ORAL CONDITION OF GERIATRIC "DENTURE WEARERS"

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ABSTRACT

Objective: To assess the oral condition of a group of low-income geriatric "Denture Wearers" at King Hussein Medical Center.

Methods: A total of 200 elderly patients who attended the prosthetic clinic at the outpatient clinics (King Hussein Medical Center) were selected on the basis of their age (≥ 65); and the duration of wearing removable complete or partial dentures (<5 years). The assessment of oral status was based on detailed history and oral examination. Natural teeth were examined for caries and periodontal disease; dentures were evaluated for retention, stability, occlusion, soft or hard deposit and any obvious damage; and oral mucosa was examined for the presence of any pathological changes.

Results: Among the 200 patients, 56 (28%) had teeth excluding the third molars while 144 (72%) were completely edentulous. The condition of the full dentures worn by many of the patients was unsatisfactory and a high percentage (68%) of the patients had lesions of the oral mucosa. Many members of the sample were orally handicapped, either functionally or socially since 55.5% complained of oral pain, 60.5% claimed to have difficulty in chewing, 30% were embarrassed due to wearing removable prostheses, 13.5% were embarrassed due to dropping of their dentures during social contact and 37.5% were not satisfied with their removable dentures and asked for adjustment or replacement. More than 37% of the dentures showed hard and/or soft accumulation of plaque and calculus.

Conclusion: The results of the study pointed out a big need for prosthodontic therapy among the examined patient group. However, detailed medical and dental history are to be taken to diagnose any systemic or oral disorder from which the patient might complain or suffer, since it may interfere with the patients' ability to use their dentures properly.

Key words: Dental status, Oral health condition, Geriatric dentistry

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Introduction

The prime objective of the science of gerodontology is to make continuous advances that increase the quality of life for elderly adults who are predominantly edentulous or received a great deal of restorative care [(1)]. The catalysts for this are the rising proportion of older people in the population [(2)], and the findings of the majority of studies that assessed the dental health of the elderly as being very poor and many people are in need of dental treatment [(3-8)].

In general, any long term or debilitating illness may affect the adaptability to dentures that can be recognized by a trained prosthodontist with careful history and clinical examination that guide him in providing, advice and proper treatment to the suffering patient [(9)]. Surveys have highlighted the difficulties elderly population have in cleaning their dentures. They found that many elderly wear dirty dentures, which produces deleterious effects on the oral mucosa with the development of chronic inflammation and eventually hyperplasia or chronic candidiasis [(10,11)]. Moreover, nutrition is another factor under human control and can influence the general and oral health of the elderly. Sullivan *et al* [(12)] have shown that poor oral health has an important role in the development of significant involuntary weight loss among the elderly since they shift into soft diet to avoid chewing.

The objective of the present study was to assess the oral status of a group of low-income geriatric "Denture Wearers" who attended for examination in the prosthetic

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clinic at King Hussein Hospital /Out-Patient Clinics.

Methods

A total of 200 patients who attended the prosthetic clinic at King Hussein Medical Center / Out Patient Clinics between June 1999 and June 2000 were included in this study. The patients were selected on the basis of their age (≥ 65) and all of them were using complete or partial removable dentures for ≥ 5 years. These patients were randomly selected from the low socio-economic group (monthly income ≥ 200 JD).

Information regarding the medical and dental history was taken from the subjects themselves by the author using an interview form. Subjects who were unable to understand the question, or reply were excluded from the study. The interview included questions about the subjects' assessments of their own general health and mobility, dental health and function, including dissatisfaction with their dentures and requirement of replacement, oral pain, chewing ability and food selection. Information was also obtained about social aspects of dental health e.g. appearance mouth smell, and the embarrassment caused by loss of teeth.

The interview was followed by a clinical dental examination for natural teeth, oral mucosa, and denture status. The natural teeth that were present, were examined first for dental decay (the need for restorations or extractions), and second for the presence of any clinical sign or symptom or periodontal disease (redness, swelling, bleeding on probing, tooth mobility and gingival recession).

Dentures (partial or complete) were inspected inside the mouth for poor retention, instability, and uneven occlusion, while outside the mouth for soft or hard deposit and any obvious damage. Oral mucosa was also examined for the presence of any obvious clinical pathological changes.

Results

The mean age of the patients was 69.7 years (range 65-90), 40% of them were males. The mean monthly income was 95 JD. A relatively high proportion of the patients, 144 (72%) were completely edentulous while 56 (28%) had some of their teeth present.

The majority of patients (70.5%) described their health as 'good' or 'fair' while 29.5% claimed that their health was 'poor'. The commonest diseases recorded in the medical history revealed a low health standard and general disability and 60% suffered from arthritis as shown in Table I.

The results showed that many subjects were orally handicapped, either functionally or socially, 37.5% of the patients were not satisfied with their removable dentures and asked for an adjustment or replacement, 55.5% complained of oral pain, 60.5% claimed to have difficulty during chewing, 30% of the patients were mainly embarrassed from wearing removable prostheses, while 13.5% were embarrassed because their dentures dropped during social contact (Table II).

The dental status of the 56 (28%) dentate patients is presented in Table III. The most commonly retained teeth were the lower canines and incisers, about 36% of the patients required tooth restoration and 43% required extraction of one tooth or more. The periodontal condition revealed that 76.7% of the patients had periodontitis and 23.2% had gingivitis. Examination of partial dentures revealed that 34.3% were grossly under extended while 41% had uneven occlusal relationship, 25% were damaged or in a poor condition (e.g. fractured, had missing some of the denture teeth). Deficiencies in many of the cases were due to the fact that 19.6% were more than 10 years old.

Examination of complete dentures of the 72% edentulous patients revealed that the condition of the full denture worn by many of the patients was unsatisfactory (Table IV), 23.61% showed gross occlusal errors, 46.53% showed peripheral under extension and about 58% had damaged dentures (e.g. fractured, missing teeth). About half of the totally edentulous patients complained of pain and discomfort, which could be related to the age of the dentures since 40% of them were over 10 years old.

Data of the clinical examination of the oral mucosa is presented in Table VI. Denture induced hyperplasia (DIH) of the so-called fibroma type was found in 18 cases, while traumatic denture ulceration was found in association with 27% of mandibular dentures and 10% of maxillary dentures. The commonest condition associated with denture wearing was denture stomatitis, which was present in 28% of all patients particularly in those who used traumatic dentures of which 13% had concomitant angular cheilitis and 56% wearing their dentures day and night.

More than 37% of the dentures showed hard and/or soft accumulation of plaque and calculus as demonstrated in (Table VII). The large number of patients wearing their dentures at night (39.5%) was believed to be a contributory cause dentures were not being cleaned effectively. The method of cleaning was often faulty.

Discussion

There has been a growing recognition of the need to obtain information about the oral health of the older population since this information affects the estimation of treatment need and is essential for the future planning of dental services [13,14].

The study sample was selected on the basis of their age (65 years and above) based on the study of Ettinger and Berkey [15] who defined elderly as that cohort of people 65 years of age or older utilizing the chronologic criterion for the categorization of these individuals.

The denture status of the elderly population was generally poor. A large proportion had unsatisfactory dentures and the majority of subjects were edentulous which was in agreement with other studies [13,16,17].

Gingivitis was diagnosed in 23% while periodontitis was present in 77% of the elderly dentate subjects surveyed. Steele *et al* [18] found that deep pocketing was present less frequently in the older age subjects while moderate and severe attachment loss was more common reflecting a greater trend toward recession at pocket sites in the elderly.

Sixty eight percent of our study group had oral pathology excluding caries and periodontal disease, which was similar to other studies [13,18]. Early diagnosis and treatment of dental diseases are indicated as the debilitating illness progresses, communication and cooperation are lost and management becomes more difficult [2].

The poor fit and retention of full dentures worn by elderly people have been widely reported. This study revealed that stability and retention of maxillary dentures was more than that of mandibular dentures confirming the finding of other studies [13,19]. A number of reasons may be suggested for the high percentage of unsatisfactory retention and stability of the denture. Firstly, many of the dentures were old, more than 40% of the dentures had been worn for over than 10 years and there must have been considerable resorption of alveolar bone during that period. Secondly, about 58% of the full dentures were damaged because their owners had difficulty in handling them due to arthritis.

It might be expected that there would be a positive relationship between the ability to chew with the fitness and retention of dentures. In this study, however, such a relation was questionable. Many subjects were apparently "eating nothing" with a clinically inadequate dentition to which they had become adequate. Other subjects, who had dentures which were clinically satisfactory, had not been able to adapt to them and had difficulty in chewing. This suggested that factors other than technical details were important [20], if not more important, in determining whether or not a person is able to chew his food with ease. On the other hand, it has been considered that patient satisfaction is generally dependent on how well the dentist has restored facial appearance and rehabilitated chewing efficiency [21].

In fact, this survey pointed out a big need for prosthodontic therapy among the examined patient group who attended the prosthetic clinic wearing either removable partial or complete denture. However, detailed medical and dental history must be taken to diagnose any systemic or oral disorder from which the patient might complain, since it may interfere with the patients' ability to use their denture properly.

Conclusion

The results of this survey revealed a number of adverse effects of complete or partial dentures on oral health status, treatment needs and demands of the elderly population. They reinforced the notion that continuous provision of preventive and educational strategies coupled with accessible treatment services by the dentist and through public health measures, that good oral self-care and regular professional recall for people who wear dentures are essential.

Table I. The commonest diseases in the geriatric sample studied.

Disease	Number of cases	Percentage
Arthritis	122	61
Hypertension	62	31
Cardiac problems	40	20
Peptic ulcers	34	17
Chronic bronchitis	20	10
Allergy	15	7.5
Deteriorations due to senility	13	6.5
Anemia	6	3
Cerebral catastrophes	5	2.5
Others (hearing loss, etc.)	42	21

Table II. The findings regarding the condition of complete and partial dentures.

	Number of cases	Percentage
Dissatisfaction with upper denture	87	43.5
Dissatisfaction with lower denture	125	62.5
Dissatisfaction with upper and lower dentures	75	37.5
Chewing difficulty	121	60.5
Pain	111	55.5
Embarrassment due to:		
- Wearing denture	60	30
- Dropping	27	13.5
- Appearance	49	24.5
- Smell	23	11.5

Table III. Caries status of 56 dentate patients.

Status of teeth	No. of patient	%	Rang of teeth/person	Median
Sound	51	91.1	2-23	8
Filled	23	41.1	1-5	3
Decayed Restorable	20	35.7	1-4	1
Decayed Requiring extraction	24	42.3	1-6	2

Table IV. The percentage of clinical findings of complete dentures worn.

% of Denture age≥ 10 years	% Poor retention		% Poor stability		% Peripheral under extensions	% Uneven occlusion	% Damaged dentures
	Upper	Lower	Upper	Lower			
40.5	29.4	40.1	33.6	26.7	46.6	23.6	58.3

Table V. Clinical pathological changes of the oral mucosa of the sample.

Type of lesion	Number of subjects with lesions	Percentage
Ulceration associated with mandibular dentures	55	27.5
Ulceration associated with maxillary dentures	20	10
Denture stomatitis	56	28
Angular Cheilitis	26	13
Hyperplasia (DIH)	18	9
Retained root	10	5

Table VI. Number and percentage of cases with soft and hard deposits.

Soft and hard deposits	Number of cases	Percentage
Plaque	34	17
Calculus	13	6.5
Both (Calculus and plaque)	74	37

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