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A MINIMALISTIC MANAGEMENT APPROACH FOR THE COMPROMISED ELDERLY PATIENT

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Abstract

The development of the knowledge in oral systemic sciences, the change of health care, and the increase of the cohort of elderly people will have an important impact on the daily dental practice. Despite the fact that the dentist applies the rules he was taught he is very disappointed with the results. Unfortunately there are dogmas which dragged down the prosthetic procedure for senior patients to a pitfall. The important issues are impressions, inter-maxillary relationship coordination between implants and the prosthetic restoration and overall the relation between quality of the dental care and the patient satisfaction. The elderly are frail patients, any intervention might lead to a psychological or medical collapse. During the treatment it is essential to maintain the balance and provide in this way a good quality of life. Therefore a new bio-ethic approach should be introduced in the basic and continuing education programs.

Keywords: aging, minimalistic management, bio-ethics, transitional prosthesis, dentures satisfaction

Introduction

Demography

In the last decade we have witnessed a constant increase in the elderly population. The total number of people over 60 is expected to double from 1% to 2% which means from 605 to 2 billion between 2000 -2050 (WHO 2013 a).
The most significant increase will take place in developed countries where the number of the senior citizens will reach 1.7 billion by 2050.
To cater to this phenomenon several countries are creating adapted policies in order to deal with the challenge of the "Grey Tsunami" (WHO 1-2013b).
The reasons of this trend come as a consequence of several factors:

- better health conditions;
- improvement of health services;
- broader access to education;
- better nutrition in quality and quantity;
- creation of psychological support;
- broadly promoted oral hygiene.

Better housing conditions with wider possibility for independent or handicapped people.

The treatment of the elderly patient must be specific, because it has to cope with specific changes in the oral conditions brought about by ageing and also consider the social and psychological aspects. This creates different demands and needs compared with other cohorts.[2]

Medical conditions

The general health conditions or medications involved may define the oral rehabilitation.[3] Systemic diseases frequently need special care and prohibit an invasive procedure.[4]
The most common diseases and the major causes of mortality are: heart diseases, cancers, cerebrovascular problems, arteriosclerosis, diabetes, impaired lungs diseases, and neuro-psychological conditions such as Parkinson and Alzheimer.

The mental status evaluation

During the first examination of the patient and before starting any diagnosis, prognostic and treatment it is essential to carry out a slight evaluation of the mental status. Dementias are some of the main brain illness with elderly patients. The practitioner has to realize that the elderly

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who appear to have dementia suffer from pseudo-senility syndromes and have in fact communication disorders. Therefore, ageism often contributes to the over-diagnosis of dementia.
It is essential to have good knowledge of the cognitive status, namely speech, hearing, and language difficulties and also to know how to evaluate a patient who is suspected of suffering from dementia.
The FROMAJE test is a quick easy mental evaluation test. The FROMAJE--an acronym for Function, Reasoning, Orientation, Memory, Arithmetic, Judgment, and Emotion--Mental Status Guide (FMSG):

- **Function:** Mental function adequate or inadequate;
- **Reasoning:** Understanding test about the ability to explain the meaning of a proverb;
- **Orientation:** Timing dysfunction;
- **Memory:** Distant, recent and immediate memory;
- **Arithmetic:** Counting, addition and subtraction;
- **Judgment:** Appreciation of cause effect relationship;
- **Emotional state:** Patient behavior during the interview.

A total score will give information about the risk to deliver a successful treatment.

Oral status

Aging is characterized by important changes of the human organs. The conjunction of these changes with age-related pathologies leads to the need of multiple medications in order to maintain their quality of life.
There is a danger when using a great number of drugs as the elderly do, as that could also result in undesirable side effects.
Mouth dryness or Xerostomia is one of the common phenomena.
Xerostomia has numerous consequences which affect eating, swallowing, and taste reduction, thus impairing the nutritional status.
The diminution of the saliva flow will result in the poor retention of the removable prosthesis and a burning mouth pain.[5]
Symptoms such as a burning mouth, dry lips and altered speech and an ulcerated mucosa are the consequences of hypo salivation and xerostomia.
It has been estimated that actually about 30% of the elderly suffer from hypo salivation and xerostomia.[6]

Taste alteration, mouth dryness and teeth staining are often side effects of the medication taken by the elderly. A survey in Helsinki demonstrates there is a relationship between the drug intake and xerostomia; that the great the number of medication, the greater the probability of mouth dryness. Taste reduction influences dietetic habits with an important consumption of salt or sugar.
Oral Cancer has high morbidity and mortality.[7] Commonly the 5 year survival rate is 75 % for local lesions, but in the case of lesions with distant metastasis only 17%. The direct causes are; tobacco, alcohol, infections, and chronic irritation due to very sharp teeth or prosthesis.
The indirect causes are nutritional deficiencies, poor oral awareness, and poor access to oral care for prevention and early detection.
Oral diseases are frequent and there is a need for an integrative approach concerning the understanding and management of the oral conditions paying particular attention to systemic implications.[8]

Dental findings in diabetic adults

Diabetes mellitus is a major threat to global health, and is the fourth leading cause of death by disease.
As it is a systemic disease, diabetic elderly patients may be affected both with respect to the quality and length of their life. Several studies reported a higher prevalence of caries, and especially root caries.
Also the periodontium is severely affected and lead to the loss of even intact teeth.

Candida

One of the most silent hosts is Candida, which affects a great number of elderly mainly in the oral cavity and also in the removable prosthesis.
It has been mentioned that one of the main mortality reasons with the elderly is the Candida infection: oral candidiasis is a sign of impaired local or systemic defense mechanism. The carriage rate of Candida depends of the age and health of the patient. In a study of the elderly in Japan, Candida was detected in 67% of the patients. Candida is the fourth most common cause of hospital bloodstream infections in the US.[9]
The ability of Candida to adhere to the mucosa and the dentures plays an important role in the pathogenesis.

Complete Edentoulesness

With respect to complete dentures, the disappearance of Complete Denture Prosthodontics has been predicted.[10] Nevertheless the need for complete dentures remains essential for a large number of the aged patients especially in the cohort of the "old-old".
Obviously the transition from a partial to full dentures has shifted to a higher age (70 - 80 years). In Switzerland 85.9 % of persons aged 85 or above report wearing a removable prosthesis and amongst them 37.2 % are totally edentulous.
In the United States, the prediction is that there will be 37.9 million elderly by 2020, aged 70-80. Therefore, if complete dentures will be eliminated from the standard dental education curriculum, the result will be that millions of patients will be forced to find out alternative providers of their prosthesis.
Complete Denture remains a difficult oral rehabilitation because it needs to challenge important physiological and psychological

problems. Since ageing is not a pathology but a permanent decrease of the individual faculties, a practitioner should face the implications of ageing in the oral cavity. Genetic and biologic factors as well as social and behavioral issues may play an important role.

The necessity of a bio-ethic attempt

Despite the fact that the dentist applies the rules he was taught, he is very disappointed with the results. Unfortunately there are dogmas which dragged down to pitfall the prosthetic restoration for senior patients.

Since geriatric dentistry is not a priority in the basic educational syllabus, the profession is not able to face a growing minority of atypical or unusual persons looking for prosthodontic treatment that present outstanding features or variations from the normality. Therefore, these handicapped patients described as "denture cripples" cannot receive conventional treatment or often cannot wear the dentures as completed by the dentists.[11]

The classical approach is devoted to the treatment of typical or normal patients, but for the old-old or atypical patients special diagnostic and solutions are recommended.

A typical or conventional patient can be categorized as the one evincing the following characteristics:

1. A patient who comes to the dental office for prosthodontic treatment after losing or about to lose his natural teeth.
2. His expectation with respect to the dental care is to be provided with a set of removable dentures which will partly replace the functions fulfilled by his natural teeth.
3. He is agreeable to the treatment and collaborates with the dentist during the clinical procedures and the necessary adjustments that follow the delivery of the dentures.
4. He does not present any severe systemic or physical limitations for the treatment and for the self- home care.
5. The masticatory muscles and the tempura-mandibular joints are reasonably healthy without functional limitations.
6. The residual ridged and their adjacent structures are of normal size and form, and able to provide a stable functional foundation of the dentures.
7. The soft and hard oral tissues are healthy and properly lubricated by the salivary flow.
8. The tongue and the tongue attachments are of normal size and position that allows the insertion and proper function of the mandibular prosthesis.
9. There is a minimal or non-existing Gagging reflex at the posterior region of the maxillary during the treatment and after upper denture insertion.
10. At a physiological vertical dimension at occlusion there is enough adequate denture space for the construction of the denture base and the artificial teeth.
11. The special occlusal relations between the edentulous ridges do permit setting of the artificial teeth on the top or close to the residual crests and allows harmonious arrangements.
12. The patient shows a reasonable and positive attitude acceptance and adaptation ability following the delivery dentures
13. Last but not least; there are NO symmetric patients as educated in the conventional Text-books. Since the left and right side are not symmetric, that means that the teeth arrangement do not respect the patient physiology

To conclude, with the ageing there is no ideal patient that presents all the described criteria.[12]

Here are the most frequent features:

1. Systemic patients

Most patients present one or two systemic diseases. The most common are hypertension, cardio-vascular and diabetes problems.

Moreover, there are also neurological systemic critical situations such as Parkinson, Alzheimer and different kinds of depression. Different forms of cancer are also frequent.

2. Psychological behaviors

One of the most difficult obstacles for a successful treatment is frequent psycho-geriatrics attitudes and behavioral disorders.[13]

Besides the classic organic brain syndromes there are also paranoid
states and affective disorders

These factors will hardly compromise the treatment planning.

3. Economic limitations

With the increase in life span and the difficulties of the economic situation there appears an economic gap and consequently a drop in the financial means.

4. Physiology evolution with aging

There is a change of the elderly patient physiology with ageing - change in the supporting structures, muscles and the natural or acquired reflexes.

Particular attention was attached to the study of bone resorption, the important differences between the maxillary and the mandible. A growing difference has been noted between the right and the left side.

Nevertheless very few studies were found on the fundamental asymmetry of the great majority of the individuals.Usually one side is shorter than the other one. Often the middle of the maxillary does not correspond to the middle of the face.

This is in total contradiction with was thought in most text-books.

In the same way the condylar guidance is different between the two sides providing an unequal occlusal climatic. In general the ridge resorption is centripetal in the maxillary and centrifugal in the mandible causing in this way a cross –bite problematic situation.

A lot of research pointed out the asymmetry of the chewing cycles, inducing in this way a special occlusal balance system. Another important fact

is the acquired para-function by poor prosthetic restorations and creating serious obstacle for the stability of the new dentures. Anyway when considering an adapted treatment planning for the old-old patient, this asymmetric factor must be taken under consideration.

Satisfaction with Complete dentures:

In the cohort of elderly there is an important group who constantly has great difficulty in adjusting and wearing dentures. Therefore they have a low quality of life and are dissatisfied to cause considerable problems to the dentists. Identifying these patients prior the treatment will give the practitioner the possibility to modify the approach and to help the patient to adopt more realistic expectations. There is a great variety of factors involved in the dissatisfaction[14] :

1. Past denture experience is more related to denture satisfaction that the age.
2. Comfort is a decisive factor, because the patient keeps comparing the new dentures to the old ones, in terms of the design of the dentures, the occlusal system, the free-way space and phonetics.
3. Usually the criteria for conventional dentures are: accepted esthetics, good retention and stability,the ability to chew properly, and acceptable phonetics. A failure in one of these conditions will led to a pitfall of all the oral rehabilitation.
4. Switching roughly from an old denture to a new one is often a reason of destabilization for the geriatric patient. In this situation the patient will never accept the new restoration.
5. This underlines the importance of the psychological aspects in the treatment of the elderly patient.
In the same way the influence of the systemic condition and medication have an impact on the tolerance of dentures.
6. Only a step by step treatment plan, with evaluation possibilities is recommended. These transitional steps are the condition sine qua non for comprehensive and tolerated changes.

Conclusion

The description above brings a specific approach to the elderly/frail patient. It is a fact that ageing is a process which absolutely affects the patients differently. Chronological age is not the only indicator of the geriatric status. There is tremendous variability in the biological and psychological aspects between the patients. Consequently there should be an individual and specific approach for each individual. The treatment of these patients asks for a realistic risk-benefit evaluation. One of the most important challenges is adapted management.

To avoid useless stress situations and important economic burden, it is recommended to proceed by a step by step schedule so as to be able to do a constant revaluation. It requests first palliative treatment and then transitional or intermediary restorations.When considering the permanent or final stage it should be essential to act in a preventive perspective, giving always a possibility for a repair or a transformation of the Prosthetic devices.

To summarize this non-conventional approach the ***Minimal Invasive Management is highly recommended.***

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CV

Prof. Alexandre Mersel, a native of Strasbourg, France, graduated from the Faculty of Odontology, University of Lyon, France and specialized in Prosthodontics, at the Hadassah Faculty of Dental Medicine in 1979.

During his career, he has been Associate Professor at the Hadassah Faculty of Dental Medicine since 1992 and also Director of Complete Dentures Prosthodontics and Gerodontics studies (1978-98). He also acted as consultant to the Prime Minister's commission of Public Health (1982).

Professor Mersel was also co-foundator and Vice-President of the International Association of Gerodontology (1985- 1986) and foundator and chairman of the European College of Gerodontology (1994-1995).

Currently, he is a Member of the Education Committee of the FDI, Regional Director FDI for Continuing Education Program. He also serves as member of the editorial board of several international journals.

He was awarded the City of Paris Silver Medal in 1986. He published 87 scientific articles and 3 chapters in various textbooks.

Questions

Importance of Candida:

❑ a. Not important;
❑ b. In few cases;
❑ c. Most cause of infection;
❑ d. May be solved by antibiotics.

Complete Edentoulesness:

❑ a. Will disappear with implantology;
❑ b. There will be only removable partial dentures;
❑ c. Complete denture will be frequent in 30 % of aged patient ;
❑ d. Concern only very aged patients.

Influence of implants:

❑ a. Implants will solve all the lower denture problems;
❑ b. Financial problem is the main obstacle for implants;
❑ c. Patient anxiety is a major contre-indication;
❑ d. A comprehensive approach is compulsory .

Limitation of the treatment planning:

❑ a. It's possible to establish an exact evaluation;
❑ b. A strict time table must be presented;
❑ c. A reevaluation is necessary after a transitional period;
❑ d. Medical and anatomic factors are the main factors.