

activities of daily living (ADL) impacts quality of life (QOL) in patients with intractable neurologic diseases.² Such patients are likely to feel anxious about their future functional state as affected by the disease, as well as socioeconomic implications of an anticipated long illness. Thus, improvement or maintenance of QOL should be a major aim in management of neurodegenerative diseases.

Some studies have concluded that psychological adjustment to chronic illness is associated more strongly with health-related QOL (HRQOL) than disease severity.^{3,4} In general, psychosocial intervention can contribute importantly to psychological adjustment and QOL, although little assessment of effectiveness of such efforts has been carried out in spinocerebellar degeneration.

Professional coaching is an ongoing relationship that aids people in achieving extraordinary results in their lives, careers, businesses or organizations. Through this process, clients deepen their learning, improve their performance, and enhance their QOL.⁵

Benefits from coaching have been reported in various medical conditions such as diabetes mellitus,⁶ hyperlipidaemia,^{7,8} depression,⁹ cancer-related pain¹⁰ and urinary problems.¹¹ In these previous reports, outcomes were assessed in terms of disease severity rather than QOL, using variables such as serum haemoglobin A_{1c},⁶ cholesterol,^{7,8} Beck Depression Inventory scores,⁹ pain scale scores,¹⁰ and Bladder Function Questionnaire scores.¹¹ Assumed bases for effectiveness of coaching were promotion of self-management⁶ and adherence to treatment regimens,⁷ as well as assistance to patients in interacting effectively with their physicians, negotiating mutually acceptable treatment plans, and attaining a greater sense of self-efficacy.¹⁰ Coaching intervention in neurodegenerative diseases, however, has not been studied.

To examine the feasibility and effectiveness of a coaching intervention in enhancing psychological adjustment and QOL for patients with spinocerebellar degeneration, we carried out a pilot study with a randomized controlled design. Coaching by telephone was adopted for the convenience of participants with difficulties in transportation.

Subjects and methods

Design

A randomized controlled design was used for this pilot study. For ethical reasons, coaching intervention also was undertaken for control group patients. Figure 1 shows a flowchart depicting design and implementation of the study.

Recruitment procedure

Study patients with spinocerebellar degeneration were recruited between 18 May 2004 and 3 February 2005 from patients managed at a university hospital neurology unit specializing in spinocerebellar degeneration care. Participants were men and women who met the following inclusion criteria: age 20–65 years; diagnosis of spinocerebellar degeneration at least six months before entry into the study; independent living in terms of basic ADL; and freedom from cognitive impairment (each cognitive score being at least 6 in the Functional Independence Measure)¹²; and freedom from psychiatric disorders such as depression, as evaluated by the patient's attending neurologist.

Eligible patients willing to participate were asked to meet with the principal investigator at the university hospital to obtain more information and to sign informed consent agreements that were approved by the ethics committee of Tohoku University Graduate School of Medicine. Participants were informed that the coaching intervention was neither treatment of the disease nor counselling, and that the coaches, though physicians, would not offer any medical advice.

Information on the registered patients was sent to the data centre, where randomization was done using a computer program that generates random numbers. Results of randomization were sent to the secretariat office and told to the participants after the first questionnaire was answered.

Enrolment was continued until accrual of the necessary number of participants, which was determined as follows. With primary outcome variables being subscores of SF-36 and NAS-J (see Outcome measures below), statistical analysis using a two-tailed *t*-test with a significance level of 0.05, a power level of 0.8, and an anticipated difference between experimental and control groups of one standard deviation, the required participant number was 12 per group, totalling 24.

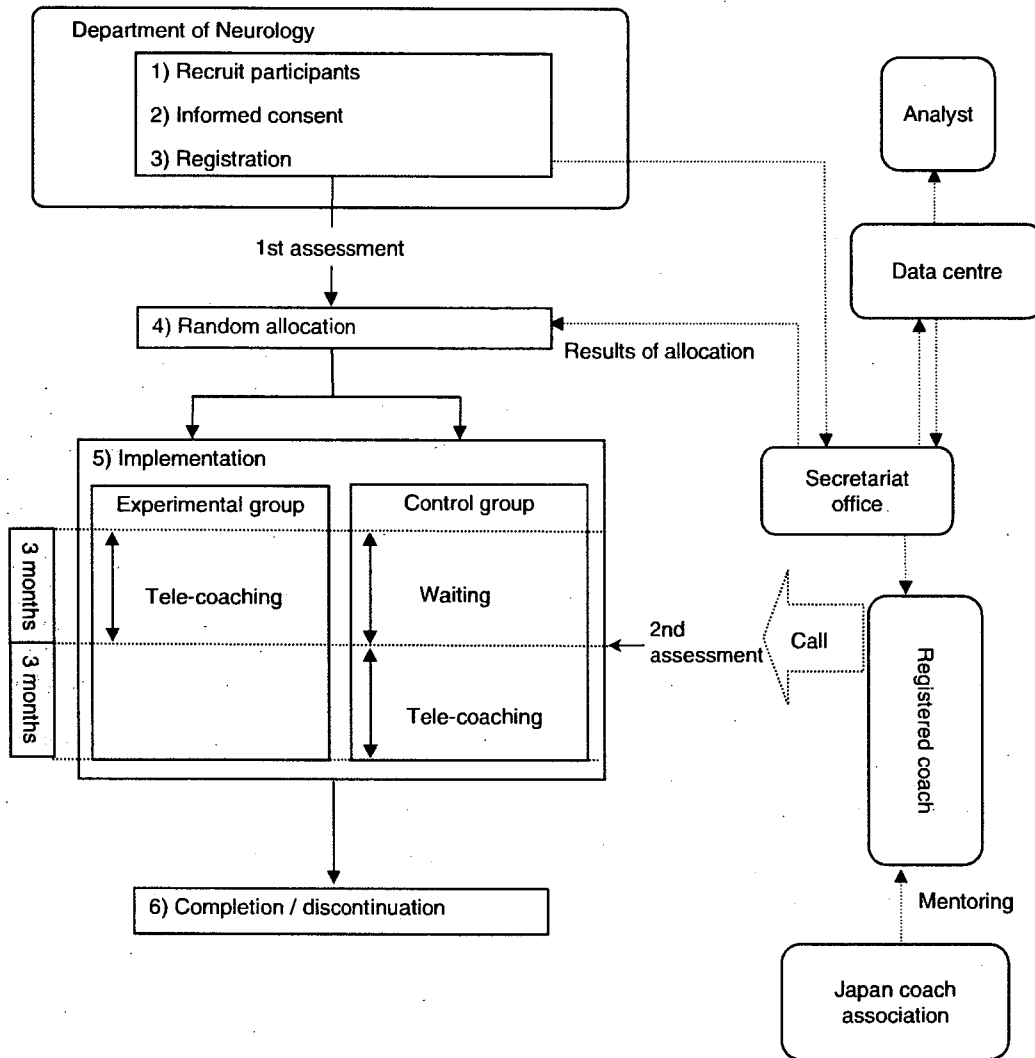


Figure 1 Study process flowchart. Of the 26 patients who met entry criteria and gave their informed consent, 24 completed the study. One candidate did not participate because of business matters; the other could not complete the study because of difficulties in holding the telephone receiver for more than 10 minutes. After random allocation to either the experimental or control group, a first assessment of main outcome measures was carried out for both groups, followed by notification of individual participants concerning the result of their group assignment. A second assessment was made after three months of tele-coaching for the experimental group, and after three months (but before their tele-coaching) for the control group. Patients in the experimental and control groups also completed a third questionnaire three months after T2 (not shown in the figure). Data from the third questionnaire are not included in this report.

Trial procedure

Eligible, consenting patients were registered and assigned to either the experimental group or

control group before they completed a first questionnaire (T1). Patients in the experimental group then undertook 10 coaching sessions over three

months as described below. Patients in this group completed a second questionnaire within one week after the end of the coaching intervention (T2).

Three months after T1, patients in the control group started the coaching sessions (10 sessions over three months). These patients completed a second questionnaire during the week before they began coaching intervention (T2).

Patients in the experimental and control groups completed a third questionnaire three months after T2. Data from the third questionnaire for the experimental group, which are not included here, will be analysed in future studies on long-term effects of the coaching intervention.

Outcome measures

Primary endpoints were HRQOL and psychological adjustment to illness. HRQOL was measured using a Japanese version of the Medical Outcomes Study Short-Form 36-Item Health Survey (SF-36).^{13,14} The SF-36 consists of 36 scored items, each representing one of eight domains: physical functioning (10 items); role limitations from physical health (role physical, 4 items); bodily pain (2 items); general health perception (general health, 5 items); vitality (4 items); social functioning (2 items); role limitations from emotional problems (role emotional, 3 items); and mental health (5 items). We used the SF-36 norm-based score, which recalibrates and standardizes subscale scores to a mean of 50 and a standard deviation of 10 in the 2002 general Japanese population, with a low score indicating poor health or great disability.

Psychological adjustment was measured by the Japanese version of the Nottingham Adjustment Scale (NAS), originally formulated in English by Dodds *et al.* in 1991¹⁵ as a scale for measuring variables involved in psychological adjustment to acquired visual impairment. This scale includes a total of 55 items divided into seven categories: 'anxiety/depression', measuring anxious and depressed feelings (12 items); 'self-esteem', measuring feelings of self-respect (9 items); 'attitude toward blindness', measuring positive feelings toward visually impaired persons (attitude, 7 items); 'locus of control', measuring the degree to which success or failure of rehabilitation is felt

to be determined by one's own actions (4 items); 'acceptance of sight loss', measuring degree to which current state of disability is accepted (acceptance, 9 items); 'self-efficacy', measuring degree of confidence in one's ability to carry out steps necessary for rehabilitation (8 items); and 'attributional style' measuring degree to which success is felt to depend on one's own ability rather than external determinants (6 items). Suzukamo *et al.*¹⁶ developed a Japanese version of the NAS (NAS-J) and confirmed its reliability and validity.

Scores for the Japanese version range from 0 to 100, with a higher score indicating a higher level of adjustment. Adaptations of the NAS-J to other disorders such as Parkinson's disease, stroke, osteoarthritis of the hip and pharyngeal cancer have been developed and shown to be reliable and valid.^{4,17,18} The present study used the NAS-J for spinocerebellar degeneration, which had not yet been validated. We confirmed the reliability coefficient of NAS-J summary score before data analysis using data collected from the first assessment in 24 participants who completed the study (Cronbach's $\alpha = 0.84$). The secondary outcome measure was ADL as measured by the Barthel Index,¹⁹ which rates 10 aspects of ADL with scores ranging from 0 (totally dependent) to 100 (totally independent).

Data were also collected from the medical records concerning demographic variables and clinical details.

Coaching intervention

The telephone coaching intervention used in this study was designed to help patients with spinocerebellar degeneration improve their performance through enhancing psychological adjustment to illness. Each coach made a telephone call (telecoaching) to assigned patients nearly every week, completing 10 coaching sessions over three months.

The process of coaching constituted of six steps: set-up, goal-setting, evaluation of present status, acknowledgement of the gap between the goal and the present status, action-planning to overcome the gap, and follow-up. These six steps were followed in each of 10 coaching sessions which lasted 15–30 minutes. Sessions 1 and 2

represented pre-coaching. In session 1 the patient and coach introduced each other, and the patient was encouraged to ask questions about coaching and about the study. Between sessions 1 and 2, and between sessions 2 and 3, a questionnaire was mailed to the patient for return to the coach upon its completion. The first of these concerned outlook and attitude regarding health status; personal and social interaction; and lifestyle. In session 2, while referring to the questionnaire, the coach talked with patients about what they wanted to accomplish in the next two years. The second questionnaire concerned the patient's ability to ask for help, express requests and feelings, and choose appropriate words. Each item had a four-response, Likert-type format with statements followed by replies ranging from 'strongly agree' to 'disagree'. In discussions during session 3, referring to the questionnaire, the coach assessed the patient's ability to communicate orally.

Each patient was coached by one of three physicians (a physiatrist, a haematologist or an ophthalmologist), all having practised for 19–21 years after graduation from medical school, having undergone coach training, and having themselves been coached by professional coaches certified by the International Coach Federation (ICF). Each of the three coaches received feedback from assigned patients after sessions 4 and 8 in the form of a 19-item evaluation concerning attitudes and skills of the coach using a five-response Likert-type format with replies ranging from 'strongly agree' to 'strongly disagree'.

To control quality of coaching interventions, weekly 15- to 30-minute telephone conferences were conducted among the coaches using a tele-conference system (Coach 21, Tokyo). In addition to the three physician coaches, two ICF-certified coaches participated in the telephone conference; one coach, a Master Certified Coach, mentored the physician coaches, and the other, a Professional Certified Coach, modulated the telephone conferences.

Analysis

Baseline demographic and clinical characteristics of control and experimental subjects were compared using unpaired *t*-tests for continuous data and chi-squared tests for categorical data.

A one sample *t*-test was used to compare baseline score in the SF-36 for the patients studied with normative data obtained in Japan.

Differences in change of scores from baseline (T1) to follow-up (T2) between control and experimental groups were assessed using analysis of variance (ANOVA), and analysis of covariance (ANCOVA), using baseline scores as a covariate.

Barthel Index scores were compared between experimental and control groups using the Mann-Whitney *U*-test at both T1 and T2. Differences in Barthel Index scores between T1 and T2 were assessed for the experimental group and for all subjects using Wilcoxon's signed-rank test.

The significance level was set at $\alpha < 0.05$. Statistical analysis was performed with the SPSS 13.0.1J software package (SPSS, Chicago, IL, USA).

Notes of conversations during each session were taken by each coach, although sessions were not recorded electronically. Qualitative analysis of the coaching logs will be reported elsewhere.

Results

Of the 11 women (mean age, 46.6 years; SD 12.8 years) and 15 men (mean age, 46.9 years; SD 11.6 years) who met entry criteria and gave their informed consent, one candidate did not participate because of business matters; another could not complete the study because of difficulties in holding the telephone receiver for more than 10 minutes. The other 24 participants completed the study.

All participants had dysarthria and ataxia, with no particular comorbidities recorded. Cognitive Functional Independence Measure scores were full in all patients. No change was made in patients' medical treatment during the study period.

All coaching sessions were completed, and all data including the SF-36 and NAS-J were collected successfully from the 24 participants. Although the patients had dysarthria, effective communication was achieved during tele-coaching sessions by having patients speak at their own pace and having coaches rephrase patients' words when necessary to confirm accurate understanding of what patients said.

Characteristics of the groups studied are summarized in Table 1. No statistically significant difference was evident in distribution of gender, age, or specific diagnosis between experimental and control groups.

Compared with normative data obtained in Japan, SF-36 subscores in the present participants were significantly lower for physical functioning (mean and SD: 31.1; 17.6), role physical (38.8; 11.6), general health (39.0; 7.4), social functioning (41.2; 15.0) and role emotional (43.1; 14.4). Differences from normative scores of 50 ranged from 6.9 to 18.9 points. In contrast, scores for bodily pain (51.7; 11.3), vitality (46.2; 10.8) and mental health (46.2; 11.4) were essentially similar to normative data.

Although SF-36 and NAS-J subscores did not differ significantly between experimental and control groups, the experimental group appeared to be more functionally impaired than controls (mean physical functioning, 27.0 and 35.2 respectively). The Barthel Index in the experimental group was lower than in the control group, but not significantly.

Scores of SF-36 and NAS-J for experimental and control groups at baseline (T1) and follow-up (T2) are summarized in Table 2. Two-way ANOVA (group \times time) showed main effects of time for vitality, anxiety/depression and locus of control scores to be statistically significant, while these variables improved over time in both experimental and control groups. However, no main effect of group or interaction effects between time and group were seen.

With baseline scores as a covariate, ANCOVA detected significant intergroup differences in

self-efficacy, indicating that the experimental group at follow-up (T2) had greater self-efficacy than the as-yet uncoached control group (T2; Table 3).

No statistically significant difference in Barthel Index was noted between experimental and control groups at follow-up (T2). Barthel Index at T2 did not differ significantly from that at T1 in either the experimental or control group.

Discussion

This small randomized trial provides preliminary evidence that carefully structured telephone coaching has the potential to improve psychological adjustment to illness in patients with spinocerebellar degeneration who are living independently in terms of basic ADL. The self-efficacy score in the experimental group was higher at follow-up (T2) than in the control group still awaiting coaching. Such tele-coaching has not been investigated in neurodegenerative diseases or other diseases representing movement disorders.

The ANCOVA results indicated that the coaching intervention enhanced self-efficacy in the experimental group. However, two-way ANOVA detected no interaction effect (i.e. no intervention effect), possibly because the difference in baseline scores between the two groups was not taken into account in the two-way ANOVA. The self-efficacy scores at baseline indeed differed between the experimental and control groups, although the difference fell short of statistical significance. In addition, small sample size in this study may have limited its ability to detect intervention effects by

Table 1 Characteristics of patients

	Experimental group (n = 12)		Control group (n = 12)	
Female	5	(42%)	5	(42%)
Mean age (SD)	48.3	(13.0)	47.3	(10.8)
Diagnosis				
Sporadic spinocerebellar degeneration	2	(16.7%)	3	(25.0%)
Autosomal dominant inherited	10	(83.3%)	8	(66.7%)
Others	0	(0.0%)	1	(8.3%)
Barthel Index: mean (SD)	95.5	(5.68)	99.2	(2.89)

Table 2 Scores for the Medical Outcomes Study Short-Form 36-Item Health Survey (SF-36) and Nottingham Adjustment Scale, Japanese version (NAS-J) in the experimental and control groups at baseline and follow-up

	Experimental group ^a		Control group ^a		Main effect of time		Main effect of group		Interaction effect	
	Baseline	Follow-up	Baseline	Follow-up	F	P-value	F	P-value	F	P-value
SF-36										
Physical functioning	27.0 (22.1)	28.0 (23.3)	35.2 (11.3)	36.3 (12.8)	0.25	0.621	1.36	0.256	0.00	0.987
Role physical	38.3 (12.0)	41.7 (19.8)	39.2 (11.8)	39.8 (14.1)	0.68	0.419	0.01	0.919	0.35	0.561
Bodily pain	48.6 (13.1)	53.0 (10.8)	54.9 (8.7)	54.8 (9.1)	1.66	0.211	1.05	0.316	1.77	0.197
General health	38.4 (8.5)	41.8 (9.6)	39.6 (6.3)	40.2 (6.9)	1.40	0.250	0.00	0.954	0.67	0.421
Vitality	47.5 (9.9)	51.5 (12.3)	44.9 (12.0)	48.4 (13.0)	5.00	0.036	0.40	0.534	0.02	0.898
Social functioning	43.9 (12.2)	46.7 (16.0)	38.5 (17.5)	40.6 (17.0)	0.85	0.367	0.96	0.337	0.01	0.917
Role emotional	43.1 (17.3)	43.5 (21.1)	43.1 (11.6)	48.4 (10.0)	1.68	0.208	0.17	0.684	1.28	0.270
Mental health	46.6 (11.8)	49.3 (11.7)	45.8 (11.5)	48.3 (12.3)	2.40	0.136	0.04	0.848	0.00	0.969
NAS-J										
Anxiety/depression	78.1 (22.1)	81.9 (23.9)	72.2 (19.1)	81.2 (16.0)	5.15	0.033	0.17	0.681	0.81	0.378
Self-esteem	51.6 (17.9)	50.0 (30.8)	45.3 (15.6)	55.8 (21.7)	1.11	0.305	0.00	0.975	2.02	0.170
Attitude	43.2 (18.6)	38.6 (24.8)	39.1 (17.7)	45.5 (20.4)	0.03	0.859	0.02	0.891	2.54	0.126
Locus of control	54.9 (17.2)	58.7 (11.3)	55.6 (18.9)	63.9 (19.9)	5.58	0.027	0.77	0.390	0.21	0.654
Acceptance	44.8 (17.5)	49.3 (26.4)	43.4 (22.2)	45.1 (17.2)	0.56	0.462	0.13	0.718	0.11	0.741
Self-efficacy	60.4 (25.5)	67.2 (20.5)	53.7 (21.9)	50.5 (19.3)	0.32	0.578	1.97	0.174	2.33	0.141

^aScores are shown as the mean, followed by SD in parentheses.

Table 3 Comparison of follow-up data at three months between experimental and control groups by ANCOVA using the baseline score as a covariate, in terms of effect of intervention

	Least-square mean (SE)		Multiple comparison
	Experimental group	Control group	P-value
SF-36			
Physical functioning	31.7 (3.18)	32.7 (3.18)	0.827
Role physical	42.2 (3.47)	39.3 (3.47)	0.563
Bodily pain	55.0 (2.16)	52.8 (2.16)	0.501
General health	42.1 (2.21)	39.9 (2.21)	0.494
Vitality	50.4 (2.43)	49.6 (2.43)	0.825
Social functioning	44.7 (3.70)	42.6 (3.70)	0.694
Role emotional	43.5 (3.10)	48.4 (3.10)	0.273
Mental health	49.0 (2.32)	48.6 (2.32)	0.925
NAS-J			
Anxiety/depression	79.7 (3.85)	83.4 (3.85)	0.506
Self-esteem	46.9 (6.17)	58.9 (6.17)	0.187
Attitude	36.7 (5.27)	47.3 (5.04)	0.162
Locus of control	58.9 (3.25)	63.7 (3.25)	0.312
Acceptance	48.9 (5.54)	45.6 (5.54)	0.675
Self-efficacy	65.1 (3.92)	52.7 (3.92)	0.037

SF-36, Medical Outcomes Study Short-Form 36-Item Health Survey; NAS-J, Nottingham Adjustment Scale, Japanese version.

two-way ANOVA, resulting in a difference in findings from those by ANCOVA. More participants would be needed in the future studies for more sensitive detection of effects of coaching intervention.

The means by which coaching produces a positive effect was not directly determined in this study. One possible explanation is that the coaches helped patients to produce fulfilling results in their personal and professional lives; another involves a psychological response shift representing a change in perception of health status. In addition, differences in vitality, anxiety/depression and locus of control scores between baseline and follow-up (without a group difference) could be explained by non-specific attention (i.e. a Hawthorne effect: patients might have felt comforted by additional attention from physicians). Better understanding of the process of the coaching intervention and reasons for effectiveness will require qualitative analysis.^{20,21}

Coaching intervention in this study was carried out by telephone. Telephone coaching as tele-rehabilitation has been reported by several authors,²²⁻²⁴ and telephone-based interventions are widely used in managing various medical

problems.²⁵⁻²⁹ In this study telephone calls from the coaches appeared to be a convenient form of intervention for spinocerebellar degeneration patients living relatively far from the university hospital.

Structured coaching in this study included telephone conferences among coaches, and feedback from patients to coaches. In the weekly telephone conferences, physician coaches were mentored by professional coaches. Physician coaches also received feedback from their assigned coaching patients. We believe that these procedures were useful in quality control of the coaching intervention. In addition to quality control, feedback from patients to coaches might have contributed to interactive communication between them, resulting in enhancement of self-efficacy.

Participants had slowly progressive neurologic disorders and lived independently in spite of their disabilities. Tele-coaching improved self-efficacy of patients without producing changes in HRQOL and ADL. Self-efficacy, defined as individuals' confidence or belief that they can perform a given action, is a salient predictor of enduring health behaviour change³⁰ that has been measured as a successful assessment tool in

Clinical messages

- Over three months, weekly coaching intervention by telephone can improve self-efficacy in spinocerebellar degeneration patients who live independently.
- Psychological adjustment of neurodegenerative diseases can be enhanced by coaching conversation, without causing changes in health-related quality of life or activities of daily living.

psychotherapy and behavioural modification programmes.³¹

Bandura³² devised a theory of self-efficacy that has been incorporated into rehabilitation, noting that a feeling of self-efficacy would not develop and emerge naturally. He stated that 'expectations of personal efficacy are derived from four principal sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states.' Specifically, performance accomplishments refers to personal mastering of a task; vicarious experience, to observing others perform threatening activities without adverse consequences; verbal persuasion, to leading a person to perform a task through suggestion; and physiological state, to the effect of states such as arousal or relaxation on performance. Tele-coaching might have facilitated these four processes through undetermined changes implemented by the patient as the main actor in his own life.

Our experimental subjects had somewhat lower Barthel Index scores than the control group, representing mild disabilities that would not necessarily offset coaching effects. Further studies may be necessary to determine whether tele-coaching is effective in more disabled patients, and also whether enhancement of self-efficacy by coaching can eventually improve HRQOL or maintenance of ADL when the duration of intervention and follow-up is extended.

Acknowledgements

We thank Professor Yasuto Itoyama, and also Masashi Aoki and Yusei Shiga (Department of Neurology, Tohoku University Graduate School

of Medicine), and Ms Seiko Sekimoto (intractable disease medical experts, Miyagi Medical Network for Neurological Intractable Disease) for assistance in recruiting spinocerebellar degeneration patients. We also thank Mr Mamoru Ito, Master of International Political Studies and Economics (Coach 21 Company, Tokyo) for mentoring during the coaching process using the teleconference system.

Some findings from this study were presented in June 2005 during the 42nd Annual Congress of the Japanese Association of Rehabilitation Medicine (Kanazawa, Japan).

This research was supported by a Grant-in-Aid for Scientific Research from the Ministry of Health, Labor and Welfare for fiscal year 2004 (Outcomes Research of Specific Diseases, Grant No. H14-44).

Competing interests

None declared.

References

- 1 Hirono N, Yamadori A, Kameyama M, Mezaki T, Abe K. Spinocerebellar degeneration (spinocerebellar degeneration): cognitive disturbances. *Acta Neurol Scand* 1991; **84**: 226–30.
- 2 Iizuka T, Ogata Y, Minowa M, Fujita T. A follow-up study on effects of ADL deterioration on QOL in patients with neurological intractable diseases. *Nippon Koshu Eisei Zasshi* 1999; **46**: 595–603.
- 3 Steptoe A, Mohabir A, Mahon NG, McKenna WJ. Health related quality of life and psychological wellbeing in patients with dilated cardiomyopathy. *Heart* 2000; **83**: 645–50.
- 4 Suzukamo Y, Ohbu S, Kondo T, Kohmoto J, Fukuhara S. Psychological adjustment has a greater effect on health-related quality of life than on severity of disease in Parkinson's disease. *Mov Disord* 2006; **21**: 761–66.
- 5 International Coach Federation. *The ICF Code of Ethics*. Accessed 6 September 2006 from: www.coachfederation.org/ICF/For+Current+Members/Ethical+Guidelines/
- 6 Sacco WP, Morrison AD, Malone JJ. A brief, regular, proactive telephone 'coaching' intervention for diabetes. Rationale, description, and preliminary results. *J Diab. Compl.* 2004; **18**: 113–18.

- 7 Vale MJ, Jelinek MV, Best JD, Santamaria JD. Coaching patients with coronary heart diseases to achieve the target cholesterol: a method to bridge the gap between evidence-based medicine and the 'real world' – randomized controlled trial. *J Clin Epidemiol* 2002; **55**: 245–52.
- 8 Vale MJ, Jelinek MV, Best JD *et al.* Coaching patients on achieving cardiovascular health (COACH). A multicenter randomized trial in patients with coronary heart disease. *Arch Intern Med* 2003; **163**: 2775–83.
- 9 Lynch TR, Morse JQ, Mendelson T, Robins CJ. Dialectical behavior therapy for depressed older adults. *Am J Geriatr Psychiatry* 2003; **11**: 33–45.
- 10 Oliver JW, Kravitz RL, Kaplan SH, Meyers FJ. Individualized patient education and coaching to improve pain control among cancer outpatients. *J Clin Oncol* 2001; **19**: 2206–12.
- 11 Dowd T, Kolcaba K, Steiner R. The addition of coaching to cognitive strategies: intervention for persons with compromised urinary bladder syndrome. *J Wound Ostomy Continence Nurs* 2003; **30**: 90–99.
- 12 Data management service of the Uniform Data System for medical rehabilitation and the Center for Functional Assessment Research. *Guide for use of the uniform data set for medical rehabilitation*, version 3.0. State University of New York at Buffalo, 1990.
- 13 Ware JE, Sherburne CD. The MOS 36-item Short-Form Health Survey (SF-36): I. Conceptual framework and item selection. *Med Care* 1992; **30**: 473–83.
- 14 Fukuhara S, Bito S, Green J, Hsiao A, Kurokawa K. Translation, adaptation, and validation of the SF-36 Health Survey for use in Japan. *J Clin Epidemiol* 1998; **51**: 1037–44.
- 15 Dodds AG, Bailey P, Pearson A, Yates L. Psychological factors in acquired visual impairment: the development of a scale of adjustment. *J Visual Impairment Blindness* 1991; **85**: 306–10.
- 16 Suzukamo Y, Kumano H, Iwaya T. Development and validation of 'The Nottingham Adjustment Scale Japanese Version' which measures psychological adjustment to the visual impairment. *Jpn J Psychosom Med* 2001; **41**: 610–18.
- 17 Koyama Y, Miyashita M, Kazuma K *et al.* Preparing a version of the Nottingham Adjustment Scale (for psychological adjustment) tailored to osteoarthritis of the hip. *J Orthop Sci* 2006; **11**: 359–64.
- 18 Yaguchi K, Kai I, Sato M, Suzukamo Y. Applicability of a modified Nottingham Adjustment Scale – Japan to the patients after laryngectomy. *J Jpn Acad Nurs Sci* 2004; **24**: 53–59.
- 19 Mahoney FI, Barthel DW. Functional evaluation; the Barthel Index. *Md State Med J* 1965; **14**: 61–65.
- 20 Wittemore R, Chase SK, Mandle CL, Roy SC. Lifestyle change in type 2 diabetes: a process model. *Nurs Res* 2002; **51**: 18–25.
- 21 Kawa M, Kayama M, Maeyama E *et al.* Distress of inpatients with terminal cancer in Japanese palliative care units: from the view point of spirituality. *Support Care Cancer* 2003; **11**: 481–90.
- 22 Ricker JH, Rosenthal M, Garay E *et al.* Telerehabilitation needs: a survey of persons with acquired brain injury. *J Head Trauma Rehabil* 2002; **17**: 242–50.
- 23 Savard L, Borstad A, Tkachuk J, Lauderdale D, Conroy B. Telerehabilitation consultations for clients with neurologic diagnoses: cases from rural Minnesota and American Samoa. *NeuroRehabilitation* 2003; **18**: 93–102.
- 24 Egner A, Phillips VL, Vora R, Wiggers E. Depression, fatigue, and health-related quality of life among people with advanced multiple sclerosis: results from an exploratory telerehabilitation study. *NeuroRehabilitation* 2003; **18**: 125–33.
- 25 McBride CM, Rimer BK. Using the telephone to improve health behavior and health service delivery. *Patient Educ Couns* 1999; **37**: 3–18.
- 26 Estey AL, Tan MH, Mann K. Follow-up intervention: its effect on compliance behavior to a diabetes regimen. *Diabetes Educ* 1990; **16**: 291–95.
- 27 Piette JD, Weinberger M, McPhee SJ, Mah CA, Kraemer FB, Crapo LM. Do automated calls with nurse follow-up improve self-care and glycemic control among vulnerable patients with diabetes? *Am J Med* 2000; **108**: 20–27.
- 28 Weinberger M, Kirkman MS, Samsa GP *et al.* A nurse coordinated intervention for primary care patients with non-insulin-dependent diabetes mellitus: impact on glycemic control and health-related quality of life. *J Gen Intern Med* 1995; **10**: 59–66.
- 29 Whitlock WL, Brown A, Moore K *et al.* Telemedicine improved diabetic management. *Military Med* 2000; **165**: 579–84.
- 30 Bandura A. *Self-efficacy: the exercise of control*. Freeman, 1997.
- 31 Berarducci A, Lengacher CA. Self-efficacy: as essential component of advanced-practice nursing. *Nurs Connect* 1998; **11**: 55–67.
- 32 Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev* 1977; **84**: 191–215.

(2) 学会発表

- 1) 曾根稔雅, 牛 凱軍, 中谷直樹, 大森 芳, 東口みづか, 柿崎真沙子, 寶澤 篤, 栗山進一, 辻 一郎.
高感度C反応性蛋白レベルと介護保険認定・死亡リスクに関する前向きコホート研究：鶴ヶ谷プロジェクト.
第18回日本疫学会総会, 東京, 2008年.
- 2) 田邊素子, 鈴鴨よしみ, 辻 一郎, 出江紳一.
介護予防ケアマネジメントにおけるコーチング技法の応用について.
第7回みやぎ地域リハビリテーション懇話会学術集会, 仙台, 2007年.
- 3) 小坂 健.
自立した老後を迎えるために今できること.
東北歯学会, 仙台, 2007年. (抄録印刷中)
- 4) 野口有紀, 相田 潤, 丹田奈緒子, 山田雄大, 小川裕平, 天野一字, 伊藤恵美, 小関健由, 小坂 健.
通所介護施設のサービス利用者における基本チェックリスト口腔関連項目と歯科医療ニーズとの関連.
第56回日本口腔衛生学会総会, 東京, 2007年.
- 5) 相田 潤, 森田 学, 安藤雄一, アクター・ラヘナ, 小坂 健.
3歳児う蝕有病者率の社会経済的状態に関連する地域格差は拡大傾向にある.
第56回日本口腔衛生学会総会, 東京, 2007年.
- 6) 野口有紀, 相田 潤, 丹田奈緒子, 山田雄大, 小川裕平, 天野一字, 伊藤恵美, 小関健由, 小坂 健.
要介護高齢者の義歯装着・喫煙経験年数および薬剤の服用の関係について.
第19回日本口腔衛生学会東北地方会, 仙台, 2007年.
- 7) 小齋 薫, 相田 潤, 伊藤恵子, 岡村圭子, 渋谷得江, 小坂 健, 小関健由.
名取市における3歳児のう蝕要因に関する調査結果の解析.
第19回日本口腔衛生学会東北地方会, 仙台, 2007年.
- 8) 相田 潤, 野口有紀, 丹田奈緒子, 山田雄大, 小川裕平, 天野一字, 伊藤恵美, 小関健由, 小坂 健.
通所介護施設での通所サービス利用者の歯科医療ニーズについて.
第19回日本口腔衛生学会東北地方会, 仙台, 2007年.

PP048

高感度 C 反応性蛋白レベルと介護保険認定・死亡リスクに関する前向きコホート研究： 鶴ヶ谷プロジェクト

曾根稔雅¹、牛 凱軍²、中谷直樹¹、大森 芳¹、東口みづか¹、柿崎真沙子¹、
寶澤 篤³、栗山進一¹、辻 一郎¹
¹東北大学大学院医学系研究科公衆衛生学分野、²同運動学分野、
³滋賀医科大学社会医学講座福祉保健医学

【目的】 C 反応性蛋白 (CRP) は炎症マーカーであり、動脈硬化進行に関連し、循環器疾患発症リスクを高めることが知られている。CRP レベルと生活機能、運動能力との関連は、先行研究において負の関連が報告されているが、多くは横断研究に過ぎない。

本研究の目的は、70 歳以上の地域住民を対象として、CRP レベルと介護保険認定・死亡リスクとの関連を前向きコホート研究により明らかにすることである。

【方法】 2003 年 7 月に 70 歳以上の仙台市宮城野区鶴ヶ谷地区に在住する全対象者に寝たきり予防健診の受診勧奨を行った。調査項目は血液検査 (CRP 等)、疾患既往歴、生活習慣、認知機能検査 (Mini-Mental State Examination)、運動機能測定等であった。

解析対象者は介護保険利用の追跡調査に同意した受診者 927 名から、受診時すでに介護保険認定を受けていた者、採血データの欠損者、高感度 CRP 値が 10.0 mg/l 以上の者を

除外した 812 名 (27.3%) とした。

2006 年 6 月末までの 3 年間の追跡調査より、介護保険認定者 109 名、死亡者 31 名から重複者を除いた合計 127 名の介護保険認定・死亡者を確認した。統計解析は Cox 比例ハザードモデルを用い、高感度 CRP レベル最低 3 分位群に対する各群の多変量補正相対危険度 (95%信頼区間) を算出した。

【結果及び考察】 最低 3 分位群を基準とした最高 3 分位群の多変量補正相対危険度は 1.70 (1.09-2.66) で有意に上昇し、有意な量-反応関係が示された (P for trend=0.001)。また、CRP レベルを 4 分位に分類しても結果は変わらなかった。さらに、男女で層別化した結果、男性においてこの関連は顕著となり、女性では消失した。

以上の結果より、高感度 CRP レベル高値者では介護保険認定・死亡リスクが高まり、その関連は特に男性において顕著であることが示された。

Table. Hazard ratios (HRs) of long-term care insurance certification or mortality according to high-sensitive C-reactive protein (CRP) levels

Men and women (n=812)				
	Tertile of high-sensitive CRP levels (mg/l)			P for trend
	T1 (0.02-0.31)	T2 (0.32-0.61)	T3 (0.62-9.56)	
Person-years of follow-up	757	763	733	
Long-term care insurance certification or mortality				
No. of cases	37	30	60	
Multivariate adjusted HR (95% CI)	1.00 (reference)	0.80 (0.49-1.30)	1.70 (1.09-2.66)	0.001
P-values	-	0.36	0.019	
Men (n=387)				
	T1 (0.03-0.42)	T2 (0.43-0.98)	T3 (0.99-9.10)	
Multivariate adjusted HR (95% CI)	1.00 (reference)	0.89 (0.39-2.01)	2.56 (1.23-5.34)	0.001
P-values	-	0.77	0.012	
Women (n=425)				
	T1 (0.02-0.36)	T2 (0.37-0.92)	T3 (0.93-9.56)	
Multivariate adjusted HR (95% CI)	1.00 (reference)	0.92 (0.50-1.70)	1.21 (0.65-2.24)	0.41
P-values	-	0.79	0.56	

Multivariate adjusted HR are adjusted for age (continuous variable), sex (men, women), smoking (never, former, currently smoking), history of cancer, myocardial infarction, stroke, and arthritis (presence, absence), bodily pain (severe to mild, very mild to none), body mass index in kg/m² (<18.5, 18.5-24.9, ≥25.0), HDL cholesterol in mg/dl (<40, ≥40), use of statin (yes, no), Mini-Mental State Examination score (≤23, ≥24), and maximum walking speed in m/sec (≤1.60, 1.61-1.87, ≥1.88). Numbers in parentheses are 95% confidence intervals (CIs).

B-8 地域包括支援センターの取り組み

加美町地域包括支援センター 相澤 育

元気で明るく、住み慣れた地域で生活していくために、どんな生活をしていけばいいのか。自分でしていくこと、地域として意識していくこと、行政がどのようにかわり、どんな場の提供ができるのか、日頃の事業を通して、地域リハビリテーションとは何かを考え、生活の中でどのように気づき実践していくかを考える。

B-9 介護予防マネジメントにおけるコーチング技法の応用について

東北大学大学院医学系研究科肢体不自由分野 田邊 素子
東北大学大学院医学系研究科肢体不自由分野 鈴鴨よしみ
東北大学大学院医学系研究科公衆衛生学分野 辻 一郎
東北大学大学院医学系研究科肢体不自由分野 出江 紳一

介護予防ケアマネジメントでは意欲を引き出し、本人が望む生活の目標を明らかにしたサービス選定が強調されている。しかし、身体・生活状況の評価は確立されているが、本人の意欲を引き出す方法については明らかではない。今回、我々は「コーチング」の技法が意欲を引き出す上で有効ではないかと考え、Y市の地域包括支援センターの保健師にコーチングに関する研修を行いその効果を調べる取り組みについて報告する。

B-10 高齢者保健福祉サービスガイド作成による適切なサービス利用とサービス事業者間のネットワーク形成

柴田町地域包括支援センター 小梨 晃

介護保険法の改正により介護保険サービスが大きく変化し、介護保険以外のサービスに対する利用ニーズも高くなっている。高齢者支援を行う関係者がフォーマル、インフォーマルサービスを理解し適切な支援を行うため、様々な高齢者サービス事業所へ働きかけ、サービスごとの部会が主体的にサービスガイド作成に取り組んだ。その結果、多くの関係きかんで活用され、作成の過程で既存、新規事業所間のネットワーク形成・強化につながった。

口演D 座長：村上 澄恵（宮城県健康推進課）

D-11 仕事から創れるもの

社会福祉法人 ゆうゆう舎 高橋 壮

障害者自立支援法により、各施設で就労支援をどのようにしていくかが、課題になっています。現場実習を受け入れていた事業所としての意見と、現在の障害者指定サービス事業所職員としての視点を合わせて、より良い支援の方法を検討してみたいと思います。

通所介護施設のサービス利用者における基本チェックリスト口腔関連項目と歯科医療ニーズとの関連

○野口有紀^{1,2)}, 相田 潤¹⁾, 丹田奈緒子²⁾, 山田雄大²⁾, 小川裕平²⁾, 天野一字²⁾, 伊藤恵美²⁾, 小関健由²⁾, 小坂 健¹⁾

¹⁾東北大学大学院歯学研究科国際歯科保健学分野, ²⁾東北大学大学院歯学研究科予防歯科学分野, ³⁾浜松歯科衛生士専門学校

要約：通所介護施設においてサービスを利用している者 96 名を対象に基本チェックリストの口腔関連項目と在歯数、反復唾液嚥下テスト、口呼吸の有無、歯科治療の必要性、義歯の有無、喫煙経験、薬剤服用の有無などの関連を調査した。その結果、歯科医療が必要な者が 7 割と半数を超え、歯科医療ニーズが高いことが示された。また、基本チェック項目の「お茶や汁物等でむせることがありますか」と、要歯科医療である項目である口呼吸 (OR=5.3, p=0.04)、歯周病 (OR=16.7, p=0.04) またはう蝕 (OR=31.1, p=0.027) のオッズが有意に高かった。これらの歯科医療ニーズ解消が、介護予防に必要な可能性が高いことが示唆された。(索引用語：通所介護施設サービス利用者、基本チェックリスト、歯科医療ニーズ)

口腔衛生会誌 57 (4), 2007

目的：

介護保険制度の地域支援事業においては特定高齢者施策として、要支援・要介護状態になるリスクが高いと考えられる虚弱高齢者に対して基本チェックリスト等を用いて判定し、介入を行うことで介護予防をはかることとなった。介護予防プログラムの 3 つの柱の 1 つが口腔機能の向上である。2007 年 4 月より選定基準の変更があり、基本チェックリスト 3 項目内の 2 項目と口腔状態の視診又は反復唾液嚥下テストにより、口腔機能の向上事業への参加が望まれる虚弱高齢者を選別する。基本チェックリストで抽出される高齢者は、口腔内の状態、義歯の使用や喫煙、薬剤服用状況など、口腔に関連する何らかの問題を抱えていると考えられるが、詳細は明らかではない。また、こうしたチェックリストではひっかからないが歯科医療のニーズを抱えている可能性もある。そこで本研究の目的は、通所介護施設を利用する高齢者を対象に、歯科医療ニーズの調査および、基本チェックリストの質問項目と関連する因子を分析することとした。

方法：

2007 年 2 月から 3 月にかけて、4 ヶ所の通所介護施設においてサービスを利用している者 96 名 (男性 39 名, 女性 57 名) を対象に調査を実施した。平均年齢は男性 77.5 (±9.5) 歳, 女性 79.8 (±7.5) 歳であった。基本チェックリストの口腔関連項目である「半年前に比べて固いものが食べにくくなりましたか」、「お茶や汁物等でむせることがありますか」、「口の渇きが気になりますか」と、現在歯数、口呼吸の有無、歯科

治療の必要性、反復唾液嚥下テスト、義歯の有無、喫煙経験、薬剤服用の有無などの関連を調べた。解析にはロジスティック回帰分析 (ステップワイズ法) を用いた。

結果：

歯科医療が必要な者は 68 人 (70.8%) だった。性、年齢を調整した上で、「食べにくくなりましたか」の質問では、喫煙経験がある者ほど食べにくくなったと回答したオッズが有意に高かった (OR=6.9, p=0.03)。「むせることがありますか」の質問では、口呼吸 (OR=5.3, p=0.04) 全部床義歯使用者に比べた部分床義歯使用者 (OR=0.004, p=0.016)、歯科治療が必要ない者に比べ歯周病治療 ((OR=16.7, p=0.04) またはう蝕治療 (OR=31.1, p=0.027) が必要な者のオッズが有意に高かった。薬剤の使用有無は、口腔乾燥には関連を示さなかった。

考察：

通所介護施設利用高齢者において、歯科医療が必要な者が 7 割と半数を超え、歯科医療ニーズが高いことが示された。誤嚥の機序と喫煙については、今後の更なる調査が必要である。虚弱高齢者を判定するためのチェック項目である「お茶や汁物等でむせることがありますか」と、口呼吸、歯周病またはう蝕の要歯科医療である歯科医療ニーズの関連が認められた。これら上記項目の歯科医療ニーズ解消が、介護予防に必要な可能性が高いことが示唆された。

3歳児う蝕有病者率の社会経済的状态に関連する地域格差は拡大傾向にある

○相田 潤¹⁾, 森田 学²⁾, 安藤雄一³⁾, アクターラヘナ⁴⁾, 小坂 健¹⁾

¹⁾東北大学大学院歯学研究科国際歯科保健学分野, ²⁾北海道大学大学院歯学研究科口腔健康科学講座予防歯科学教室, ³⁾国立保健医療科学院口腔保健部, ⁴⁾岡山大学大学院歯学研究科口腔保健学分野

要約：都道府県3歳児う蝕有病者率の10年間のデータを分析したところ、経済状態に基づく格差は拡大傾向にあった。
(索引用語：健康格差, 社会的決定要因, う蝕)

口腔衛生会誌 57 (4), 2007

緒言：

疾病は微生物や生理学的なメカニズム等により生じるものの、健康と社会経済的状态の関連は多くの疾病において知られている。こうした疾病の生物医学的な機序の引き金となってしまふ社会的な決定要因に立ち向かうことが「新たな公衆衛生運動」を巻き起こし、その戦略として、例えばオタワ憲章でヘルスプロモーションが示された。この公衆衛生の潮流の中で、Black reportをはじめとした多くの研究報告は、社会的決定要因に関連する健康格差が拡大しているのか、縮小しているのかを検討してきた。しかしこれまで、歯科疾患における社会的決定要因と関連した健康格差の推移に関する報告は少ない。

目的：

3歳児う蝕の社会経済的状态に関連した地域格差の推移を検討すること。

方法：

8020 推進財団地域歯科保健データベースより都道府県単位の3歳児う蝕有病者率および受診者数を得た。民力CD-ROM2003より1人当たりの県民所得のデータを得た。それらのデータを用いて、1991年から2000年までの10年間の Slope Index of Inequality (Preston et al. 1981) および Relative Index of Inequality (Pamuk 1988) を算出し、経年的な推移を

観察した。

結果：

図1は2000年単年度の所得に基づく3歳児う蝕有病者率の Slope Index of Inequality を示す。x軸は、1人当たりの県民所得の順位による都道府県ごとの累積3歳児受診者人口の割合を示す。y軸は、う蝕有病者率を示す。バルーンは各都道府県の3歳児健診受診者数を示す。モデル上の、所得が最低の仮想集団に比較して、所得が最高の集団ではう蝕有病者率が20.5%低いことを示している。図2は、各年度における所得に基づく3歳児う蝕有病者率の Relative Index of Inequality を示す。Relative Index of Inequality は、モデル上の所得が最低の集団と比較して最高の集団ではどれだけう蝕有病者率が低いのかの割合(%)を示す。1991年から1994年までは45%前後であったが、1997年から2000年には55%を超えており、所得に基づく格差が増大している傾向にあった。

考察：

これまで我々は3歳児う蝕の地域格差と社会的決定要因の関連を研究してきた。今回の経年推移の分析により、3歳児う蝕の所得に関連した健康格差は増大傾向にあることが示された。今後、先進諸国と同様に格差の減少が日本の健康政策にも盛り込まれていく必要があるだろう。

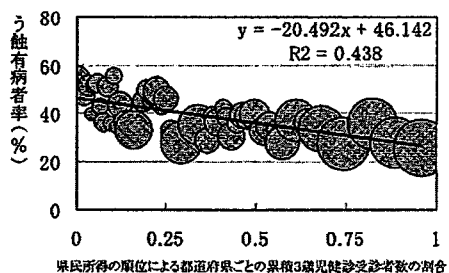


図1. う蝕有病者率の Slope index of Inequality (2000年)
(バルーンは各都道府県の3歳児健診受診者数を示す)

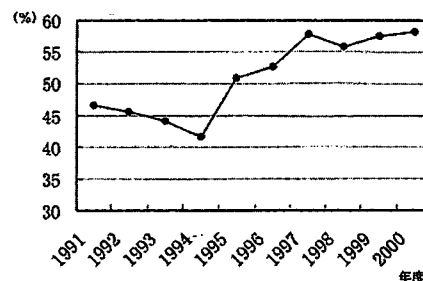


図2. う蝕有病者率の Relative Index of Inequality の経年推移

連絡先： 相田 潤 〒980-8575 宮城県仙台市青葉区星陵町4番1号 東北大学大学院歯学研究科国際歯科保健学分野
電話 022-717-7639(内線 7639) FAX 022-717-7644 e-mail: aidajun@mail.tains.tohoku.ac.jp

関連項目と、義歯・喫煙・薬剤服用状態との関連を質問紙を用いて調査した。対象者は通所介護実施施設での通所サービス利用者とした。男性 37 女性 52 名の計 89 名（男性 77.8 歳、女性 79.4 歳）が調査に参加した。全部床義歯使用者と比較して、部分床義歯使用者は食べにくいと回答しているオッズが有意に低く、機能訓練・義歯の調整などの歯科医療が必要だと思われた。また、喫煙と口腔機能の関連が示された。薬剤服用者は約 65% で、平均 4.3 種類の薬剤を利用していた。チェックリスト「半年前に比べて固いものが食べにくくなりましたか」の項目は、喫煙と義歯の使用が関連していた。今回の調査で薬剤内服と口腔機能との関係は明らかでなかったが、口渇の副作用がある薬剤との関連についてさらに検討していく必要がある。

P 6. 要介護高齢者の義歯装着・喫煙経験年数および薬剤の服用の関係について

野口 有紀^{1,4)}、相田 潤¹⁾、丹田奈緒子²⁾、山田雄大³⁾、小川 裕平³⁾、天野 一字³⁾、伊藤 恵美³⁾、小関 健由³⁾、小坂 健¹⁾（¹⁾東北大学大学院歯学研究科口腔保健発育学講座国際歯科保健学分野、²⁾東北大学病院附属歯科医療センター口腔育成系診療科予防歯科、³⁾東北大学大学院歯学研究科口腔保健発育学講座予防歯科学分野、⁴⁾浜松歯科衛生士専門学校）

本調査は、介護予防・地域支援事業で地域支援事業の対象者の選定に使われる基本チェックリストの口腔保健

P4. 名取市における3歳児のう蝕要因に関する調査結果の解析

小齋 薫^{1,2)}, 相田 潤³⁾, 伊藤 恵子²⁾, 岡村 圭子⁴⁾, 渋谷 得江⁴⁾, 小坂 健³⁾, 小関 健由¹⁾

(¹⁾東北大学大学院歯学研究科口腔保健発育学講座予防歯科学分野, ²⁾名取市歯科保健事業所, ³⁾東北大学大学院歯学研究科口腔保健発育学講座国際歯科保健学分野, ⁴⁾名取市健康福祉部保健センター)

3歳児の1人平均う蝕経験者率は都道府県ではかなりの地域差があり, さらなる乳幼児歯科保健の推進が求められている。この研究では名取市の3歳6か月児歯科健診を受診した児の口腔内状況とう蝕発生にかかわる生活環境・意識・行動の因子を質問紙調査し, さらに, 2歳児の希望者に対して実施しているシャカシャカ教室の参加児の行動変容も解析した。173名の調査対象児の調査から, う蝕経験の有無に関連する項目として, 「シャカシャカ教室の参加」「父母の喫煙」「歯磨剤の使用開始時期」「保健センター等での歯科保健指導」「甘い飲料の開始時期」が挙げられ, ロジスティック回帰分析からは, 「甘い飲料の頻度」が有意に関連することが示された。この項目を改善することが名取市の3歳児う蝕の罹患率を下げるうえで, 重要な歯科保健目標となる可能性とともに, 乳幼児期の親へのさらなる啓発活動の場が必要であることが示された。

科,³⁾東北大学大学院歯学研究科口腔保健発育学講座予
防歯科学分野)

高齢者においては、歯科医療ニーズを有している者が多数存在すると考えられ、またその解消は口腔機能の向上に結びつくものと考えられる。本研究の目的は、高齢者の歯科医療ニーズの実態の調査および、特定高齢者を把握するためのチェックリスト・反復唾液嚥下テスト(RSST)と歯科医療ニーズの関連を分析することである。2007年2月から3月にかけて、通所介護実施施設利用者を対象に、歯科医師による口腔内診査や生理的検査を行った。96名の通所介護実施施設利用高齢者(男性77.5歳、女性79.8歳)のうち、68人(70.1%)が歯科治療ニーズを有した。ロジスティック回帰分析により、虚弱高齢者を判定するためのチェック項目である「お茶や汁物等でむせることがありますか」と歯科医療である「義歯の調整・再製作」「う蝕治療」の2項目との有意な関連が認められた。歯科医療ニーズの解消が高齢者施策に必要であろう。

4. 通所介護施設での通所サービス利用者の歯科医療ニーズについて

相田 潤¹⁾、野口 有紀¹⁾、丹田奈緒子²⁾、山田雄大³⁾、小川 裕平³⁾、天野 一字³⁾、伊藤 恵美³⁾、小関 健由³⁾、小坂 健¹⁾ (¹⁾東北大学大学院歯学研究科口腔保健発育学講座国際歯科保健学分野、²⁾東北大学病院附属歯科医療センター口腔育成系診療科予防歯

厚生労働科学研究費補助金（長寿科学総合研究事業）
「効果的な介護予防ケアマネジメント技法の開発に関する研究」
（H18-長寿-一般-014）

平成 19 年度研究報告書（平成 20 年 3 月）

発行責任者	主任研究者 辻 一郎
発行	仙台市青葉区星陵町 2-1 東北大学大学院医学系研究科 社会医学講座公衆衛生学分野
	TEL 022-717-8123
	FAX 022-717-8125