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Geriatric Consideration in Prosthodontics: A Review

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Abstract

- Dentists should be aware of the oral health issues that older people face, but treatment should go beyond simply replacing damaged or missing teeth.
- Elderly people may experience unique issues with mental and emotional ailments as well as tissue deficiencies.
- These differ significantly from those observed in young and middle-aged people. Just as infants and young children benefit from specialized information and skills, older patient care calls for specialized knowledge and abilities.
- The fields of paediatrics and pedodontics were established to address the requirements of children and adolescents.
- In a similar vein, geriatric dentistry and geriatric medicine are emerging as unique fields of patient treatment.

Introduction

We are born, grow old, and eventually die. Growing older is a natural part of life. Age is not a barrier to receiving dental or medical care.

The patient is not a good candidate for a full denture because of degenerative physiologic and biologic changes as well as related chronic diseases and disorders that are either directly or indirectly caused by this degradation.

A person who has reached the age at which significant changes in body functioning take place is considered geriatric.

For society as a whole and especially for those in charge of their care, their health and well-being present significant challenges.

Psychologically, the patient's thoughts and feelings may be impacted by the experience itself or by the prospect of future medical and dental care.[5]

The nutritional condition of elderly persons also depends on a number of other factors. Thus, a patient's socioeconomic situation and eating habits have a significant impact on their food choices, and many age-related medical conditions and diseases have nutritional components. The dental team needs to provide proactive nutrition advice in light of these possible negative effects of dental treatment.[2]

Nutritional goals

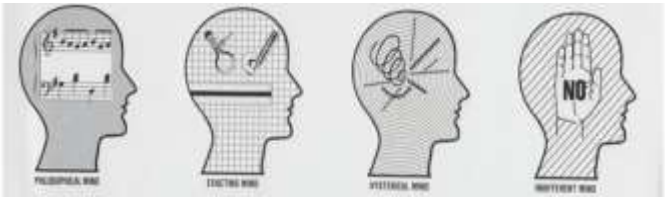
1. Establishing a healthy, balanced diet for an aged person based on their physical, social, psychological, and financial circumstances is one of the main goals when conditioning old patients
2. To provide a short-term supporting diet for certain objectives such soft tissue conditioning, post-operative healing, and caries control, among others.
3. To evaluate and identify characteristics of the denture age group that could help or hinder the nutritional therapy.[3]

Mental attitude and Physiological status of geriatric individuals

Dr. M.M. House helped popularize this approach and expand its classification in great depth. "Fitting the elderly patient's personality is often more difficult than fitting the denture to the mouth," Jamieson said.

The following are some categories for assessing senior patients' mental attitudes:

a) Philosophical mind
b) Exacting mind
c) Hysterical mind
d) Indifferent mind



The Neil classification (1932)[6]

a) The exacting (or hypercritical) mind
b) The hysterical mind
c) The indifferent mind:
d) The philosophical mind

W. M. Randall classification (1930)[6]

Receptive patients

Passive patients

Exacting patients

Antagonistic patients

The factors affecting the nutrition of elderly patients

Age-related changes affecting nutritional status. Several age-related changes (physiological, psychosocial, functional and pharmacological) might alter the nutritional status of an individual.

a) Physiological factors:[5,2]

- In elderly, lean body mass declines that further reduces calory needs causing prone for fall. Deficiency of vitamin D sets up metabolic bone disease in the elderly.
- Reduction in gastric acidity causes malabsorption of food bound vitamin B12.
- Decreased or modified immune responses can be developed due to deficiency of zinc and vitamin B6.[5]
- Often, dehydration is provoked in elderly due to declines in kidney function as well in total body water metabolism, thus causing a major issue during prosthetic phase.

b) Psychosocial factors:

- A host of life-situational factors increase nutritional risk in elders.
- Elderly people living alone in family, those who are physically handicapped and dependent on other family members for their care, and those who are affected with chronic disease and living on

restrictive diets, etc. develop nutritional deficiencies.[5]

c) Functional factors:

- Disabilities affecting daily basis function of an individual may affect his/her nutritional status. Diseases like arthritis, stroke, and vision or hearing impairment affect elderly causing nutritional deficit indirectly.[2]

d) Pharmacological factors:

- Nowadays elderly are dependent on several medication on a daily basis that can affect nutritional problems.
- These medications often cause problems such as nausea, anorexia, vomiting, gastrointestinal disturbances, xerostomia, and loss of taste.

Altogether this results in nutritional deficiencies, loss of weight and finally malnutrition.[5]

Aspects of aging

It can be classified as:

- Physiologic
- Psychologic
- Pathologic

a) Physiologic changes

The more prevalent physiologic changes are loss or greying of the hair and diminution of the senses of sight, hearing and taste.

Skin becomes thin wrinkled dry and freckled. The wrinkled skin of the face, particularly around the mouth may be cause for great mental anguish for some aging persons.

Advanced age brings a loss of muscle strength. There is a generalised slowing down of normal activity.

A slowly progressive denervation of muscles is a feature of aging process, consistent with long contraction times and more slowly contracting muscles.

The density and muscle mass decreases with replacement of muscle fibers by fibrous tissues.

The most common systemic bone condition occurring in both sexes is osteoporosis. It appears more frequently in women than in men.

b) Psychological changes3

The reaction to other physiologic changes such as senses, hearing, taste, neuromuscular function etc can also cause personality changes, which can be unpredictable.

As people age, changes over which they have no control take place in their social lives.

In many instances, these changes occur in a relative short period.

c) Pathologic changes

The pathologic disorders or changes most frequently encountered are metabolic, skeletal, muscular, circulatory, neoplastic and psychologic.

To evaluate and treat the total patient, the dentist must know the basic factors that are involved in the process and should discuss this with patients, to refer them for consultation to specialist.

➢ **Intra oral changes that occur with advancement of age**

- Apart from occlusal, incisal and interproximal wear, there is also wear and loss of the structural details on the enamel surface.
- Formation of secondary dentin, which results in gradual narrowing circumference of the pulp.
- The gradual obturation of dentinal tubules (dentinal sclerosis) by peritubular dentin changes.
- With increasing age, the pulpal volume decreases, apparent fibrosis of the pulp tissue and a reduction in vasculature.
- The denervation causes impairment in pain.

- Generally, restorative and prosthetic treatment of worn dentitions is difficult. It is often difficult to create sufficient vertical space for the prosthesis.
- Decrease in thickness of both the mucosa and submucosa.
- The oral mucosal lining becomes more susceptible to stress, pressure and disease.
- Although denture adaptation may be good the tissue resistance is poor, and inflammation and even ulcerations can occur.
- Tooth wear increase as the age increase and is primarily due to the fact that the teeth have functioned within the oral environment for a long period of time.
- As age increase the tongue size increases.
- Depapillation on apex and lateral borders along with fissuring of tongue may be seen, further there is a decrease in taste buds resulting in decreased taste sensation.
- Residual ridge in elderly undergoes resorption after tooth extraction.
- The resorption is a sequel of alveolar remodelling due to altered functional stimulus.

The Geriatric Prosthetic Patient

- The longer a patient retains some of his natural teeth, the shorter time he will be edentulous and better the residual ridges will be.
- Patient motivation cannot be underestimated.
- The patient must realize his need for prosthetic treatment, want dentures, accept the prosthesis and attempt to learn to use it.
- The dentist, in turn must adapt his technique to fit the patient perhaps changing his original diagnosis as treatment progress and concern himself with construction of a functional and comfortable prostheses.
- An elderly patient with only a few remaining bilaterally occluding posterior teeth who is comfortable, has no difficulty eating and keep his teeth reasonably clean is often better left alone.
- Perhaps a single partial denture would improve function considerably.
- A patient with advanced degenerative disorders.[4]

Nutrition in elderly

Vitamin deficiencies in the elder population are apt to be sub clinical, but anybody stress may result in an individual having detectable symptoms. Individuals who have low calorie intakes, ingest multiple drugs, or have disease states that cause malabsorption are at higher risk for hypervitaminosis. Free living older persons often report low dietary intakes of vitamin D, vitamin E, folic acid, calcium and magnesium. Oral symptoms of malnutrition are usually due to the lack of the vitamin B complex, vitamin C, iron or protein. With the measurements of serum metabolites of vitamin B12, a high prevalence of undiagnosed vitamin B12 deficiency has been noted among the elderly population

Treatment planning

Treatment planning for patients with some teeth remaining:

1. Patients with or without severely depleted dentitions characterized by extensive caries or advanced periodontal disease – Immediate dentures are usually prescribed for such patients.

2. Patients with depleted dentitions or, frequently, failed reconstructions with one or more teeth that can serve as overdenture abutments - overdenture, or tooth supported complete denture can be advised.

3. Patients who are edentulous in only one arch, most frequently the maxillary one – single denture opposing a natural dentition can be given.[1]

- Treatment planning for patients with no teeth remaining:

1. Complete denture prosthesis.
2. Implant supported overdenture.[1]

Conclusion

The elderly has both the greatest level of need for prosthodontic services and the greatest degree of complicating dental, medical and behavioral factors. Age alone is not a contraindication to complex prosthodontic treatment; patients of advanced age may still have many years of life ahead, during which they will appreciate the aesthetic and functional advantages of a restored dentition. The dental aspects of planning prosthodontic treatment for the older patient should focus on the integrity of individual teeth as well as the potential contribution of each tooth to the masticatory system. In this way, the clinician is best prepared to anticipate the full range of restorative occlusal and functional challenge likely to arise in the course of treatment.[4]

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