CLINICAL CASES SERIES

Clinical Cases in Gerodontology

Edited by
Gerry McKenna, Finbarr Allen
and Francis Burke

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Clinical Cases in Gerodontology

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FIRST EDITION

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INTRODUCTION

With Contribution from Gerry McKenna, Finbarr Allen, Francis Burke, Paul Brocklehurst and Georgios Tsakos

Epidemiology of the Ageing Population

The global population is ageing. As a result of falling birth rates and significant increases in life expectancy, the proportion of older adults within the general population has increased markedly. This has been one of the most distinctive demographic trends of the last century and is predicted to continue at an increased rate into the next.[1] With fertility rates continuing towards lower levels, falling death rates become increasingly important in population ageing. In many more economically developed countries, where low birth rates have existed for a significant period of time, increases in the older population are now primarily as a result of improved chances of surviving into old age.[2,3] Over the next 50 years, global life expectancy at birth is projected to increase by 10 years on average, to reach 76 years in 2045–2050.[1] The gaps in life expectancy among more and less economically developed countries are predicted to decrease. Life expectancy at birth is expected to reach an average of 80 years in more economically developed countries, compared to 71 years in less economically developed countries.[1]

The generalised shift in the age distribution of mortality towards older groups means that more people will now survive into their seventh, eighth and ninth decades. Estimates suggest that almost three of every four newborns worldwide will now survive to 60 years, with one in every three living over 80 years. Not only are more people surviving to old age, but once there, they are living longer. Over the next 50 years global life expectancy at age 60 is expected to increase from 18.8 years in 2000–2005 to 22.2 years in 2045–2050 (an 18% gain), from 15.3 to 18.2 years (a 19% gain) at age 65 and from 7.2 to 8.8 years (a 22% gain) at age 80. These figures show that in fact the older the age group, the more remarkable are the expected relative gains in life expectancy.[1]

While the underlying reasons for improvements in life expectancy can differ depending on the country or region, common themes include increasing prosperity, education, public hygiene, improvements to housing and social welfare policies. Advances in healthcare provision have also played a pivotal role, including progression in preventative medicine, drug therapies and diagnostic tools. Unfortunately these advances have all come at increased economic costs for patients, healthcare providers or both.[4,5] In the United Kingdom, the Royal Commission on Long Term Care has estimated that the costs of caring for the elderly will quadruple in real terms between 1995 and 2051, from £11.1 billion to £45.3 billion.[6]

Due to the nature of chronic systemic conditions, the prevalence of these diseases is very high, with significant levels of co-morbidity reported among older patients.[7] They include cardiovascular disease, cancer, respiratory diseases and diabetes mellitus. Such chronic conditions are the leading cause of mortality worldwide and currently account for 63% of all deaths.[8] With life expectancy predicted to continue increasing, the burden of chronic illnesses among the older population will inevitably pose substantial medical, logistical and financial issues in the future.

The oral health of older adults

Older patients also suffer from chronic destructive oral diseases: dental caries and periodontal disease as well as toothwear. Caries and periodontal disease share many common risk factors with chronic systemic diseases, including smoking, poor-quality diet and a lack of glycaemic control. Although neither caries nor periodontal disease is a direct consequence of ageing, both are significantly more prevalent among older adults.[9] With increasing numbers of patients retaining natural teeth into

old age, the burden of oral healthcare for the ageing population is also rising sharply, and since oral health conditions exert an excessive burden on older adults, oral health inequalities are therefore a major concern.[10]

The traditional picture of older patients with no natural teeth and complete replacement dentures is changing. Recent years have seen considerable improvements in the oral health of older patients, with a large number of epidemiological dental surveys indicating that levels of tooth retention have increased significantly in this age group.[11] Unfortunately, the cumulative nature of the two main destructive dental diseases, caries and periodontal disease, dictates that ageing will continue to be a factor associated with natural tooth loss.

Despite the overall prevalence of total tooth loss falling sharply in recent years, patients are now becoming edentulous at an older age, when they are often less able to adapt to the limitations of complete dentures.[12] The attitudes of older patients to oral health have also changed markedly, as they take advantage of widely available sources of information and ultimately demand more from clinicians. Increasing numbers of older patients are unhappy with treatment plans simply centred around extractions and replacement of natural teeth, and expect conservative treatment approaches instead.[13,14] Evidence suggests that has been a generational shift in patient attitudes to oral healthcare, with research illustrating that patients born after World War II have very different attitudes to oral health compared with those born pre-war.[15,16]

While increasing tooth retention represents a significant improvement in the oral health of the older population, it also brings with it the emerging challenges of managing chronic dental diseases for a new cohort. Factors including reduced manual dexterity and xerostomia coupled with a cariogenic diet mean that chronic dental diseases can cause considerable pain and suffering among older patients and can impair oral function.[17] Dental caries, particularly on root surfaces, remains a challenge for this age group, with high levels found among old-age populations, especially those living within residential care.[18,19]

The importance of oral health for older adults: links between oral disease and systemic well-being

Retention or replacement of missing natural teeth is important for restoration of oral function, aesthetics and quality of life. However, there is an ever-increasing amount of evidence to suggest that teeth and oral health are also very important for systemic health and well-being.[20] While a number of oral and systemic diseases can be linked by a variety of common risk factors, there is also evidence to suggest that there could be interactions between inflammatory periodontal diseases and conditions such as atherosclerosis, diabetes mellitus and respiratory diseases.[21] It has been shown too that as natural teeth are lost, chewing function can be negatively affected. This can have significant negative knock-on effects on dietary choice and overall nutritional status.[22] In older patients in particular, diet plays a very important role in systemic disease prevention, with poor diets implicated in bowel disease, osteoporosis and cardiovascular disease.

Therefore, it is important from both oral well-being and systemic health perspectives that oral health is maintained for older adults, ideally providing them with a pain-free, natural and functional dentition for life. In order to help oral health clinicians achieve this, there is a need to develop and provide training focused on gerodontology at undergraduate and postgraduate levels, both as part of formal programmes and through continuing professional development (CPD) opportunities.[23] Such opportunities should extend to the entire dental team, since all members have a role to play maintaining and improving oral health for older people.[24]

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Chapter 1

Management of Chronic Dental Disease

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Case 1

Management of Root Caries

With Contribution from Martina Hayes, Cristiane da Mata, Finbarr Allen and Francis Burke

Figure 1.1.1 Circumferential root caries lesions affecting the remaining lower dentition.

A. Case Story

An 80-year-old female was admitted to a hospital ward following a stroke and a dental consultation was requested by her supervising medical team. She was wearing upper and lower acrylic partial dentures which had been constructed over 10 years ago. She had not attended her general dental practitioner since fabrication of the dentures as she had 'not had any pain from her teeth'. The woman was an inpatient in hospital and was medically frail. It was planned to admit her to a long-term residential care facility following discharge from the hospital as she would require a high level of nursing care, including feeding, toileting, bathing and dressing. A clinical examination revealed caries in her remaining natural teeth, particularly the partial denture abutment teeth (Figure 1.1.1). A clinical decision was made to manage the caries and to maintain the remaining natural dentition.

LEARNING GOALS AND OBJECTIVES

- Understand that root caries is a disease almost unique to older patients
- Understand the management of root caries and appreciate that restorations can have high failure rates
- Appreciate that glass ionomer cements, particularly high-viscosity glass ionomer cements, have been shown to have the highest success rates when restoring root caries lesions[1,2]
- Recognise that prevention or remineralisation of root caries must be implemented alongside any operative interventions

B. Medical History

- Previous stroke
- Patient very frail
- Rheumatoid arthritis
- Osteoporosis

C. Dental History

- Partially dentate and wearing upper and lower acrylic dentures constructed by her general dental practitioner approximately 10 years ago
- Patient has not attended a dentist for many years as her health has declined and she has found it difficult to travel

D. Medications

- Dabigatran (anticoagulant) 150 mg twice daily
- Clopidogrel (anticoagulant) 75 mg once daily
- Methotrexate (antimetabolite) 7.5 mg once weekly
- Ibuprofen (non-steroidal anti-inflammatory) 200 mg three times per day
- Alendronic acid (oral bisphosphonate) 10 mg once daily