

## Periodontal health care of the geriatric patients in Tanzania

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### Introduction

Geriatrics is defined as that branch of medicine which treats all problems peculiar to old age and the aging, including the clinical problems of senescence and senility. Aging is a slowing of natural function, a disintegration of the balanced control and organization that characterize a young adult. Aging is the process by which a person grows old, irrespective of the time required. Aging, includes the complex interactions of biologic, psychologic, and sociological processes over time. The historically accepted chronologic landmark of old age is 65 years. A more useful taxonomy of aging based on function, has the following categories (see Appendix I: Aging and the periodontium):

1. Functionally dependent elderly (with illness or impairment)
2. Frail and institutionalized elderly
3. Young old, 65 to 70 years of age (healthy and vigorous)
4. Old, 75 to 85 years of age
5. Old old, 85 years and older.

In Tanzania, with a life expectancy around 50 years, classification of old age, is a subject for discussion. I propose, a sociological classification of an old age to include any individual that is being referred to as a

### Demographics in Tanzania

Table 1: Periodontal treatment needs in Ilala 1987

ILALA (1987) Age in years	Treatment needs (% of persons)		
	OHI	SCALING & ROOT PLANING	SPECIAL PERIODONTAL CARE
55-64	96.6	93.2	1.7
65-85	97.4	81.6	5.3

Source: Mumghamba, UDSM-M.Dent thesis, pp.143. Dar es Salaam, 1990.

"Grand mother or a grandfather". A functional classification for old age, if you want, is matter for a debate.

The need for periodontal care in developed countries is expected to increase, either by having more retained teeth that need treatment or by having more elderly patients that will require periodontal treatment. In Tanzania, a majority of people are unaware of periodontal health and therefore need to be sensitized. Even with the current and important public health problem of HIV/AIDS (that claims a lot of lives), still efforts to manage geriatric patients, (as special group) is a very valid ethical issue.

Normative aging processes alone have little effect on the oral cavity, but common disease processes affecting oral health include tooth loss, dental caries, periodontal diseases, and oral mucosal diseases (including candidiasis and squamous cell carcinoma). Systemic diseases and their treatments frequently affect salivary, oral motor, and oral sensory functions. As a result of bacteremia or aspiration of oral contents, organisms of oral origin can be responsible for serious systemic diseases/problems like Sub-acute infectious endocarditis, pneumonia etc. and in particular, in geriatric subjects.

Table 2: Periodontal treatment needs in estimated geriatric population in Tanzania (as extrapolated from Ilala study, 1987):

Age in years	Treatment needs (% of persons (number in parenthesis))		
	Oral Hygiene Instruction (OHI)	Scaling & root planing (SRP)	Special periodontal care/periodontal surgery (SPC)
45-54	92.0 (2,118,711)	87.6 (2,017,382)	0.9 (20,727)
55-64	96.6 (1,266,338)	93.2 (1,221,767)	1.7 (22,285)
65-85	97.4 (897,228)	81.6 (751,682)	5.3 (48,823)

Source: 1. Mumghamba, UDSM-M.Dent thesis, pp.143, Dar es Salaam, 1990,  
2. Mumghamba et al. J 1996

Gingival recession of 4 mm or more in the elderly, age 55-64 years is about 60% and those with an age of 65 years or more is 70% Table 3 (Mumghamba 1990). However, the question of tooth sensitivity was not investigated into.

## Continuing education

Table 3. Gingival recession in Tanzania (extrapolated from the Ilala data, 1987)

Age group	Gingival Recession from the CEJ		
	4-5 mm	6+ mm	4+ mm
55-64 years	35% (12,400,487)	25.4% (8,999,211)	60.4% (21,399,698)
65+ years	47% (16,652,083)	20.0% (7,085,993)	67.0% (23,738,076)

Estimated population in Tanzania by 2001, (as extrapolated from Tanzania Sensa 1988 (Ministry of Finance, 1988) N=35,429,964

Oral hygiene practice in the in the age 48-70 years which include the elderly, in urban area, 70% use factory made toothbrush and in the rural 81% use the locally made mswaki (Nyandindi, 1989).

### Clinical assessment of a geriatric patient

#### Physical and Medical examination

Examination of a patient begins with the first visual encounter. The clinician should:

1. Assess the patient for posture, gait, color, mobility and facial characteristics.
2. Look at the patient at eye level and speak clearly, not talking down to the patient.
3. Pace the speed of examination and be aware that the visual and auditory acuity are generally reduced in these patients.

Nb.

1. There are tendency for the elderly patient to NOT remember or to deny medical problems. Therefore medical history requires greater time and patience on the part of the practitioner.
2. The ability to execute adequate oral hygiene may be limited or undermined by presence of other serious medical problems and the related medications.
3. Medical history may be taken from a close relative, spouse, or responsible other if the patient is functionally dependent, frail or an unreliable historian.
4. When taking history, it is necessary to assess alterations in motor function to gain insight into potential medical problems (Table 4).

Table 4. Alterations in oral motor functions in aging

Altered Function	Clinical Implication
Lip posture	Drooling; angular cheilosis
Muscles of mastication	Efficiency of mastication
Tongue function	Speech; dysphagia; traumatic bite injury, snoring, sleep apnea
Swallowing	Dysphagia; regurgitation; choking
Taste	Dysgeusia, ageusia
Salivation	No significant changes in healthy older patients

#### Social and Mental Examination

Elderly patient's attitude towards therapy have a significant impact on the success or failure of

periodontal therapy. There are three types of behaviors that are commonly encountered:

## Continuing education

1. Overdependent : demanding, urgent, and repetitive.
2. Pseudocooperative: comes on time, pay for services, is friendly and listens to the instructions, BUT somehow never carries them out.
3. Perfectionist: makes unrealistic demands with veiled threats, interprets his or her own symptoms, adjust own dentures, makes suggestions about the diagnosis or treatment plan, and tries to eat with dentures what he or she could not eat with natural teeth.

Many elderly patients become frustrated easily, especially in the anxiety-provoking dental environment. On the other hand, many geriatric patients may respond well to therapy and be tolerant of long procedures. The oral health care personnel MUST be cognizant of treating individuals who have unique life experiences, expectations, and needs.

### Treatment of a geriatric patient

1. Intraoral examination  
The oral cavity of an elderly patient often has an altered appearance when compared with that of a youthful patient.
- 1.1 There is a decrease in:
  - o intracellular water content,
  - o Amount of subcutaneous fat
  - o Vascularity
  - o Muscle tone
  - o Vertical dimension
- 1.2 Nonkeratinized areas may have thinner epithelium with a waxy appearance. Hyperkeratosis exists where keratin is present
- 1.3 The tongue may present the following features:
  - o progressive defoliation of the papillae,
  - o the dorsum is fissured,
  - o the lingual surfaces have varicosities,
  - o smooth, glossy and painful tongue owing to vitamin B<sub>12</sub> deficiency,
  - o erythema migrans ("geographic tongue")
  - o candida infection.

Oral mucous membrane lesions that are common in the elderly are shown in Table 5.

**Table 5. Oral mucous membrane lesions in the elderly**

Problem	Cause	Treatment
Mucositis/glossitis	<ol style="list-style-type: none"> <li>1. Systemic disease (e.g. diabetes, hematologic disease, anaemia, leukemia)</li> <li>2. Chronic mouth breathing</li> <li>3. Nutritional deficiencies (especially vitamin B complexes)</li> <li>4. Adverse drug reaction (e.g. aspirin, antibiotics, contact stomatitis from topical agents, etc.)</li> </ol>	<ol style="list-style-type: none"> <li>1. Full blood picture (Total and differentials)</li> <li>2. Vitamin B<sub>12</sub> evaluation</li> <li>3. Rule out xerostomia</li> <li>4. Palliative mouthwash prescription: diphenhydramine (Benadryl) / kaolin (kaopectate) in equal parts, One (1) minute rinse, then expectorate; or lidocaine (xylocaine viscous) 2%</li> </ol>
Infection from immunosuppression Candidiasis	<ol style="list-style-type: none"> <li>1. Systemic disease (diabetes, leukemia)</li> <li>2. Xerostomia</li> <li>3. Immunosuppression (prolonged steroid use)</li> <li>4. Antibiotics or antineoplastic medications</li> <li>5. Ill-fitting prosthesis</li> </ol>	<ol style="list-style-type: none"> <li>1. Improved oral hygiene</li> <li>2. Antifungal medication</li> </ol>

NB.: Aging and periodontal disease: Host response to plaque micro organisms is altered with increasing age. The inflammatory response of the marginal gingiva is more pronounced (possibly due to local defense mechanism)

## Continuing education

### Oral hygiene instruction

Before beginning oral hygiene instruction, the practitioner should consider the special needs of the geriatric patient. The clinician should:

- speak clearly
- establish good eye contact
- not raise his or her voice
- adapt to the patient

#### The oral hygiene instructions should include the following:

1. The patient should establish a daily routine
2. Fluoride dentifrice should be used
3. Instruments can be adapted as needed:
  - tooth brush can be bent under hot water
  - handles can be customized with acrylic coating, a bicycle grip, or a rubber ball to enhance the grip for patients with arthritis or other disorders.
  - The patient can use electrical brushes or interproximal brushes, as needed.

### Treatment of periodontal disease

Classification of periodontal diseases is summarized in Appendix II.

Periodontal disease in the adult can be successfully treated. The clinician, however, must recognize the functional category of the elderly patient being treated by exploring his or her physical as well as psychologic and emotional status. This is necessary to determine prognosis and plan treatment to address the patient's real and perceived needs. Age is not a contraindication to periodontal surgery.

Elderly patients categorized as frail, functionally dependent or emotionally or psychologically not amenable to surgical periodontal therapy may require scaling, root planing, and frequent monitoring.

The treatment plan depends on the goal of therapy and the patient's medical status, attitude, degree of support, and ability to maintain adequate oral hygiene. The range of care options includes palliative therapy, radical therapy (extraction), or tooth retention therapy.

### Root caries

In developed countries, the majority of dental caries in the older population is root caries, which progress slowly. In Tanzania, the magnitude of the root caries problem, need to be studied.

Topical fluoride should be provided to geriatric patients after preventive maintenance visits among patients who are susceptible to caries.

Meticulous oral hygiene and single topical fluoride treatments with daily use of fluoride toothpaste can arrest root caries.

### Xerostomia

Saliva has multiple functions in the oral cavity. It is a protective cleanser (with antibacterial activity), a buffer (inhibiting demineralization), a lubricant, a digestive necessity, and a transport medium to taste sensors. When xerostomia ensues, all these functions are seriously altered.

#### Signs and symptoms of xerostomia include:

1. Intraoral dryness or burning
2. Alterations in tongue surface
3. Dysphagia
4. Cheilosis
5. Alteration in taste
6. Difficult with speech
7. Development of root caries.

#### Causes of xerostomia are

1. A result of (Side effects) of many drugs (more than 200 types)
2. Radiation and/or chemotherapy
3. Psychological conditions,
4. Endocrine disorders
5. Nutritional disorders.

#### Treatment of xerostomia should include the following:

1. Scrupulous oral hygiene (with soft tissue brushes)
2. Fluoride rinses and use of fluoride dentifrices
3. Reduced consumption of alcohol; smoking; and highly spicy, acidic foods
4. Frequent water intake (to reduce sugars)
5. Artificial saliva substitutes
6. Consultation with a physician if mucositis and candidiasis persists
7. Careful use of home-care products with a high alcohol content.
8. For burning mouth:
  - ◆ Rule out other disorders as candidiasis and pernicious anaemia
  - ◆ Treat with anything of the following: salivary substitutes, equal parts of elixir of diphenhydramine (Benadryl) and kaolin

(kaopectate), and lidocaine (xylocaine viscous/gel 2%).

### Conclusion

There is a need for a deliberate initiative to manage periodontal health problems of geriatric population in Tanzania.

The variety of intraoral, medical, social, mental, and physical problems encountered provide unlimited challenges to the clinician (oral health care practitioner).

If the needs of the geriatric patients are to be met, the oral health practitioner/clinician should *be willing to care each individual with patience.*

Oral cavity should be viewed as a reflection of the systemic condition, and treatment is approached accordingly.

### References

- Baelum V, Fejerskov O. Toothloss as related to dental caries and periodontal breakdown in adult Tanzanians. *Community Dent Oral Epidemiol* 1986;14: 353-357.
- Fermin A, Carranza Jr. Aging and the periodontium, pp.51-55 in *Clinical periodontology* 8<sup>th</sup> ed. Carranza and Newman. 1996, Saunders
- Joan Otoromo-Corgel in *Clinical periodontology* 8<sup>th</sup> ed. Periodontal treatment of geriatric patients pgs. 423 Carranza and Newman. 1996. Saunders
- Ministry of Finance: Economic Affairs and Planning- Bureau of Statistics. Tanzania Sensa 1988 – 1988. Population Census: Preliminary Report. Dar es Salaam, 1988.
- Mumghamba E G S. Periodontal conditions and treatment needs in Ilala district, Tanzania. Dissertation submitted for the partial fulfillment of the degree of Master of Dentistry of the University of Dar es Salaam. Dar es Salaam 1990.
- Mumghamba E G, Markkanen H A, Honkala E. Periodontal status and treatment needs in a rural area of Ukonga, Tanzania. *Int Dent J* 1996 **46**: 156-160.
- Nyandindi U.S. Oral health habits in the district of Ilala, Tanzania. Dissertation submitted for the partial fulfillment of the degree of Master of Dentistry of the University of Dar es Salaam. pp. 70-71, 122, Dar es Salaam 1989.
- van Palenstein Helderman W H, Nathoo Z A. Dental treatment demands among patients in Tanzania. *Community Dent Oral Epidemiol* 1990 **18**: 85-87
- Shay K, Ship JA. The importance of oral health in the older patient. *J Am Geriatr Soc* 1995 Dec;43 (12):1414-22

### APPENDIX I:

#### Aging and the periodontium

##### Introduction

Diseases of the periodontium occurs in childhood, adolescence and early adulthood, but the prevalence of periodontal disease and tissue destruction and tooth loss it causes increase with age.

##### General effects of aging

##### General features of aging includes:

- ◆ tissue desiccation
- ◆ reduced elasticity
- ◆ diminished reparative capacity
- ◆ altered cell permeability
- ◆ bone undergoes osteoporosis
- ◆ capillaries become more fragile with age and lead to large haematoma after minor trauma

##### Aging changes in the periodontium

##### 1. Gingiva and other areas of the oral mucosa- the changes are:

- ◆ Diminished keratinization
- ◆ Reduced or unchanged amount of stippling
- ◆ Increased width of attached gingiva (but with constant location of mucogingival junction)
- ◆ Decreased connective tissue cellularity
- ◆ A greater amount of intercellular substances
- ◆ Reduced oxygen consumption (a measure of metabolic activity)

##### 2. Periodontal ligament- aging results in a:

- ◆ A greater number of elastic fibres
- ◆ Decreases in vascularity
- ◆ Decrease in mitotic activity
- ◆ Decrease in fibroplasia
- ◆ Decrease in the number of collagen fibres and mucopolysaccharides
- ◆ Increase/decrease in the width of the periodontal ligament

##### 3. Alveolar bone and cementum- changes are similar to those occurring in any skeletal system like:

- ◆ Osteoporosis
- ◆ Decreased vascularity
- ◆ Reduction in metabolic rate
- ◆ Reduction in healing capacity

### Continuing education

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- ◆ A continuous increase in the amount of cementum (x3 of childhood)
- 4. Tooth-periodontium relationship- there is**
- ◆ Loss of tooth substance caused by attrition
  - ◆ Increase of the occlusal surface area “food table”
  - ◆ Loss of sulciways
  - ◆ Progressive attrition and lateral wear result in the reduced maxillary-mandibular over-jet in the molar area and an edge to edge bite in the anteriorly
- 5. Masticatory efficiency**
- ◆ Slight atrophy of the buccal musculature
  - ◆ Poor chewing habits (also select food to chew)
  - ◆ Avitaminosis is common in aged patients
- An adequate intake of vitamins, calcium, iron and potassium is important in geriatric patients.
- 6. Aging and the cumulative effect of oral disease-changes are:**
- ◆ Gingival recession
  - ◆ Tooth attrition
  - ◆ Reduction in bone height
  - ◆ Rapid development of inflammation in old age
  - ◆ Slow wound healing in old age

Nb. Elderly individuals have slowly progressive form of periodontal disease that does not result from impaired leucocyte function or host defense mechanisms

### APPENDIX II

#### Classification of periodontal diseases By the “World Workshop in Clinical Periodontics, 1989”

1. Adult periodontitis
2. Early onset periodontitis
  - ◆ Prepubertal (generalized or localized)
  - ◆ Juvenile (generalized or localized)
  - ◆ Rapidly progressive periodontitis
3. Periodontitis associated with systemic disease
  - ◆ Down syndrome
  - ◆ Diabetes type I
  - ◆ Papillon lefevre syndrome
  - ◆ AIDS
  - ◆ Other diseases
  - ◆ Necrotizing ulcerative periodontitis
  - ◆ Refractory periodontitis.