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GERIATRIC CARE IN PROSTHODONTICS

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Abstract:

-Dentists should recognize the oral problems that affect the elderly, but treatment should extend beyond replacement of diseased or missing parts. Elderly persons may have special problems of tissue deficiencies & mental & emotional disorders. These are markedly different from those seen in young & middle-aged adults. Patient care for the elderly requires special knowledge and special skills in the same sense that babies and young children benefit from special knowledge and special skills. The specialties of pediatrics & pedodontics came into being to meet the needs of young persons. Similarly, a special area of patient care is rapidly arising as geriatric medicine and geriatric dentistry.

Keywords: geriatric dentistry, nutrition, treatment care.

Introduction

As we are born, we grow old & as we grow old we die. Aging is a normal life process. Age itself is not a contraindication for medical or dental treatment. Degenerative physiologic & biologic changes & associated chronic diseases & disorders directly or indirectly resulting from this deterioration make the patient a poor candidate for complete denture. The geriatric person is one who has reached the age when important changes in bodily functions occur. Their health and well-being pose a major challenge to society and particularly to the persons who are responsible for their care. Psychologically the thought of impending medical & dental care or experience itself can affect the patient's mind & personality. The Prosthetic needs of our geriatric population are monumental & most probably will remain that way at least for the next generation[1].

Classification of Geriatrics

I. According to the psychologic reactions to aging process

A. Realistic group
B. Resentment group
C. Resigned group

II. According to functional criteria (Ettinger and Beck 1984)

A. Functionally independent elderly
B. Frail elderly
C. Functionally dependent elderly

III Classification according to Winkler

A. The hardy elderly
B. The senile aged syndromes
C. In between groups[1]

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. Back pain, loss of body height and face height, stooping and some types of deformity are some of the symptoms. In advanced cases spontaneous bone fracture can occur.

b) Psychological changes

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[1,2].

Intraoral Changes:

- Apart from occlusal, insical 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.
- Plaque control becomes difficult due to lack of proper oral hygiene & periodontal status becomes poor. It can occur due to systemic illness & various other ailments.
- Loss of teeth and loss of taste sensations lead to malnutrition.
- 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 more 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 remodeling due to altered functional stimulus of bone tissue.

➢ As a result of regressive changes in the salivary glands, particularly atrophy of the cell lining of the intermediate ducts, there is a decrease in salivary flow in the aged[2,3].

Intra Oral Pathological changes

➢ Ill-fitting dentures lead to

-Inflammatory hyperplasia

-Papillary hyperplasia

Inflammatory hyperplasia can also be seen in patients with continuous denture wear.

➢ Unilateral swelling in the hard palate, in the second bicuspid, and for molar area may be an indicative of neoplasm of maxillary antrum.

➢ Purple discoloration and atrophy of the superficial papilla of tongue can be indicative of Riboflavin deficiency.

➢ Generalized cyanosis of the oral mucosa of elderly suggests either heart or lung disease or Polycythemia.

➢ Thinning of the mucosa of the geriatric patient allows Fordyce's spots to become more apparent.

➢ Red petechial areas of the buccal mucosa may indicate a blood abnormality, a thinning or fragility of the blood vessel walls, or a disturbance in blood forming organs.

➢ Macroglossia occurs in disturbances of the endocrine glands as in hyperpituitarism or it can be due to relaxation of tongue musculature due to extraction of mandibular posterior teeth

➢ Serous glands decrease in activity and saliva becomes more mucous and ropy. When the salivary glands atrophy, the reduction of salivary flow results in a dry mouth (xerostomia)

➢ Candidiasis can be seen in

- Denture irritation

- Xerostomia

- Antibiotics

- Chemotherapy

- Radiation Therapy

- Aids

- Physical debilitation[2,3].

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, inturn 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 or people under mental and physical stresses are not good candidates for complete dentures.

Nutrition in Geriatric Patients

Vitamin deficiencies in the elder population are apt to be sub clinical, but any body 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. Such deficiencies may even lead to dementia in older adults. Folic acid plays an important role in cell division and in red blood cell formation. Anaemia results from deficient folate intake. Many drugs and alcohol affect folic acid absorption and metabolism. Because of its role in collagen synthesis, ascorbic acid (vitamin C) is essential for wound healing. Heavy smokers, alcohol abusers or persons with high aspirin intake have a higher daily requirement for ascorbic acid. The denture wearing patient should be encouraged to consume foods rich in vitamin C daily. Vitamin E functions as an anti oxidant in cell membranes by acting as a scavenger of free radicals and preventing oxidation of unsaturated cell phospholipids. Therefore elderly patients must have foods rich in vitamin E regularly. Magnesium is a component of the body skeleton and plays an important role in neuromuscular transmission. A detailed history of the family constellation in which the patient lives, a history of the daily diet, a history of the daily activities of the prosthetic patient are essential to the successful management of the geriatric patient. On the basis of nutrient deficiencies reported in denture wearing patients, it may be reasonable to prescribe a low dose multi vitamin – mineral supplement for certain patients even though clinical signs of a nutrient deficiency are lacking. For patients receiving dentures, a generic one –a –day vitamin tablet that includes, vitamin, folic acid and vitamin B12 may be recommended[1,4,5,6].

Treatment Planning

➢ Treatment with removable partial dentures is a non-invasive and low cost solution for the prosthetic rehabilitation of missing posterior teeth (Kennedy class I and Class II). A removable partial denture is also an excellent treatment modality in large tooth borne saddles (class III) where sufficient retention and stability for a fixed partial denture is difficult to obtain. The risk of failure comprises poor adaptation to denture wearing, caries, periodontal disease and mechanical failures. The major benefit of treatment is improved masticatory efficiency in cases of posterior tooth loss.

➢ Today the treatment with conventional complete dentures is normally restricted to edentulous patients who are not apt for treatment with an implant supported prosthesis for socioeconomic or anatomic reasons or because of poor general health status. The biologic risk factors associated with the treatment are considerable and are associated with resorption of the residual ridge, destabilization of the occlusion, diverse pathologies in the denture contacting mucosa, and the emergence of temporomandibular disorders. The modifications of the denture bearing tissues and the temporomandibular joints are difficult to control with prosthetic therapy and may result in complete invalidation of the masticatory apparatus in the aged person.

➢ Treatment with over dentures supported by natural roots is particularly indicated if there are few remaining teeth, there is severe loss of periodontal attachment, or the teeth are unfavorably distributed in the arch with natural roots as support, some dental support for the prostheses is obtained, the stability of the abutment teeth can be maintained, and the denture can readily be modified if one or several abutments are lost. Further more maintaining roots beneath a denture is an efficient way to prevent bone resorption, provide better load distribution, and maintain the sensory feed back of periodontal receptors. If the patient's socioeconomic status is poor, rehabilitation with tooth-supported overdenture is a better alternative than implant supported complete dentures[1,4,5].

Conclusion

The elderly have 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 ways, the clinician is best prepared to anticipate the full range of restorative occlusal and functional challenge likely to arise in the course of treatment.

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