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Geriatric considerations in the management of edentulous Patients

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Abstract
Perfect health is a prize that has been the goal of mankind throughout all ages. It must be understood that there can be no separation between good bodily health and good dental health. A diseased body often produces a diseased mouth & a diseased mouth can often lead to a diseased body. Dentistry for the elderly must be practiced with increased awareness of the biologic factors since the adaptive mechanism and tissue regenerative potentials in the elderly patients are usually significantly lowered. So the elderly require a different approach, modified treatment planning and knowledge of how the tissue changes associated with senescence affect oral health services. In the present review article a brief overview is presented about the Geriatric management in edentulous patients, its importance and clinical significance.

Keywords: Geriatrics, Elderly, Edentulous, Complete Denture

1. Introduction
Geriatrics refers to the study of elderly. The subject of geriatrics is increasing in its importance because of demographic shift in the present population of the world. Statistical data from the United States, published in 1964, indicated that approximately 50% of the American population over 45 years of age was edentulous. This percentage was estimated to be 75% for those over 70 years of age. In spite of the profound changes, which can be anticipated in these statistics in future, owing to the remarkable advancements in the scientific disciplines of pedodontia, periodontia and restorative dental procedure, the potential number of geriatric patients seeking prosthodontic services in the immediate and predictable future stagger the imagination [1, 2].

2. Literature Review
A search through literature provides a good amount of information regarding the problems of geriatric patients and their management. Jowsey in 1960 has shown by micro radiographic studies that young persons have a high degree of both bone formation and resorption. In young adults, there are a little of both, while in persons over 70 years of age, as much as 25 percent of bone may be engaged in resorptive processes [3].
Lammie in 1960 reported that a mucosa of reduced thickness is associated with reduced residual ridge height. He postulated that epithelial atrophy, which results in a reduction in the number of epithelial cells layers, and the thickness of the underlying connective tissue, also manifests itself in a reduction of surface area of the oral mucosa. This in turn applies pressure to the underlying ridge. The externally applied molding force meets more or less resistance from the bone itself and this is the action involved in the resorption process. Newton in 1964 studied age changes in the collagen fibres of the oral mucosa. He has shown that these shorten to a degree compatible with the concept of a contracting mucosa acting as a moulding force on alveolar bone [4].

3. Changes in inter alveolar space and relation
With the loss of teeth, the patient may develop a protruding chin, wrinkling, which extends downward from the oral commissures and an obtuse angle of the mandible. There is also loss of inter-arch space, especially in the posterior segment. Patient develops a habitual

mandibular prognathism, failure to restore and maintain the proper inter-arch space places undue stress on the temporomandibular joints. These changes in the muscles, coupled with the residual ridge reduction, bring about a change in the relation of the mandible to the maxillae.

4. Nutritional recommendations for the aged

Nutrition is more than just diet. Nutrition includes not only the ingestion of an adequate and balanced diet, but also the digestion, absorption and transportation to the tissues, of essential food elements and utilization of these elements by the body cells. Nutrition may be seriously impaired at any one or more points in the complex chain of metabolic activity.

For a satisfactory diet, the older persons require more attention to the preparation of the food. The acuteness of our senses decreases as we get older, so that our continued loss of sense of taste and smell leads use to seek more spirited, highly seasoned or sweeter foods to compensate for the diminishing sense of taste. Thus the older denture patient is led into undesirable nutritional habits. More attention to food preparation and serving will tend to correct these undesirable habits. Regardless of its palatability, food is chewed poorly, when the teeth are faulty. This leaves the stomach more work to do, with discomfort and indigestion, the inevitable results of this added burden.

With the slowing down of general metabolism in the aging process, there is a decrease in glandular function. The salivary glands secrete less, so that there are less mucin and other digestive enzymes present during the initial stages of digestion. Thus, a great deal of food reaches the stomach, partly lubricated and digested, which again increases the burden on the stomach and intestines. Older people must masticate their food more thoroughly, so that it is more easily digested. Furthermore, in the geriatric individuals, the tonus of the muscles of mastication and deglutition is markedly reduced. As with all other body joints, the temporomandibular articulation also shows the degenerative changes [5].

5. Nutritional Evaluation

A.E. Nizel suggested following procedure for nutritional evaluation of the patient and necessary advice regarding diet modifications if required. The procedure comprises of the following steps: Evaluation of food habits through diet history. Evaluation of adequacy of the diet by comparison of the actual intake with the recommended requirements. Prescribing an individualized diet with due considerations to above two factors and to the chewing limitations of the masticatory mechanism of the patient.

a. Evaluation of food habits: Food habits of most of the individuals, irrespective of their age, are not easily altered. It is particularly truer of the elderly people, because they are longstanding. Some of the following factors may govern patient's dietary habits like social, psychological, financial aspects of the patients as well as his general systemic health may force him to follow particular food habits. Patient's likes and dislikes should not be overlooked [6, 7].

b. Evaluation of adequacy of the diet: Patient may be asked to keep a food dietary for five consecutive days including a week-end day. The points in the food diary, that should be noted are number of eating periods, whether each of the meal consists of foods from each of the food groups. This food intake can be then compared with the recommended amounts of respective food groups. This forms a useful guide in the patient education regarding his nutritional requirements and dietary habits.

c. The diet prescription: On the basis of the information gained from the history of food habits and the actual food intake, the prosthodontist should now be able to suggest required modifications. Improvements should be advised in the food groups in which he is inadequate. It is advisable to make gradual than sudden changes. The dietary improvements should be based on the patient's present food habits, social and financial status and status of patient's general systemic health, i.e. presence of any disease which may govern the food selection.

d. Diet suggestions following denture insertion: In case of the patient, who is a new denture wearer, the ability to manage the physical consistency of the food is an important consideration. The process of eating food actually involves three steps, incising, chewing and swallowing. Incising is a grasping and tearing action and involves opening the mouth wide, which might cause a dislodgement of the denture by the action of over tensed muscle attachments. This makes the first step of eating food, most difficult of all three masticating actions. The chewing of the bolus of food is less difficult than incising or biting, but co-ordination of the many muscles of mastication which control the movements of mandible, requires some experience. The easiest and the least complex steps in the eating process is swallowing [8].

Hence the food that requires only swallowing, such as liquids should be prescribed for the first day or two after insertion of the denture. This use of soft foods can be recommended for the next few days and a regular diet by the end of the week, depending upon patients motor learning capacity and response of the denture foundation tissues, to the stresses added by the dentures. Regardless of the consistency, the diet can be balanced and made adequate by including foods from all the four food groups [9].

6. Discussion

General health and oro-dental health are interdependent. An unhealthy oral cavity and stomatognathic system adversely affect the general health of the individual. Again, the general as well as oral health depends upon the age of the person and his dietary habits. For the artificial dentures to function successfully, healthy foundation tissues are necessary. No prosthesis, even if it is fabricated by a highly skilled and well experienced clinician using the latest materials and techniques, can be and should not be expected to function satisfactorily, if it is to rest on a poor and weak foundation.[10]

Moreover, the psychological constitution of the patient also plays an important role in the success of treatment procedures and hence this aspect of patient evaluation cannot be overlooked. So the treatment procedures should include the recognition of the dietary inadequacies and psychological setbacks and their treatment by proper dietary and psychologic counseling.

7. Conclusions

Knowledge of the senile changes that take place in different tissues is important for the prosthodontists, to be able to appreciate and treat these conditions. Evaluation of the

nutritional status of the patients belonging to an old age group and prescribing an individualized diet helps to improve the health of their denture foundation tissues, thereby improving the prognosis. Dietary recommendations after denture insertion help to overcome the difficult learning phase. Psychologic evaluation and counseling plays and important role in the treatment success.

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