ASSESSMENT OF ORAL HEALTH RELATED QUALITY OF LIFE (OHRQOL) AND IT'S ASSOCIATION WITH MALNUTRITION RISK IN THE ELDERLY

Neha Agarwal [1] N.D.Gupta [2] R.K.Tiwari [3] Amit Kumar Garg [4] Pramod Yadav [5]

Senior Lecturer, [1] Professor & Head, [2] Professor, [3] Reader, [4] Senior Lecturer [5]
1. *Department of Public Health Dentistry, Dr. Z.A. Dental College, AMU, Aligarh.*
2. *Department of Periodontics, Dr. Z.A. Dental College, AMU, Aligarh.*
3. *Department of Conservative Dentistry & Endodontics, Dr. Z.A. Dental College, AMU, Aligarh.*
4. *Department of Conservative Dentistry & Endodontics, K.D. Dental College, Mathura*
5. *Department of Public Health Dentistry, Dr. Z.A. Dental College, AMU, Aligarh.*

Abstract

Objectives: This study was conducted to find out the association of oral health-related quality of life (OHRQoL) with malnutrition risk in the elderly.

Methods: A cross-sectional study was conducted on 247 Indian elderly attending OPD of Dental College, Aligarh Muslim University, Aligarh. Data on socio demographics and oral health status were gathered by interview and examination. Oral health-related quality of life was evaluated using the Geriatric Oral Health Assessment Index (GOHAI), and malnutrition risk using the Mini Nutritional Assessment (MNA).

Results: The mean GOHAI score was 46.73 ± 8.2 for men and 46.06 ± 9 for women. Higher number of subjects, {174 (70.5%}, had low perception (GOHAI < 57) of oral health. Higher mean MNA score was found in women as compared to the men ($p < 0.05$). Pearson's correlation coefficient showed a strong association between total GOHAI and MNA scores.

Conclusion: Oral health–related quality of life was strongly associated with nutritional deficit.

Key words- elderly, GOHAI, MNA, oral health, malnutrition

Introduction

Throughout the world, a demographic revolution is underway. The proportion of older people is growing faster than of any other age group.[1] Approximately 600 million people are aged 60 years and over, and this number will double by 2025 and 80% living in developing countries.[1,2]

Globally, poor oral health among older people has particularly been seen in a high level of tooth loss, dental caries experience, and high prevalence rates of periodontal disease, xerostomia, and oral pre cancer, cancer.[3] The Geriatric Oral Health Assessment Index (GOHAI) has proven to be an excellent tool for detecting oral disorders among elderly.[4]

It is now recognized that nutrition plays an important role in health status. Malnutrition is associated with greater risk of morbidity and mortality and has an evident impact on their general quality of life.[5] Carole A. palmer suggested that older patients should be carefully screened for nutritional risk factors, and should be educated about the importance of good nutrition to general and oral health.[6]

Very few studies have been conducted on risk of poor oral health causing malnutrition in India. Therefore this study was carried out to assess the oral health related quality of life (OHRQoL) and its association with malnutrition risk in the elderly.

Method

A cross-sectional study was conducted on 247 Indian elderly attending OPD of Dental College, Aligarh Muslim University, Aligarh, rural and urban elderly population by means of arranging camps. Data on socio -demographics and oral health status was gathered by interview and oral examination. Data on the oral conditions of the subject, that is, presence of caries, number of filled teeth and teeth absent using Decayed Missing Filled Teeth (DMFT) index and the number of natural teeth present were also collected. Oral health-related quality of life was evaluated using the Geriatric Oral Health Assessment Index (GOHAI), and malnutrition risk using the Mini Nutritional Assessment (MNA).

Inclusion criteria:
1. Elderly aged above 60 years.

Exclusion criteria:
1. Elderly unwilling to participate in the study.
2. Elderly with severe neurodegenerative diseases.

Ethical clearance was sought from the Institutional ethical review committee. Informed consent was obtained from all the elderly included in the study.

The clinical examination of all the subjects was done by a single examiner who was calibrated and trained in the department before conducting the survey to limit the intra examiner variability.

Data was analysed using Statistical Package for Social Sciences (SPSS) version 16. The significance of the difference between two or more means was assessed by using the Student's *t*-test or analysis of variance respectively. Pearson correlation test and chi square test were applied to find out the association between two categorical variables.

Results

The total 247 elderly examined, 41.7% were men and 58.3% were women. Mean age was 71.5 ± 6.9 years. Out of the total sample, 27.7% were edentulous. There was no statistically significant difference between the dentate and edentulous patients in relation to age and gender. (Table 1). Among the dentate individuals the mean number of teeth

present was 8.67 ± 6.4. 57.2% of elderly were having 22-32 teeth, 9.7% were having 10-19 teeth. The mean GOHAI score was 46.73 ± 8.2 for men and 46.06 ± 9 for women. Higher number of subjects, {174 (70.5%}, had low perception (GOHAI < 57) of oral health.

Variables	Dentate n (%)	Edentulous n (%)	p value
Gender Male Female	112 (45.2) 135 (54.8)	71 (28.6) 176 (71.4)	0.125
Age 60-65 66-70 71-75 76-80 >80	59 (23.90) 67 (27.2) 60 (24.2) 31 (12.5) 30 (12.2)	42 (17.3) 50 (20.1) 32 (12.8) 68 (27.6) 55 (22.2)	0.067
Dentition status Teeth absent Caries Filled DMFT	8.67 ± 6.4 2.74 ± 2.9 0.43 ± 1.5 9.86 ± 4.35		
Number of natural teeth 22-32 10-19 1-9	141 (57.2) 24 (9.7) 21 (8.5)		

*p<0.05= Statistically significant

Table 1 Description of the study population and their oral health status.

The distribution of MNA scores in relation to gender, age and dentate status. The mean MNA score of the study sample was 9.5 ± 3.4; 23.6% were malnourished, 54.6% were at risk of malnutrition and 21.8% were adequately nourished. So, 78.2% of the subjects showed nutritional deficit. Higher mean MNA score was found in women as compared to the men (p < 0.05). There was no statistically significant difference between various groups of age, dentition status and Number of natural teeth in relation to MNA scores. Pearson's correlation coefficient showed a strong association between total GOHAI and MNA scores (r = 0.178, p = 0.038). (Table 2)

Discussion

In the present study it was found that the elderly with poor perception of their oral health also had a lower MNA score. In fact, more than 75 % of the individuals classified by MNA results as malnourished required dental care according to their GOHAI score. Similar results were found in other studies conducted in Spain and Brazil where oral health-related quality of life (OHRQoL) was found to be associated with malnutrition risk in the elderly.[7,8] In a recent study conducted in Karnataka, India, strong association was found between the mean GOHAI and MNA scores was found.[9] However, in another study conducted by Allen no association was found between nutritional status and oral health perception.[10]

Limitation of the study were the smaller sample size and the cross sectional nature on the basis of which a causal relation between nutritional status and OHRQoL could not

be explained. Therefore longitudinal studies on larger sample size are required to further address the issue.

In conclusion, GOHAI was strongly associated with the malnutrition risk in elderly evaluated by using MNA tool. There is a need to ensure that the overall balance of the diet is not impaired because of the state of the dentition. A combination of poor oral health status and unfavourable results for OHRQoL items should alert dental professionals to the possibility of nutritional problems, especially in a population as vulnerable as the elderly.

Variables	Malnourished n (%)	At risk n (%)	Normal n (%)	MNA score, Mean ± SD
Gender Male Female	18(7.2) 58(23.4)	147(59.5) 129(52.5)	82(33.3) 60(24.1)	9.9±2.1 11.4 ±2.3 P=0.014
Age 60-65 66-70 71-75 76-80 >80	39(15.8) 37(15.1) 51(20.6) 37(14.8) 30(12.1)	149(60.2) 107(43.6) 129(52.3) 125(50.7) 161(65.3)	59(24) 103(41.7) 67(27.1) 85(34.5) 56(22.6)	9.4±3.2 11.6±2.3 9.8±2.4 10.6±2.1 9.7±2.3 P=0.613
Dentition status Dentate Edentulous	41(16.7) 43(17.3)	134(54.2) 125(50.5)	72(29.1) 79(32.2)	9.7±2.4 10.2±2.1 P=0.61
Number of natural teeth 22-32 10-19 1-9	35(14.2) 39(15.7) 69(28.1)	132(53.4) 160(64.7) 137(55.3)	80(32.4) 48(19.6) 41(16.6)	10.6±2.1 9.3±2.4 8.9±3.1 P=0.243

*p<0.05= Statistically significant

Table 2 Distribution of MNA results within gender, age groups and dental status.

References

1. United Nations Population Division. World Population Prospects: The 2002 Revision,New York, NY, USA: United Nations; 2003.
2. World Health Organization. Active Ageing: a Policy Framework. Geneva, Switzerland :WHO; 2002
3. Principles, definitions and dimensions of the new nutritional science, Public Health Nutrition 8 (6A), 695-698.
4. Atchinson KA, Dolan TA. Development of the Geriatric Oral Health Assessment Index. J Dent Educ. 1990;54(11):680-7.
5. Chandra RK, Imbach A, Moore C, Skelton D, Woolcott D. Nutrition of the elderly. CMAJ 1991;145(11):1475–1487.
6. Palmer CA. Gerodontic nutrition and dietary counselling for prosthodontic patients. Dent Clin North Am 2003;47(2):355-371.
7. Gil-Montoya JA, Subira C, Ramon JM, Gonzalez-Moles MA. Oral health-related quality of life and nutritional status. J Public Health Dent 2008;68(2):88-93.

8. Mesas AE, Andrade SM, Cabrera MA, Bueno VL. Oral health status and nutritional deficit in noninstitutionalized older adults in Londrina, Brazil. Rev Bras Epidemiol 2010;13(3):434–445.

9. Kshetrimayum N, Reddy CV, Siddhana S, Manjunath M, Rudraswamy S, Sulavai S. Oral health-related quality of life and nutritional status of institutionalized elderly population aged 60 years and above in Mysore City, India. Gerodontology 2013;30(2):119-25.

10. Allen PF. Association between diet, social resources and oral health related quality of life in edentulous patients. J Oral Rehabil 2005;32(9):623–628.

Corresponding Author

Dr. Neha Agrawal
Senior Lecturer
Department of Public Health Dentistry
Dr Z A Dental College,
Aligarh Muslim University,
Aligarh, Uttar Pradesh, INDIA.
Email id : dr.n_agrawal@yahoo.co.in