Oral health care needs and provision for the impaired community-dwelling elderly

Hiroko Miura* Yumiko Arai** Makoto Kariyasu* Kiyoko Yamasaki***

Abstract

The aims of the present study were to (1) examine the discrepancy between the oral health care needs and provision for impaired community-dwelling elderly individuals receiving home care, and (2) investigate the relationship between providing oral health care at home and caregiving factors among family caregivers. Subjects were 148 pairs comprising a community-dwelling elderly individual requiring care and his or her family caregiver. Survey items for the impaired elderly concerned demographic variables, the need for oral health care to be provided by another person, subjective general health status, and expressive or receptive language ability. Survey items for family caregivers concerned demographic variables, the provision of oral health care, hours per day spent providing care, hours per day caregivers can be relieved, duration of caregiving, and caregiver burden. Oral health care needs and provision showed low statistical agreement (kappa value=0.058, 95% confidence interval = -0.197-0.080). The provision of oral health care was significantly related to hours spent providing care ($P<0.05$), hours caregivers can be relieved ($P<0.01$), and duration of caregiving ($P<0.05$). These findings suggest that the provision of oral health care at home is not dependent on oral health care needs of the impaired elderly.

Key words : oral health care, impaired elderly, home care, family caregiver

Introduction

The elderly population, as well as the number of dependent elderly individuals, is steadily increasing in many developed countries including Japan[1]. Those unable to live independently at home are being cared for in a range of settings and the varying degree of dependency among them means that many are unable to attend fully to all of their needs, which can include oral care. It is necessary to maintain a clean oral environment for the proper chewing, swallowing, and digestion of food as well as for verbal communication; therefore, maintenance of oral hygiene is physiologically and psychologically important[2]. Nevertheless, it is difficult for impaired community-dwelling elderly individuals with physical and/or cognitive problems to clean the oral cavity, including teeth and gingiva, by themselves.

Some recently published studies have reported that oral health care greatly contributes to the prevention of aspiration pneumonia in impaired elderly individuals, by decreasing colonization of the oral cavity[3,4]. Typically, oral health care for institutionalized elderly individuals is provided by health or welfare professionals, such as dental hygienist, nurses or other care staff. However, oral health care for the impaired community-dwelling

*Department of Speech Therapy, Faculty of Health Science, Kyushu University of Health and Welfare, Miyazaki, Japan
1714-1 Yoshino-cho, Nobeoka,Miyazaki, 882-8508 JAPAN
**Department of Gerontological Policy, National Institute for Longevity Science, Aichi, Japan
***Department of Welfare Environmental Management, Faculty of Social Welfare, Kyushu University of Health and Welfare, Miyazaki, Japan

elderly is primarily provided by family caregivers. The quality of oral health care provided in home care is greatly dependent upon caregiving factors among family caregivers, including caregivers' feelings of mental and physical burden[5, 6]. Thus, it is possible that the proportion of elderly individuals receiving oral health care at home is lower than the proportion receiving oral health care in nursing institutions. Furthermore, the level of oral health care provided in home care may be unsatisfactory. However, few studies have reported a relationship between the oral health care needs of impaired community-dwelling elderly individuals and the quality of oral health care provided by their family caregivers.

In order to improve the quality of care, it is very important to investigate discrepancy between the oral health care needs and provision for impaired community-dwelling elderly individuals. Thus, the present study was conducted in order to (1) examine the discrepancy between elderly individuals' oral health care needs and provision for impaired community-dwelling elderly individuals receiving home care in home care, and (2) investigate the relationship between the provision of oral health care in home care and caregiving factors among family caregivers.

Subjects and Methods

Subjects

The present survey was conducted from October 2003 to February 2004 in Miyazaki prefecture located southern area of Japan. The study protocol was approved by the Institutional Review Board of Kyushu University of Health and Welfare. In the first stage of the study, we randomly selected 180 impaired elderly persons (60 males, 120 females) who were older than 65 years and were residing in the community with their family. In the second stage, all impaired elderly individuals and their family caregivers were sent a letter explaining the objectives and protocol of the present study. Informed consent to participate in the present study was obtained from 148 pairs (response rate, 82.2%). All family caregivers who declined to participate in the present study cited a lack of time in their schedules as the reason.

Measurements

For the impaired elderly individuals, the following items were examined using an interview survey: age, gender, the need for oral health care to be provided by another person, subjective general health status, and expressive or receptive language ability. The need for oral health care to be provided by another person was determined based on whether the impaired elderly required some help from caregivers in order to clean their teeth and oral cavity, and it was evaluated according to binary categories ('completely independent', and 'partially or completely dependent'). In the present study, those subjects who were partially or completely dependent with respect to oral health care were considered as the impaired elderly in need of oral health care.

Subjective general health status was evaluated according to the binary categories 'satisfactory' or 'unsatisfactory' based on some previous studies[7, 8]. Receptive and expressive language ability, which are two major factors related to verbal communication, were each assessed on a 3-point ordinal scale (good, fair, and poor) according to a previous study[9].

Family caregivers were asked to complete a self-administered questionnaire consisting of items related to providing home care: age, gender, the provision of oral health care, hours per day spent providing care, hours per day caregivers can be relieved, duration of caregiving, and feelings of caregiver burden. The provision of oral health care was evaluated according to the binary categories 'provided' or 'not provided'. Caregiver burden was evaluated using the short version of the Japanese version of the Zarit Caregiver Burden Interview (J-ZBI_8), which has been demonstrated to have similar validity to the full version[10, 11]. Scores for the J-ZBI_8 range from 0 to 32, with higher scores indicating more severe caregiver burden.

Analyses

Bivariate analyses were performed using an unpaired t-test or Welch test, and a chi-square test. In addition, statistical agreement between the needs and provision of oral health care was examined by calculating a kappa

value. All statistical analyses were performed using SPSS ver. 12.0 (Chicago, USA).

Results

Tables 1 and 2 show the characteristics of the impaired elderly individuals and their family caregivers. For the 148 impaired elderly individuals (46 males, 102 females), the mean age was 80.4±8.4 years. For the principal family caregivers (40 males, 108 females), the mean age was 65.2±12.4 years. The proportion of impaired elderly individuals with a need for oral health care was 46.9%. However, only 26.4% of the community-dwelling elderly participants' home care included any oral health care.

Table 1. Characteristics of the impaired community-dwelling elderly individuals

(a)

Variable	Mean	SD	Median	IQR
Age	80.4	8.4	81.0	74.0-86.0

IQR: interquartile range

(b)

Variables	N	%
Gender		
Male	46	31.1
Female	102	68.9
Need for oral health care		
Present	70	47.3
None	78	52.7
Subjective general health		
Good	74	50.0
Not Good	74	50.0
Receptive language ability		
Good 113		76.4
Fair 18		12.2
Poor	17	11.5
Expressive language ability		
Good	113	76.4
Fair	17	11.5
Poor	18	12.2

Table 2. Characteristics of the family caregivers

(a)

Variable	Mean	SD
Age	65.2	12.4
Feelings of burden*	11.4	7.0
Hours spent providing care (h/day)	6.5	6.5
Hours caregivers can be relieved (h/day)	3.4	4.2
Duration of caregiving (years)	5.1	5.2

IQR: interquatile range

* evaluated using the J-ZBI_8

(b)

Variables	N	%
Gender		
Male	40	27.0
Female	108	73.0
Provision of oral care		
Present	39	26.4
None	109	73.6

Table 3 shows the relationship between the provision of oral health care and the health status of the impaired elderly. All physical factors of the impaired elderly showed no significant relationship with the provision of oral health care at home. In addition, the kappa value between the needs and provision of oral health care was 0.058, and the 95% confidence interval was 0.197-0.080.

Table 4 shows the relationship between the provision of oral health care and factors related to the care provided by family caregivers. The provision of oral health care was significantly related to hours spent providing care ($p<0.05$), hours caregivers can be relieved ($p<0.01$), and duration of caregiving ($p<0.05$). However, no significant relationship was observed between the provision of oral health care and caregiver burden.

Table 3. Relationship between the provision of oral health care and factors related to the health status of impaired community-dwelling elderly individuals

(a)

	Provision of oral health care		T value	P value
	Present (N=39)	None (N=109)		
Age	81.11±8.70	80.04±8.41	0.66	0.51

(b)

	Provision of oral health care		χ^2 value	P value
	Present (N=39)	None (n=109)		
Gender				
Male (N=46)	28.3%	71.7%	0.02	0. 88
Female (N=102)	25.5	74.5		
Need for oral health care				
Present (N=70)	28.6	65.6	0.40	0.52
None (N=78)	23.1	75.6		
General health status				
Good (N=74)	27.0	73.0	0.00	1.00
Not good (N=74)	25.7	74.3		
Receptive language ability				
Good (N=113)	26.5	73.5		
Fair (N=18)	27.8	72.2	0.09	0. 96
Poor (N=17)	23.5	76.5		
Expressive language ability				
Good (N=113)	26.5	73.5		
Fair (N=17)	23.5	76.5	0.09	0. 96
Poor (N=18)	27.8	72.2		

Table 4. Relationship between the provision of oral health care and factors related to the care provided by family caregivers (N=148)

(a)

	Provision of oral health care		T value	P value
	Present (N=39)	None (N=109)		
Age	65.92±10.73	65.01±12.96	-0.42	0.68
Feelings of burden	12.38±6.62	11.15±6.99	-0.96	0.34
Hours spent providing care (h/day)	8.90±7.55	5.27±5.35	-2.58	0.01
Hours caregivers can be relieved (h/day)	1.93±1.10	3.99±4.75	3.99	<0.01
Duration of caregiving	7.00±6.58	4.38±4.38	-2.55	0.03

(b)

	Provision of oral health care		χ^2 value	P value
	Present (N=39)	None (N=109)		
Gender				
Male (N=40)	17.5%	82.5%	1.63	0.20
Female (N=108)	29.6%	70.4%		

Discussion

Oral health care is an effective method for preventing aspiration pneumonia; therefore, oral health care is essential for improving the quality of care provided for impaired or disabled elderly individuals[12,13]. In home care in particular, maintaining oral health is largely dependent on caregiving conditions among family caregivers. The present findings indicate that the provision of oral health care does not depend on elderly individuals' oral health care needs.

In the present study, almost half of the impaired elderly subjects needed another person to provide oral health care in order to compensate for limitations in hand function and dexterity, which reduced the physical ability to clean the oral cavity. These subjects have a higher risk for the accumulation of oral bacteria[14]. Furthermore, impaired elderly individuals frequently show a decline in overall immune function[15]; therefore, the risk of aspiration pneumonia is greatly increased in the impaired elderly who are provided with poor oral health care. Nonetheless, the present findings indicate that the provision of oral health care was not significantly consistent with the needs of the elderly individuals. The present study did not elucidate the cause of this serious discrepancy; however, some previous investigations have reported one cause to be family caregivers' unsatisfactory knowledge of oral health care[16-18]. Thus, future research will be needed to examine the actual cause of this gap.

Furthermore, the provision of oral health care was significantly related to certain caregiving factors, such as hours spent providing care, hours caregivers can be relieved, and duration of caregiving; however, it was not significantly related with all physical factors of the impaired elderly. These findings indicate that the factors determining whether oral health care is conducted at home are primarily the caregiving situation of the family caregivers, not the physical condition of impaired elderly individuals.

The degree of caregiver burden is closely associated with the sustainability of care provided by family caregivers5. In the present study, feelings of burden were not significantly related to the provision of oral health care, thus we consider that providing oral health care was not directly associated with increasing feelings of burden.

The present study has several methodological limitations. For example, insufficient information was collected regarding the disease history of each impaired elderly individual. In addition, the need for oral health care was determined only by hand function and dexterity because we did not determine the number of oral bacteria. Nevertheless, the present findings provide important information on the provision of oral health care for elderly individuals receiving home care.

In Japan, a rapid increase in the elderly population resulted in an unprecedented rise in the number of elderly individuals who require care. Thus, oral health care is gradually being actively adopted in a large number of elderly care facilities; however structured oral health care systems have been developed primarily for hospitals and nursing homes[19]. In contrast, in the community, there are few available oral health care resources. Therefore, it is necessary to develop home-based oral health care that corresponds to the needs of community-dwelling elderly individuals in order to maintain or improve their oral and overall health status.

In conclusion, the provision of oral health care is dependent on factors related to the home care provided by family caregivers and is not consistent with the physical needs of elderly individuals. Also, the provision of oral health care is closely associated with certain caregiving factors, but not the physical condition of the community-dwelling impaired elderly individuals.

Acknowledgements

The present study was supported in part by a Grant in Aid for Scientific Research from the Japan Society for the Promotion of Science, and by Health Research Grants (Comprehensive Research on Aging and Health) from the Japanese Ministry of Health and Welfare.

References

1 Beaglehole R, Bonita R. Public health at the crossroads. Cambridge University Press, Cambridge, 2004.

2 Coleman P.: Improving oral health care for the frail elderly. Geriat. Nurs. 23: 189-197, 2002.

3 Yoneyama T., Yoshida M., Ohrui T., et al. : Oral care reduces pneumonia in older patients in nursing homes. J. Ame. Geriatr. Soc. 50:430-433, 2002.

4 Yoshino A., Ebihara T., Ebihara S., et al.: Daily oral care and risk factors for pneumonia among elderly nursing home patients. JAMA 286:2235-2236, 2001.

5 Miura H., Arai Y., Yamasaki K.: Feelings of burden and health-related quality of life among family caregivers looking after the impaired elderly. Psychiatry Clin. Neurosci. 59: 551-555, 2005.

6 Sumi Y., Nakamura Y., Nagaosa S., et al.: Attitudes to oral care among caregivers in Japanese nursing home. Gerodontology 18: 2-6, 2001.

7 Miura H., Arai Y., Sakano S., et al. : Subjective evaluation of chewing ability and self-rated general health status in elderly residents of Japan. Asia Pac J Public Health 10 : 43-45, 1998.

8 Haga H., Shibata H., Ueno M., et al. : Relationship of self-rated health to mortality among the community elderly. Jpn J Public Health 38 : 783-789 , 1991 (in Japanese).

9 Eto F., Tanaka M., Chishima M., et al. : Comprehensive activities of daily living (ADL) index for the elderly. Jpn J Geriatr 29:841-848, 1992 (in Japanese).

10 Arai Y., Kudo K., Hosokawa T., et al. : Reliability and validity of the Japanese version of the Zarit Caregiver Burden Interview. Psychiatry Clin. Neurosci. 51: 281-287, 1997.

11 Kumamoto K., Arai Y.: Validation of 'personal strain' and 'role strain' : Subscales of the short version of the Zarit Burden Interview (J-ZBI_8). Psychiatry Clin. Neurosci. 58: 606-610, 2004.

12 Coleman P.C.: Opportunities for nursing-dental collaboration: Addressing oral health needs among the elderly. Nurs. Outlook 53: 33-39, 2005.

13 Helf M.W., Gilbert G.H., Shelton B.J. et al. Relationship of dental status, and oral symptoms to perceived need for dental care. Community Dent. Oral Epidemiol . 31: 351-360, 2003.

14 Felder R., James K., Brown C., et al. : Dexterity testing as a predictor of oral health ability. J .Ame. Geriatr. Soc. 42: 1081-1086, 1994.

15 Miller R.A.: The cell biology of aging: immunological models. J. Gerontol. 44: 4-8, 1989.

16 Fitzpatrick J.: Oral health care needs of dependent older people: responsibilities of nurses and care staff. J Adv. Nurs. 32: 1325-1332, 2000.

17 Rachel A.: Qualified nurses lack adequate knowledge related to oral health, resulting in inadequate oral care of patients on medical wards. J. Adv. Nurs. 24: 552-560, 1996.

18 Preston A.J., Punekar S., Gosney M.A.: Oral care of elderly patients: nurses' knowledge and view. Postgrad Med. J. 76: 89-91, 2000.

19 Sumi Y., Nakamura Y., Michiwaki Y.: Development of a systemic oral care program for frail elderly person. Spec. Care Dent. 22: 151-155, 2002.

在宅要介護高齢者における口腔ケアのニーズと実施状況

三浦　宏子*　荒井　由美子**　苅安　誠*　山崎　きよ子***

*九州保健福祉大学保健科学部言語聴覚療法学科
**国立長寿医療センター研究所政策科学研究部
***九州保健福祉大学福祉学部福祉環境マネジメント学科

要旨

本研究の目的は、在宅要介護高齢者の口腔ケアのニーズと実施状況の実態を明らかにし、在宅での口腔ケア実施に影響を及ぼす要因を明らかにすることである。対象者は、宮崎県延岡市内に居住する在宅用介護高齢者とその家族介護者148組である。まず、横断調査の手法を用いて、日常生活機能の低下状況から求めた口腔ケアニーズと、実施状況との関連性について調べた。その結果、両者の統計的一致度は低く、ニーズに見合った口腔ケアは実施されていなかった。次に、口腔ケアの実施状況に影響を及ぼす要因を調べたところ、口腔ケアの実施状況は、家族介護者の1日あたりの介護時間等の介護・福祉的要因と有意な関連性を示したが、要介護高齢者の身体的健康に関連する項目とは有意な関連性を示さなかった。

キーワード：口腔ケア，要介護高齢者，在宅ケア，家族介護者