

Appraisal and Promotion of the Oral Health in a Group of Visually Impaired Patients

¹G.A. Scardina, ¹A. Buonamente, ²F. Carini and ¹P. Messina

¹Department of Oral Science,

²Department of Experimental Medicine, University of Palermo, Italy

Abstract: The aim of the study was to describe the oral health conditions of a group of visually impaired patients and to describe an oral hygiene programme for these patients. The visually impaired patients differ from normal patients with regard to professional relationship between patient and the dentist. Therefore with adequate training and understanding of the various medical complications and handicapping conditions and with adequate alteration in the dentist's treatment protocol these patients can be managed well. Providing comprehensive dental care for the visually impaired is not only rewarding but is also a community service that health care providers are obligated to fulfil. Teaching good oral hygiene practices to the blind patients requires a special approach with time and patience. Most programme teach reliance on tactile, other senses. In our research patients were assisted in exploring oral structures of the mouth. Plastic models of the mouth were used effectively as instructional aids.

Key words: Visually impaired, prevention, oral hygiene, appraisal, promotion

INTRODUCTION

The aetiopathological mechanisms of oral pathologies are not different between normal patients and visually impaired ones; as a consequence the basic concepts of prevention are the same. The main factor of differentiation between normal patients and blind ones is above all represented by the difficulty in removing plaque from teeth's surfaces of these last patients (Al-Sarheed *et al.*, 2006; Campisi and Cumbo, 1994; Greeley *et al.*, 1976; Shyama *et al.*, 2001; Tan and Wade, 1980).

The difficulty in removing bacterial plaque is considered the main factor that leads to the outbreak of oral pathology (Decay and Periodontal Disease).

The continual motivation to the correct oral hygiene procedures is fundamental in order to keep a good oral hygiene in blind patients (Al-Sarheed *et al.*, 2006; Cohen *et al.*, 1991; Nandini, 2003; Schembri and Fiske, 2001; Yalcinkaya and Atalay, 2006).

Manual and electric dispositive improvement made the objective of a correct oral hygiene standard also in the blind patients more and more reachable.

For these patients reveals themselves a lot of profit also the possibility of associating the bacterial plaque mechanical control with the chemist one (Cohen *et al.*, 1991).

It is certainly more difficult to keep a good oral hygiene level for the blind patients with respect to the

normal patients (Greeley *et al.*, 1976). The motivation to the oral health prevention and promotion represents an important objective, that the dental medicine must necessary propose.

This research has the aim of evaluating oral hygiene state of visually impaired patients, besides to describe a suitable useful methodology for keeping standard of oral hygiene compatible with the health.

MATERIALS AND METHODS

The study conducted in the Institute for the blind Florio and Salomone had the purpose of analysing oral health conditions of 30 blind subjects distinguished in three different groups; subjects attending the working laboratory, subjects attending the rehabilitation centre and students. These subjects both male and female with age ranged from 16-50 years and of different social economic cultural extraction, took part in the study.

Individualized approach for blind patients: Following on observation, examination and work planning it is proceeded with individualized relationship between dentist and patient.

Examinations were carried out in the Institute's infirmary used as Dentist's.

Before examing blind patient in order to put him at ease and feel relaxed. Dentist was careful of explaining every step of the meeting, stressing the

way of working and its reasons and establishing with the blind patient a collaboration relationship.

Clinical examinations were performed using a standard oral mirror and a probe.

Dental anamnesis was compiled to know if patient usually goes to the Dentist.

Especially if patient is self-sufficient in toothbrush's use, what kind of toothbrush he is used to use, the technique used, how many times a day he brushes his teeth, how long time it takes to brush, how often patient changes its toothbrush and eventually if patient knows other aids.

Dental decay was recorded according to Klein, Palmer, Knuston's DMFT (Decayed, Missing, Filled teeth) (Yalcinkaya and Atalay, 2006).

Oral hygiene status was assessed using the simplified Oral Hygiene Index (OHI-S) developed by Greene and Vermillion. It is made up of two components, Simplified Debris Index (DI-S) and Simplified Calculus Index (CI-S). (Green and Vermillion, 1964).

Dentist has verified that most of the examined patients were reluctant to oral hygiene procedures. These patients, in fact, believed procedures were boring, unnecessary and ineffective. Therefore it was necessary to make reluctant subjects know how oral hygiene procedures were important and necessary.

It is usually easy to enable patient to detect the amount of plaque's deposits and its consequences: bleeding, edematous gums, recessions. As far as blind patient is concerned it was necessary to teach him how to use residual senses: touch, smell, hearing, taste (Al-Sarheed *et al.*, 2000).

Such a patient could feel the rough dental surface and plaque moist consistency on the probe's top by touch, he could smell unpleasant odour of substances set on the probe by smell, he realized why plaque produces unpleasant flavour by taste, he could hear dentist worried tone but also rigorous by hearing.

Dentist exhorted the patient to realize of his own oral health state and to undertake an immediate decisive and lasting action of doing oral hygiene procedures kindly and firmly.

Dentist was careful of making patients feel the toothbrush with its main features by touch: Small toothbrush head to allow back teeth brushing and medium bristles not to damage oral tissues. Dentist also explained that toothbrush works only if its bristles are intact and converging because with these features bristles are able to remove plaque but when bristles' toothbrush are not intact because of uncorrect and continued use, they do not work correctly. Eventually the two toothbrushes, new and used, were compared in order to underline the



Fig. 1: Before the teaching phase the patients knew all areas of the mouth and especially all tooth's surfaces: lingual, palatal, vestibular, occlusal by touching plastic models

touchable differences, because some patients said having used the same toothbrush for several years.

Dentist taught patients how to use the rotating technique of brushing after observing the patients' technique used. (Cohen *et al.*, 1991; Glassman and Folse, 2005; Mulligan, 2002; Nandini, 2003; Tan and Wade, 1980).

Before the teaching phase the patients knew all areas of the mouth and especially all tooth's surfaces: lingual, palatal, vestibular, occlusal by touching plastic models (Fig.1).

The patient was able to explore his mouth after acquiring the plastic models knowledges.

Dentist explained the rotating technique procedures only when the patient were skilled on how to position toothbrush in every area of the mouth.

The concept of plaque removing and disintegration by mechanical toothbrush bristles was enhanced. Too much pressure would cause tissues lesions said brushing lesions.

While dentist was teaching the patient how to act, exhorted him to follow the toothbrush start position, the rotating movement and teeth surface to be cleaned (vestibular, lingual, palatal, occlusal) by the other hand's finger. At the end of the meeting the patient was able to perform the technique correctly and suitably.

RESULTS

Oral hygiene conditions of visually impaired patients were bad (Fig. 2A, B). Such patients were not used to go to Dentist's.



Fig. 2A, B: Oral hygiene conditions of visually impaired patients were bad

In fact, when dentist asked them if they have been ever gone to Dentist's their answers were: Never, 10 years ago, when I have toothache.

Subjects analysis points out:

- Usually go to Dentist's: n. 7
- Occasionally go to Dentist's: n. 6
- Never go to Dentist's: n. 17
- Believe oral hygiene important: n. 12
- Be care methodically oral hygiene: n. 9
- Correct diet: n. 5

The DMFT Index analysis shows a different distribution about decay experience. The highest DMFT value 10 is reported for the first group working laboratory, this value is composed by M component mainly and by D component as minority one. Both underline a missed recourse to dental medicine care especially if they are associated to f-value (1.4). DMFT value, besides, is not

Table 1: The DMFT index

Groups	DMFT Index			DMFT
	D	M	F	
I	3.1	5.5	1.4	10
II	1.4	2.3	2.7	6.4
III	2.8	0.4	2.7	5.9

Table 2: The OHI-S, ID, IC index

Groups	OHI-S, ID, IC Index		
	OHI-S	ID	IC
I	4.6	2.43	2.17
II	2.755	1.636	1.119
III	3.978	2.218	1.76

unexpected since the examined sample is represented for subject with limited psychomotor autonomy and co-ordination. Such a value, in fact, decreases in the groups II (6.4) and III (5.9) made up of subjects which show a better social economic cultural level than previous one. It seems to be evident that the two values differ little and the only difference is represented for M component (missing teeth) that is 2.3 in the group II and 0.4 in the group III; such a difference is not to attribute to a young students better towards decay disease care and prevention, it is strengthened by high number of decayed teeth of this group. D value, in fact, in the rehabilitation group, is half the value of the group II that is 2.8.

Table 2 illustrates the results of Greene-Vermillion index OHI-S for each group. The analysis shows that values decrease depending on subjects social economic cultural level.

The highest OHI-S values, that are 4.6 and 3.978, respectively, are found in fact in the group II, so basing on Greene's categorization of oral hygiene index score, they are put in insufficient category, the group II, on the other hand, shows a less discouraging value that is 2.755, so it may be included in sufficient category perfectly. (Table 1 and 2).

DISCUSSION

A greater trend to decay and periodontal disease has been checked in handicapped patients especially visually impaired. If it is possible to establish a correct motivation and instruction both with patients and their close relatives, their oral hygiene conditions so oral health improve undoubtedly (Al-Sarheed *et al.*, 2004).

In this experience patients which usually undergo dental care generally have recourse only because of pain. Data collected reveal that in the examined subjects is absent the prevention concept.

This means neither relatives nor educative and formative staff took care to awake subjects about the importance of oral disease prevention and its consequences for subject's health care.

Patients believed oral hygiene important belonged to medium social economic cultural level, however they were not able to perform oral hygiene procedures correctly because they had never undergone oral physiotherapy. Such patients even though brushed their teeth three times a day had not the right techniques and they did not know about the correct toothbrush's features and its lasting and if there were other aids.

There were strong incongruity between their answers to medical anamnesis and the real oral health state. They stated to go to the Dentist's every six months, to believe oral hygiene important and to perform it constantly, change toothbrush every month, sometimes even every week; the objective exam, on the contrary, pointed out serious gingivitis cases and many decay lesions showed by high DMFT and OHI values.

So it is necessary to motivate both blind patient and his educator who assists him to perform oral hygiene procedures underlining the importance to have own teeth cleaned and the bad consequences of dirty teeth.

Teaching what is oral hygiene through simple concept and how it affects both oral health and social relationship.

It is useful to use pleasant toothpaste not to remove plaque but because it makes patients want to brush their teeth; some toothbrushes with pastetooth incorporated are on the market: It is enough to push to determine the right quantity of toothpaste on toothbrush's bristles directly.

In literature DMFT values are lower than our study's values; while OHI index values are superimposable. (Campisi and Cumbo, 1994; Greeley *et al.*, 1976; Schembri and Fiske, 2001; Shyama *et al.*, 2001).

The results of this study show a strong oral health deficiency.

Preventive and therapeutic has to be supported by skilled staff of health sanitari to provide correct information and adequate tools to keep an optimal oral health state.

CONCLUSION

It seems to be clear that correct information and instruction about oral hygiene procedures is fundamental to avoid both public economic dues and above all to improve life quality of these patients (Glassman and Folse, 2005).

REFERENCES

- AlSarheed, M., R. Bedi, M.N. Alkhatib and N.P. Hunt, 2006. Dentists' attitudes and practices toward provision of orthodontic treatment for children with visual and hearing impairments. *Spec. Care Dentist*, 26: 30-36.
- Al-Sarheed, M., R. Bedi and N. Hunt, 2000. The development of a tactile graphic version of IOTN for visually impaired patients. *Clin. Orthod. Res.*, 3: 94-100.
- Al-Sarheed, M., R. Bedi, N.P. Hunt, 2001. Attitudes of dentists, working in Riyadh. Toward people with a sensory impairment. *Spec. Care Dentist*, 21: 113-116.
- Al-Sarheed, M., R. Bedi and N.P. Hunt, 2004. The views and attitudes of parents of children with a sensory impairment towards orthodontic care. *Eur. J. Orthod.*, 26: 87-91.
- Campisi, G., and V.A. Cumbo, 1994. Survey of dental-periodontal pathology in a sample of blind adult subjects. *Minerva Stomatol.*, 43: 29-32.
- Cohen, S., H. Sarnat and G. Shalgi, 1991. The role of instruction and a brushing device on the oral hygiene of blind children. *Clin. Prev. Dent.*, 13: 8-12.
- Glassman, P. and G. Folse, 2005. Financing oral health services for people with special needs: Projecting national expenditures. *J. Calif. Dent. Assoc.*, 33: 731-40.
- Greeley, C.B., P.A. Goldstein and D.J. Forrester, 1976. Oral manifestation in a group of blind students. *J. Dent. Child.*, 26: 39-41.
- Green, J.C. and J.R. Vermillion, 1964. The Simplified Oral Hygiene Index. *J. Am. Dent. Assoc.*, 68: 7-13.
- Mulligan, R., 2002. The 3 phases of Eve: Exploring the common and unique findings in oral and systemic health of differently aging women. *Compend. Contin. Edu. Dent.*, 23: 32-40.
- Nandini, N.S., 2003. New insights into improving the oral health of visually impaired children. *J. Indian Soc. Pedod. Prev. Dent.*, 21: 142-143.
- Schembri, A., and J. Fiske, 2001. The implications of visual impairment in an elderly population in recognizing oral disease and maintaining oral health. *Spec. Care Dentist*, 21: 222-226.
- Shyama, M., S.A. Al-Mutawa, R.E. Morris, T. Sugathan and E. Honkala, 2001. Dental caries experience of disabled children and young adults in Kuwait. *Community Dent. Health*, 18: 181-186.
- Tan, A.E.S. and A.B. Wade, 1980. The role of visual Feedback By a Disclosing Agent in Plaque Control. *J. Clin. Periodontol.*, 7: 140-146.
- Yalcinkaya, S.E. and T. Atalay, 2006. Improvement of oral health knowledge in a group of visually impaired students. *Oral Health Prev. Dent.*, 4: 243-453.