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The elderly patient: no reason to worry!?

The need for health screening
in elderly and very old patients in daily practice

KEYWORDS

Third and fourth stage of life, multidimensional patient screening, depression, dementia, malnutrition

Figure above: Peri- and intra-oral mucosal changes as a result of malnutrition in old age

SUMMARY

In December 2013, the *Organisation for Economic Co-operation and Development* (OECD) has placed Switzerland for the first time at the top of the list of countries' general population life expectancy. The augmenting life expectancy and demographic changes are leading to an increase in the number of older people who are dependent on care (HÖPFLINGER & HUGENTOBLER 2003, HÖPFLINGER ET AL. 2011). Multimorbidity and the resulting polypharmacy have inevitable consequences for the oral health and present a challenge for

dentists (FRIED ET AL. 2001). As dental treatment for multimorbid and bedridden adults can be quite complex, it seems necessary also from a dental perspective to detect age-related deficiencies as early as possible. If depression, dementia or malnutrition is suspected, an immediate referral to a specialist physician is recommended for an in-depth assessment and treatment. For older adults in particular, dental measures alone do not necessarily lead to an improvement in well-being and nutritional state.

Introduction

With the increasing life expectancy, the percentage of people of an advanced age has risen considerably and will continue to rise over the next few decades. According to the *Organisation for Economic Co-operation and Development's* (OECD) list from December 2013, Switzerland ranks for the first time before Japan and holds the first position with a mean life expectancy of 82.7 years (OECD 2013). In 2012, Swiss demographics indicated that 17.4% of the population is aged 65 years or older (SWISS FEDERAL OFFICE OF STATISTICS).

Aging is a physiological process associated with changes that occur in an organism over the course of a lifetime. It leads to a functional loss of cells, tissues, organs and ultimately death (HAYFLICK 2007). Frailty implies progressive impairment of various physical functions and a reduced mental and physical ability to adjust and resist as well as an increased risk of developing multiple diseases. This aging process has inevitable consequences for the oral health and presents a challenge for dentists (FRIED ET AL. 2001).

Third and fourth stages of life

Aging is a highly individual process. Progress in medical prevention and treatments, but also social and cultural changes have led to a previously unseen increase in the number of older adults leading independent and active lives in good health. Consequently a chronological definition of old age is no longer appropriate. The circumstances have led to a wide range of sub-categories of "old age". In gerontology, the current focus is on functional aspects of aging. This has led to the distinction of "young old adults" in their "third stage of life" from "old old adults" in their "fourth stage of life." The transition between these two stages is marked by the development of physical and cognitive limitations which affect everyday life. The consequence is an increased dependence on assistance for the activities of daily living. On the other hand, disabilities may develop at a younger age or people may remain free of symptoms until late in life. Advanced age is therefore not necessarily associated with dependence on assistance and nursing care. However, in old age the physiological reserve capacity is reduced and the vulnerability increased (HÖPFLINGER 2011, PRETTY ET AL. 2014).

Consequences of age-related functional decline

These developments are apparent also in dentistry with an increasing cohort of old patients in dental practices. Thanks to sustainable optimization of oral health in Switzerland, a considerable increase in tooth preservation is achieved until an advanced age. However, it must be noted that the reduction in physiological and sensorimotor spare capacities, which goes along with the aging process, inevitably has an effect on oral health. Caring for a natural dentition is a challenge for old patients and nursing staff and sometimes gets too difficult. Despite numerous efforts, particularly in dental prevention, and the predominantly palliative therapy concept in the fourth stage of life, the oral situation of adults living in institutions has not really improved. As dental therapy is considerably more difficult in dependent elders, it should be considered to what extent it is possible to already set course when treating people in dental offices in their third stage of life, as oral problems in the fourth stage of life may originate from the third stage. The therapy concepts for younger, healthy adults may need to be reviewed for older adults and, if necessary, adapted to better maintain oral health in late life. These issues present enormous

challenges for the dentist and the dental team (BESIMO 2014). In Seattle, in 2013, a pathway was developed to help dentists in the diagnosis and treatment planning based on patient's degree of dependence, mobility, general health and chronic diseases with a potential impact on oral health (Tab. I) (PRETTY ET AL. 2014).

More than two-thirds of the Swiss population visit a dentist at least once a year. This highlights the potential of dentistry in helping to detect relevant physiological and psychological deficiencies in older patients. Since the aging process is highly individual, long-term multidimensional observation and care of older patients is critical to timely identify and adequately treat health-related and psychosocial changes as well as their effect on oral health and the ability to undergo care (FRIED ET AL. 2001, BESIMO 2009).

Multidimensional patient screening (MPS)

A *multidimensional patient screening* (MPS) can be implemented in dental practice on a routinely basis with only little additional time and financial resources (BESIMO 2009). It comprises three parts:

1. Medical history and detailed list of medications:

In a first part, an extended medical history sheet and a detailed list of medications are used to record the patient's general health and any drug-induced side-effects or interactions that may affect the patient's oral health or the ability to undergo treatment.

2. The multidimensional patient screening (MPS) checklist (Fig. 1):

In addition, the entire dental team keeps a checklist that analyzes the appearance, mood and cognitive ability of older persons. After instruction of the team, this tool may provide – without additional time or cost – important information on medical or social deficiencies.

3. Geriatric screening tools:

Screening instruments from the geriatric assessment offer dentists an additional tool to corroborate a suspected, yet undiagnosed underlying disease such as depression, dementia or malnutrition, and if necessary, to refer the patient to a medical specialist for diagnosis and subsequent treatment.

Tab. I Guidelines of the Seattle Care Pathway (PRETTY ET AL. 2014)

No dependency	Good health and autonomy present.
Pre-dependency	Chronic systemic conditions that could potentially affect oral health but are not currently impacting oral health. Patient is autonomous and mobile.
Low dependency	Chronic systemic conditions that affect oral health are impacting oral health. Patient is autonomous and mobile.
Medium dependency	Chronic systemic conditions that affect oral health are impacting oral health. The patient requires support for oral hygiene and/or visiting a dental clinic.
High dependency	Chronic systemic conditions that affect oral health are impacting oral health. Home visits necessary because the patient can no longer attend a dental clinic.

Checklist multidimensional patient screening (MPS)		
Responsible person:		Observation date:
Patient data		
Name:	First name:	Date of birth:
Abnormality/change in the behavior or appearance of the patient	Examples	Comments
Appearance	<input type="checkbox"/> clothing <input type="checkbox"/> personal hygiene <input type="checkbox"/> mouth odor (e.g. alcohol, acetone) <input type="checkbox"/> physical impairment <input type="checkbox"/> ratio weight to height/weight change	
Mood	<input type="checkbox"/> depressed mood, negative attitude <input type="checkbox"/> loss of interest, motivation <input type="checkbox"/> cheerlessness, helplessness, and hopelessness <input type="checkbox"/> increased fatigue <input type="checkbox"/> reduced impetus, mental block	
Behavior	<input type="checkbox"/> awkward, long-winded <input type="checkbox"/> motor restless <input type="checkbox"/> reduced attention <input type="checkbox"/> emotionally unstable, rather emotionless, puzzled <input type="checkbox"/> confusion, anxiety, hallucinations, delusion <input type="checkbox"/> sudden changes	
Temporal orientation	<input type="checkbox"/> date, day of the week, month, year <input type="checkbox"/> time shift <input type="checkbox"/> respect of appointment, punctuality <input type="checkbox"/> ability to plan appointment	
Spatial orientation	<input type="checkbox"/> way to and from clinic, floor, clinic location <input type="checkbox"/> carrying out hygiene measures	
Memory	<input type="checkbox"/> memory capacity (names of care personnel in the team, appointment, address, telephone number, reason for and sequence of treatment, information, explanation) <input type="checkbox"/> hygiene instructions	
Identification, understanding	<input type="checkbox"/> identification and handling of everyday objects (appointment card, pen, glass, spit basin, hygiene instruments/plan)	
Executive cognition	<input type="checkbox"/> planning/carrying out complex processes (handling of prostheses) <input type="checkbox"/> adjusting attention resources	
Multi-tasking	<input type="checkbox"/> carrying out several tasks simultaneously <input type="checkbox"/> stops walking when talking	
Gait	<input type="checkbox"/> gait variability <input type="checkbox"/> balance disorder <input type="checkbox"/> mobility, weakness <input type="checkbox"/> aids (walking stick, walker)	
Language skills	<input type="checkbox"/> word flow and sense	
Ability to read	<input type="checkbox"/> reading out the details of the appointment on the card, hygiene plan, and medication prescriptions	
Ability to write	<input type="checkbox"/> noting the appointment on a card or in a diary	
Support	<input type="checkbox"/> dependence on care or assistance	
Social environment	<input type="checkbox"/> loss of relatives <input type="checkbox"/> living situation	

Fig.1 Checklist from multidimensional patient screening (MPS)

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In the following, three common diseases of older adults which are relevant to dentistry as well as suitable screening methods are described.

Depression

Depression is a mental disorder commonly affecting older adults and is mainly characterized by a depressed mood, loss of interest, and a reduction in impetus. The timely diagnosis and treatment of depression is very important because of the impaired quality of life, the facilitation of physical diseases, the increased mortality and the risk of suicide associated with depression. It is important to note that depression in older adults can be treated just as effectively as in younger adults (RODDA ET AL. 2011). In addition to missing social contacts, cognitive and functional impairment may also foster the development of a depression. In contrast, age as such is not considered a risk factor. Dementia, Parkinson's disease or brain tumors can also be accompanied by depressed moods. Fear of stigmatization or paternalism tempts older patients to conceal the changes in their mood. There is also the risk that behavioral changes are mistakenly interpreted as age-related impairments.

This complex situation explains the difficulty in diagnosing depression in older adults and to correctly assess the accompanying somatic symptoms. Even in dental treatment, there is a risk of merely somatically treating oral symptoms associated with depression (RODDA ET AL. 2011). If depression is suspected, the *Geriatric Depression Scale* (GDS) provides a very well validated screening tool to the dental practitioner (PEACH ET AL. 2001). Integrating the GDS into the standard examination allows to corroborate suspected depression with just a few targeted questions and to refer the patient for specialist assessment and treatment (VERDELHO ET AL. 2013).

Dementia

Dementia is an age-related disease. Currently, the prevalence of dementia in Switzerland is about 113,000 cases. The incidence is about 27,000 new cases per year, with more than 50% of dementia sufferers living without a diagnosis (SWISS ALZHEIMER'S ASSOCIATION 2013). Age is considered a risk factor for dementia. The most common form of dementia is Alzheimer's disease. A reduction in the secretion of neurotransmitters, predominantly acetylcholine, leads to a variety of symptoms, including an impaired ability to plan and execute complex actions (executive cognition) such as those required for oral hygiene and handling prostheses. Therefore, from a dental perspective, this disease is highly relevant because dementia can impair the oral ability to learn or adapt and diminish the patient's compliance (FOLSTEIN ET AL. 1975). Consequently, behavior that allows assessing cognitive performance is of particular interest in the dental MPS checklist. The clock-drawing test can easily be employed if cognitive impairment is suspected. This screening tool is particularly useful to evaluate executive functions and further provides an initial assessment of the patient's capacity to adapt. If the test reveals a pathology, the patient should be referred to a medical specialist so that an in-depth examination can be performed (Fig. 2) (SHULMAN 2000).

Malnutrition

Overall, around 15% of older patients living at home and more than 50% of institutionalized older patients suffer from malnutrition (CALVO ET AL. 2012). A lack of social contacts, physical dis-

eases and disorders leading to cognitive impairment, but also complex medication for multiple underlying diseases are risk factors for developing malnutrition, which in turn may lead to a further deterioration in a person's general condition (ORSITTO ET AL. 2009). Mood swings, cognitive impairment, an increased risk of falling and a weakening of the immune system are possible consequences of malnutrition. This is associated with more frequent and longer hospitalizations as well as a general increased risk for morbidity and mortality. Therefore, early detection and treatment of patients at risk is critical (BESIMO ET AL. 2007, ISEN-RING ET AL. 2012).

Physiological changes lead to a reduced caloric requirement in old age. Combined with excessive consumption of "empty calories" (e.g. excessive alcohol consumption), an obese appearance in older adults can simulate a good nutritional status despite a lack of nutrients. Symptoms of malnutrition may be apparent in the mouth and face, for example in the form of delayed wound healing, impaired immune defense, anemia with pale mucous membranes and lips, but also peripheral neuropathy (Fig. 3). Scaliness and redness of the skin, angular cheilitis, and a smooth redness of the mucosa and the tongue are other possible warning signs of malnutrition (FARID ET AL. 2013). In old age there is usually a complex deficiency that is associated with reduced levels of albumin, zinc, vitamins A and D (lipophilic), vitamin B12 (hydrophilic), iron and a reduced lymphocyte count. Any deficiencies are confirmed by determining the nutritional blood markers (ISENRING ET AL. 2012, CALVO ET AL. 2012). Screening tools such as the nutrition checklist, which was introduced to dentistry by Saunders in 1995, and the *Mini Nutritional Assessment* (MNA) or its short form *MNA Short Form* (MNA-SF), which are primarily used in hospitals and nursing institutions, allow a precise assessment of the current nutritional situation (BESIMO 2009, CALVO ET AL. 2012, SAUNDERS 1995, SUTER 2005).

Since malnutrition in old age has a multifactorial etio-pathogenesis, manufacturing new dentures does not necessarily result in an improvement in the nutritional situation, despite a significant optimization of the masticatory efficiency (WÖSTMANN ET AL. 2008). All the same, a recent study examining 250 institutionalized patients with a mean age of 82.7 years revealed a correlation between the risk of malnutrition and oral-health-related quality of life, as measured with the *Oral Health Impact Profile* (OHIP) (GIL-MONTOYA ET AL.

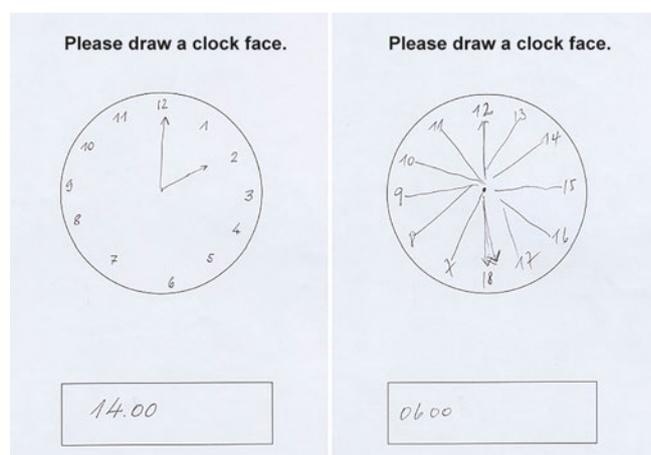


Fig. 2 Normal clock test (left), suspected cognitive impairment (right). (Image: Acute Geriatric University Clinic Basel)



Fig. 3 Severe pressure ulcer from prosthesis (diameter 10×7 mm) in an elderly patient with severe malnutrition confirmed by laboratory diagnostics. (Photo: Acute Geriatric University Clinic Basel)

2013). Therefore, it should be considered for each individual older adult, if dental measures have the potential to improve the well-being in general and the nutritional state in particular (BESIMO 2009).

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