, however. Apparent mental impairment in conversation may actually be due to deafness or a speech disorder such as dysphasia following a stroke. Conversely, a patient may be able to conceal significant dementia by maintaining social graces and giving plausible answers to questions.

Manual dexterity may be significantly impaired due to muscle weakness without obvious clues such as deforming arthritis or the tremor of Parkinson's disease. Patients with macular degeneration of the retina may have severely impaired central vision, to the level of being registered blind, while retaining sufficient peripheral vision for safe navigation while walking into the surgery. All of these can have practical consequences for the ability to co-operate with dental treatment and oral hygiene instructions or comply with the taking of medication.

DENTAL MANAGEMENT OF THE OLDER PATIENT

Some important principles of management of both health and social care were set out in the National Service Framework for older people, a government document which sets standards of care in England and Wales.[9] Three standards relevant to dental care are given in Table 5.

An example of overt age discrimination found during work for standard 1 was a

Table 5 National Service Framework for older people[9]
Standard 1: rooting out age discrimination
'NHS services will be provided, regardless of age, on the basis of clinical need alone...'
Standard 2: person-centred care
'NHS and social care services treat older people as individuals and enable them to make choices about their own care'
Standard 8: the promotion of health and active life in older age
'The health and well-being of older people is promoted through a coordinated programme of action...'

national guideline restricting conscious sedation for outpatient dental procedures to those less than 70 years of age. It is perfectly true that certain co-morbidities in older patients put them at increased risk of harm from sedation. It may cause respiratory suppression in patients with chronic lung disease, confusion in those with underlying chronic brain conditions or falls in those with postural instability. However, it is not appropriate to introduce such a generalisation for all patients over 70 receiving sedation. Certainly some elderly patients have the ability to appropriately cope with patient-controlled sedation.[10] Each case should be considered on its own merits, and provision made for inpatient treatment where sedation is warranted but increased risk is anticipated.

Covert age discrimination is also common, and can take three main forms.

- Health professionals may wrongly assume that an older person has a short life expectancy and therefore has limited capacity to benefit from certain interventions. The average life expectancy of an 80-year-old is 8 to 9 years[11]
- Services required by older people may be under-provided and have long waiting lists. The problem may be compounded if younger patients are given priority
- Services may be inconvenient or inaccessible to frail or disabled people who require assistance and transport. They may not know who to ask or how to seek the help required.

A key requirement for standard 2, relevant to dental healthcare, is the need to provide information available to older people in a way that they can understand. For the cognitively impaired, this may involve tolerant and careful explanation in simple language. For the visually impaired, information leaflets should be available in large print. Special effort is also needed to communicate effectively with hearing-impaired older people. When care is taken, the majority of older people can make appropriate choices and give valid consent. Where this is not possible, there is a duty to act in the patient's best interests and involve relatives and carers in decision making.

Standard 8 should contain dental health promotion, including screening programmes, routine checks and preventive treatment.

Dental problems commonly seen in the older patient are covered in other texts and will not be discussed here.

ADMINISTRATION OF MEDICINES AND PRESCRIBING FOR OLDER DENTAL PATIENTS

As older people are already taking multiple medications, there is increased likelihood of drug interactions. Their impaired homeostasis and multiple co-morbidities put them at increased risk of unwanted effects. It is therefore essential to take a full treatment history and document a patient's known medical conditions before prescribing.

Altered pharmacodynamics often increases the sensitivity of older people to drug actions. Renal function deteriorates with age, even in the absence of known renal disease, resulting in reduced drug excretion. Liver function also deteriorates, slowing elimination of drugs metabolised there. Low serum albumin in chronic ill health may increase free concentrations of protein-bound drugs. Absorption of drugs is often relatively normal, so the result of these changes is that older people often need lower doses, particularly of drugs with a narrow therapeutic window.

The most common drug that a dentist will prescribe to an elderly patient is a local anaesthetic. It is important not to overdose the elderly patient and this may happen more readily in this population compared to younger adults. This is the result of lower body weight (the maximum dose is determined by body weight) and also due to decreased ability to metabolise the drug. Most local anaesthetics are primarily metabolised in the liver and as hepatic function is decreased the chances of overdose increase. As a working rule it is sensible to halve the normal maximum dose in patients over 65 years of age.

As mentioned above, elderly patients may be taking a number of medications. The chance of an adverse reaction to local anaesthetics increases with medical risk factors.[12] A survey of local anaesthetic complications in Germany showed that the incidence of complications attributable to local anaesthesia in dentistry was 3.3% in patients with no risk factors compared to 6.9% in patients taking more than two medications daily.[12]

The anti-Parkinsonism drug entacapone is an inhibitor of the enzyme catechol-O-methyltransferase, which is the enzyme that initiates metabolism of exogenously administered adrenaline (such as during dental local anaesthesia). Thus, in patients taking this drug, dose-reduction or avoidance of adrenaline-containing local anaesthetics is advised.

It is not all bad news, however, in relation to local anaesthesia. There is evidence that the onset of local anaesthesia after intra-oral infiltration is more rapid in elderly patients compared to their younger counterparts.[13] In addition, the duration of pulpal anaesthesia may be longer in the older patient.[13] These effects on local anaesthesia may be the result of poorer vascularity and fatty degeneration of bone in the older patient.[13]

Of the medications listed in the Dental Practitioners' Formulary section of the British National Formulary,[14] most antibiotics can be prescribed at the standard doses. Some antibiotics and antifungals interact with warfarin, which older patients may be taking following cardiovascular disease or stroke and can be problematic. Single doses of drugs such as amoxicillin should not be troublesome but long term treatment with this antibiotic and

metronidazole can alter clotting status, which is measured by the International Normalised Ratio (INR). Thus if these antibiotics are used, monitoring of the INR is required. The azole antifungal agents can cause dramatic increases in the INR, even topical use of miconazole can create this problem[15] and combined use is contraindicated. Many older patients take iron or calcium preparations, which can impair absorption of tetracyclines.

Non-steroidal anti-inflammatory drugs (NSAIDs) should be used with caution, particularly in patients with dyspepsia and those with renal disease or heart conditions requiring treatment with angiotensin converting enzyme (ACE) inhibitors and those taking anticoagulants. NSAIDs such as ibuprofen decrease the hypotensive effect of beta-blockers.

Older patients are particularly prone to side effects from drugs acting on the central nervous system, which can cause confusion, drowsiness and falls. This is especially true of benzodiazepines and other sedatives such as promethazine, but can also be a problem with opioid analgesics including pethidine.

Difficulty in dealing with multiple medications in the context of impaired vision, mental function or dexterity results in poor compliance. It is therefore important to consider means of enabling the patient to take their medication correctly. Careful explanation of the reason for the drug should be given, including whether it is 'as required' or to be taken as prescribed. It is useful to write down the main points and to explain them to a relative or carer. Small print on bottle labels may be difficult to read for the visually impaired patient, and childproof containers should be avoided unless the patient indicates that they are confident in their use. It may be difficult for the older patient with impaired manual dexterity to correctly dose liquid medicines if these have to be measured out using a spoon. One way round this problem is to provide a plastic syringe for drug dosing and dispensation.

Other means of enhancing compliance include supervision by a carer and the use of dosing boxes. These contain the medications set out in compartments labelled with the time and day of the week. They can be set up by a relative or, commonly, by the community pharmacist. If the patient already uses one of these and an additional prescription is needed, then liaison with the pharmacist or carer is necessary to ensure correct administration.

Further advice on prescribing in older people is given in the British National Formulary.[14]

CONCLUSION

Older people in general are frequent users of dental care and the frail elderly patient with disabilities and multiple medical problems provides a particular challenge. The patient's general medical practitioner and their relatives or carers are an essential source of information and help in the delivery of dental treatment.

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