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Long-term prognosis of psychogenic visual disturbances (PVD) in children following SAT therapy

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Abstract

OBJECTIVE: This paper aims to (i) evaluate long-term prognosis of PVD after Structured Association Technique therapy based on recurrence rate and changes in behavioral characteristics, and (ii) elucidate the factors that play a role in the recurrence of PVD.

METHOD: The targets of this study were 17 cases diagnosed with PVD. Ten children who recovered under SAT therapy (SAT) and 7 children who recovered under conventional therapy (C.T.) Their parents agreed to participate in the study and completed the self–administered questionnaire. The follow up survey for the medium-term prognosis study was conducted in July 2002, while the long-term prognosis study was implemented in July 2004.

RESULTS: The following findings were obtained. 1) Recurrent numbers for each method of therapy was 2 out of 7 patients (28.6%) in the conventional-type therapy group at the medium-term prognosis observation time point, whereas it was one case out of the 10 subjects (10.0%) in the SAT therapy group. There was no statistically significant difference noted. At the long-term prognosis observation time point, visual

disturbance recurrence was seen in 1 out of 5 patients in the conventional-type therapy group, whereas recurrence was not seen in the SAT therapy group. Therefore, in both groups a significant difference in visual disturbance recurrence was not seen even at the long-term prognosis observation time point. In the SAT therapy intervention group, scores of self-repression, emotional dependency, and trait anxiety that improved soon after intervention remained low even though there was a slight increase at the long-term prognosis observation time-point. Similarly, scores of self value and degree of awareness of mother's emotional support similarly remained high, though there was a slight drop. On the other hand, scores of self-repression, self-esteem, trait anxiety, and perceived emotional support hardly changed in the conventional-therapy group. In the PVD recurrent cases, it was confirmed that anxiety, self-repression, and emotional dependency were high though an improvement was temporarily seen, and self-value and degree of awareness of mother's emotional support were low, thus accompanying a change in psychological characteristics.

These results suggest that since psychological conflicts were behind the outset of PVD, therapy should not focus on resolving superficial issues such as visual disturbance, but should involve psychological interventions to find solutions to observed psychological conflicts.

1. Introduction

1.1 Aim

Psychogenic visual disturbances (PVDs) cause abnormal visual performance. For many years its cause was unknown, as was the explanation for the resulting poor vision. The incidence in pediatric ophthalmology patients is reported to be approximately 1% (Yokoyama, 1999)[1]. Recent development of imaging diagnostic technology has enabled the identification of reduced blood flow to the visual association area as a cause of PVD (Okuyama, Kawakatsu, Wada & Komatani, 2002)[2]

Somatization disorders such as those seen in children with PVD, arise as a result of stress revealing itself as a functional disorder of the body or a transformation of the conscious mind, without the patient being aware of it. Such disorders are often seen in children whose body and mind have not properly differentiated[3]. These children are said to have the tendency to relieve stress by converting it to a physical symptom rather than finding a solution psychologically, perceiving stress as stress[4].

The present authors have so far reported that children with PVD have stressful psychological characteristics such as a low self-esteem, high anxiety, and show self-repressive and emotional dependency characteristics[5]. It is widely known that such psychological characteristics accumulate stress, easily cause worry and anxiety, and trigger psychobiological reactions (interactive reactions involving the autonomous nervous system, endocrine system and the immune system)[6] due to suppression of feelings and desires without expressing them. Therefore it was thought that the physiological characteristic of building up stress influences the onset of PVD through such mechanisms.

Research reports relating to long-term prognosis of PVD are scarce, with only a few that center on eyesight observations[7-9] and extremely few case reports[10]. There are

hardly any reports on detailed long-term observation through active psychological intervention. The various therapeutic approaches to PVD are mostly psychological education and advice[11)-12)]. Conventionally, psychotherapies for PVD used approaches that tried to reach memories and experiences of psychological trauma in early childhood. However, many evidences which memories of latent psychological trauma experienced in the fetal stage are recently being revealed. Then,in the present study, a prognosis evaluation will be conducted using a new psychological intervention that tries to approach memories of latent psychological trauma experienced in the fetal stage. This paper aims to (i) evaluate long-term prognosis of PVD following Structured Association Technique therapy (SAT) [13)] based on recurrence rate and changes in behavioral characteristics, and (ii) elucidate the factors that play a role in the recurrence of PVD.

2. Method

2.1 Subjects

The targets of this study were 23 cases diagnosed with PVD at A University Hospital from April 1999 to March 2003; subjects with organic symptoms were excluded. The chosen subjects did not show improvement of eyesight during the observation period of at least two months or more prior to intervention and included cases with psychogenic abnormal visual fields and abnormal color vision. The subjects who finished their treatments at least one year before were recruited for this study. Informed consent was obtained from patients and parents prior to participation in the study.

2.2 The method of intervention and treatment termination criterion

2.2.1 Intervention by SAT therapy

Conventional psychotherapy focuses on unresolved issues from early childhood and

tries to raise awareness of the issues that reconstitute the mental attitude[14]. Recently Van den Bergh et al.[15], in their fetal programming hypothesis, reported that the degree of anxiety of the mother in the early gestation period is likely to hinder brain development of the baby and that this degree of anxiety correlates with childhood ADHD and height of anxiety[16]. They described that when the mother's degree of anxiety is high during this period, the mother's cortisol has an effect on the baby through the placenta and may affect development of the HPA system, limbic system, and prefrontal cortex[17]. In SAT theory, it thought that the presence of such pre-birth trauma makes it easy to draw out image memories accompanying aversion system affects, and that these mutual influences cause misinterpretations in reality perception. Thus SAT tries to work on memories of fetal life and infancy using emotions and body sensations as clues. Image memories of the fetal period that are unperceivable during normal consciousness are aroused using hypnosis-mediated fetal stage image induction from fetal sensations while expressing the emotions.

The main technique used in SAT therapy is to modify the self-image script. Hypothesizing first that through flashback on past problems the client is currently aware of, SAT tries to identify those negative experiences of the past. Then, in order to find positive meaning within the associated negative images, image script formation is done through re-learning, re-talking, re-imaging, re-acting and physical contact. As a result of these, SAT aims to secure a new self-image. These are several reports that a brain activation which is related to imagery similar to actual experiences was evident. Therefore, a similar consequence is obtained when imaging and when actually experiencing the same experience[18]. Thus SAT therapy considers the formation of a detailed and vivid image to be highly important.

In order to achieve this, SAT therapy centers on approaching latent,

unconscious traumatic memories in the child, changing the images associated with the negative feelings, and forming a reassuring image. Specifically, SAT (i) grasps strong traumatic feelings (terror of being abandoned, self-denial, sadness and sorrow) that the child is currently aware of, elucidates the voice within that expresses those feelings, clarifies the key circumstances that are common to these situations, and promotes the child to image such that the emotions of traumatic scenes of the past are temporarily awakened; (ii) during the emotion awakening, the child is made to recall images of the fetal period and infancy, including physical sensations; (iii) from the drawn out sensations, the child is helped to realize latent emotions and wants, and a desired scenario such as "what he/she really wanted" is created. Based on this scenario, a role-play is performed to change the images to parental images that the child considers to be soothing, and images of parents welcoming the pregnancy and delivery. At this time the therapist creates an image that satisfies the desire and craving for affection and employs the somatic communication method (physical contact method) with the child.

The method implemented in this study sets specific action goals for finding solutions to actual problems the child faces at the moment, conducts a rehearsal taking practical use of social skills, and assists the mental and physical growth of the child himself by actively supporting the solution of the real issues behind. This is done by enhancing the feelings of efficacy attained through solving problems by oneself. The duration of intervention per session was 30-40 minutes. At commencement, art therapy was done, making efforts to enhance the expression of inner feelings and rapport building. SAT therapy was then performed in 2-3 sessions. These interventions were performed by the authors who are qualified Orthoptists with adequate knowledge and experience in testing and treating patients in the fields of Ophthalmology and Orthoptic Correction, and who are also qualified image therapists approved by the Heath Counseling Society.

2.2.2 Conventional-type therapy

This is a treatment practiced by University A which mainly involves hypnotic eyeglass prescription, placebo eye-drop prescription, advice giving to parents to improve the environment, and so on, conducted by the 0phthalmologist in charge of the patient. This is a general method widely used in Clinical Ophthalmology. Environment improvement involves advising the young patients to stop attending several after-school cram schools (a habit which has become a burden), requesting the mother to stop over-possessiveness or excessive meddling, and such. The patient is not informed that the visual dysfunction is the result of stress.

2.2.3 The intervention and completion of treatment

Completion of SAT therapy intervention was done after conducting one to several interventions and confirming improvements in each of disappearance of verbal complaints, evaluation of psychological characteristics, and visual function assessment. Finally ,healing judgment was done by doctors for both groups, and treatment was completed when the subject was judged to be healed based on improvement of visual functions including corrected vision.

2.3 Method of investigation

A survey was conducted to the patients and their guardians using a self-report questionnaire. In follow-up studies, subjects who were periodically visiting hospitals for near-sightedness and similar problems even after treatment were given questionnaires directly at the hospitals. To the other subjects, the questionnaires were posted by mail. The follow up survey for the medium-term prognosis study was conducted in July 2002,

and that for the long-term prognosis study was implemented in July 2004. In the current study, “medium-term prognosis” was defined as prognosis at a time point of one year or more after treatment, whereas “long-term prognosis” was defined as prognosis at a time point of three years or more following treatment. The questionnaire items for patients and their guardians are as follows:

＜For the patients＞

(1) Subjective symptoms: Higuchi (2000) and Higuchi & Munakata (2002) created this scale. Questionnaire items were collected from the data provided by the patients after which an item pool was created. After consulting with two ophthalmologists and three Orthoptists, 14 items were set after correcting inappropriate expressions. The 14 items included “Characters on the blackboard are difficult to see” and “Textbook characters are difficult to read.” The scores ranged from: 3 (*Strongly Agree*), 2 (*Agree*); 1 (*Slightly Agree*) and 0 (*Disagree*) with the total scale score ranging from 0 to 42 points. Cronbach's α coefficient was 0.95.

(2) State-trait anxiety inventory for children (STAIC; Soga, 1983): Assuming that a state anxiety indicated a “temporary emotional state that may change depending on the conditions being experienced by the subject” and a trait anxiety a “temporary emotional state that reflected a reaction inclination of the subject relative to the anxious state experience,” Spielberger (1966) created STAI and then a “State-transition anxiety inventory for children” (STAIC). This scale is a Japanese version standardized by Soga (1983). It consists of 20 items such as state and trait anxiety. Each item is scored between one and three with three being the highest level of anxiety. Anxiety points are distributed between 20 and 60. Only the trait anxiety scale was used this time to check the tendency of anxiety. Cronbach’s α coefficient was 0.90.

(3) Self-esteem for children (same as above): This scale is used to measure the degree of self-satisfaction or how highly the subject regards him- or herself. It was created by Yoshiba & Munakata (1997) and consists of ten items with values of 0 to 10 assigned to each item. A higher score indicated higher self-esteem. Cronbach's α coefficient was 0.83.

(4) Self-repression for children (Yoshiba & Munakata, 1997) (same as above): The self-repression scale is used to measure the behavioral trait indicating the patient's tendency to suppress his or her feelings or thoughts to avoid being disliked by others, or to avoid making things worse. This scale for children was revised by Yoshiba from that developed originally by Munakata. This scale consists of 10 items with point values assigned to each item of two points for "Always yes," one point for "Often yes," and no points for "No" with the total score ranging from 0 to 20 points. Cronbach's α coefficient was 0.83. This time, a value of 0.79 was obtained.

(5)Emotional dependency for children (Yoshiba & Munakata, 1997) (same as above): This scale is used to measure how much the relevant child expects others to take care of him or her and level of emotional dependency. This scale measures the trait whereby those behaviors that allow the subject to cope with the expectations of others are adopted according to other's evaluations, as well as that trait whereby unrealistic expectations continue to be held, even for an unreliable person. This scale consists of ten items with the total score between 0 and 10 points. Cronbach's α coefficient, from which internal consistency was confirmed by Yoshiba, was 0.74. This time, a value of 0.71 was obtained.

(6) Perceived Emotional Support (Yoshiba & Munakata, 1997) (same as above): This scale focuses on the perceived emotional support provided by the various social support networks. It measures how much a child is aware that there are "people around

you who support you emotionally and mentally." This scale, originally developed by Munakata, has been revised for children and its validity and reliability have been confirmed. This scale consists of ten items with a total score of ten points. Four categories include "Father", "Mother", "Brother" and "Friend" and the children identify which of these they have as supporters. Each individual counts for one point. The Cronbach's α coefficient for children, as confirmed by Yoshiba & Munakata (1997), is between 0.83 and 0.89. The α coefficients obtained for this sample were 0.91 for Father, 0.88 for Mother, 0.84 for Brother, and 0.81 for Friend.

＜For the guardians＞

(i) Results of eye tests done in school physical examinations

(ii) Complaints of vision difficulties

(iii) Causes behind the visual impairment of the child, the child's personality, behavior, child-parent relationship, family relationships.

（4 items, open-ended）

For subjects who recurrence was suspected, a visual function test were executed. Additionally, an interview survey of the guardians as to the causes of recurrence was executed after verifying the guardians' wish to consult the therapists.

2.4 Method of Analysis

The Friedmann test was used for data of three or more time points. When a within-group comparison showed a difference, a multiple comparison test (Wilcoxon

signed-rank test with Bonferroni correction) was used, and the evaluation was done by modifying the assessment criteria of the P value following Bonferroni correction. Differences between groups were tested with the Mann-Whitney U test. Furthermore, qualitative data such as verbatim records of the counseling process and verbatim records of the interview data were analyzed together with quantitative data.

3. Results

3.1 Demographic Characteristics of Intervention Participants (Table 1)

In the medium-term prognosis study, 23 subjects who had been healed for one year or more were asked to participate in the study out of which 17 subjects responded, making the valid response rate as 73.9%. In the long-term prognosis study, 14 out of 20 subjects responded, making the response rate as 70.0% -- Table 1.

The follow-up period for the medium-term prognosis study was 21.82 ± 7.6 months after healing, whereas that for the long-term prognosis study was 48.14 ± 7.72 months.

Table1. Demographic Characteristics of Study Participants

Case No.	gender	Age at 2 years follow-up	Age at 4 years follow-up	Age at first visiting	No. of Brothers	intervention	visual Acuity at first exmination (R) (L)	other visual symptoms	visual Acuity at final exmination (R) (L)	complications at 2 years follow-up	period to healing (ms)	medium-term follow-up period (ms)	long-term follow-up period (ms)
1	M	12	14	10	2	SAT	(0.7) (0.6)	spasm	(1.2)(1.2)		1	14	39
2	F	9		8	1	SAT	(0.5) (0.5)		(1.2)(1.2)	stomachache	4	12	37
3	F	11	14	9	1	SAT	(0.2) (0.1)	field	(1.2)(1.2)	stomachache	4	20	45
5	F	10	13	8	1	SAT	(0.2) (0.15)	field	(1.2)(1.2)		3	19	44
5	F	13	15	10	1	SAT	(0.4) (0.2)		(1.2)(1.2)		2	25	50
6	F	9	11	6	1	SAT	(0.1) (0.2)		(1.2)(1.2)		2	35	60
7	F	9	11	7	2	SAT	(0.3) (0.3)		(1.2)(1.2)		2	22	47
8	F	9	12	8	1	SAT	(0.3) (0.4)		(1.2)(1.2)		3	27	52
9	F	17	19	15	1	SAT	(0.8) (0.8)		(1.2)(1.2)		5	20	45
10	F	10		8	2	SAT	(0.1)(0.1)		(1.2)(1.2)	headache	5	20	
11	F	10	12	8	1	Conv.	(0.7) (0.8)		(1.2)(1.2)		1	27	52
12	F	16	18	12	0	Conv.	(0.5) (0.4)		(1.2)(1.2)	neadacne stomachache dizziness	3	30	55
13	F	12	15	9	2	Conv.	(0.3) (0.3)		(1.2)(1.2)		14	14	39
14	F	12	14	7	1	Conv.	(0.1) (0.2)		(1.2)(1.2)	headache stomachache	2	36	61
15	F	12		10	1	Conv.	(0.4) (0.5)		(1.2)(1.2)		5	25	
16	F	16		14	3	Conv.	(0.4)(0.5)		(1.2)(1.2)	insomnia	5	13	
17	M	14		12	2	Conv.	(0.6) (0.5)	abnormal visual field	(1.2)(1.2)	headache stomachache	6	12	36

3.2 Recurrence frequency of psychogenic visual disturbance depending on the method of treatment

A comparison of psychogenic visual disturbance recurrence depending on the method of treatment was conducted. At the medium-term prognosis observation time point, results revealed recurrence in 2 out of 7 patients (28.6%) in the group that underwent conventional-type treatment. On the other hand, in the group that received SAT therapy, recurrence was contained to just one case out of the 10 subjects treated (10%). However, no statistically significant difference (Pearson's $\chi^2 = 0.977.00$, df=1, p=0.323) was noted as the studied cases were few in number.

At the long-term prognosis observation time point, results revealed recurrence in 1 out of 5 patients of the conventional-type treatment group, and in one case, the psychological symptoms had deteriorated and were diagnosed as symptoms of depression. On the other hand, in the group that received SAT therapy, there were no cases that showed recurrence of visual disturbance, but there was one patient who was refusing to attend school. Again, no significant statistical difference was found as to the number of visual disturbance recurrence cases between the two groups (Pearson's $\chi^2 = 0.733$, df=1, p=0.188).

3.3 Changes in psychological characteristics and psychotic symptoms before and after therapeutic intervention depending on the method of treatment

1) Baseline Value

First, baseline values of various scale scores in the SAT intervention group and conventional-type treatment group before and after treatment were compared. There was no significant difference in the two groups (Table 2).

Table 2.

Comparison of baseline data (before intervention) between SAT and conventional therapy groups

	Mean Score ±SD			
Scale(Min-Max)	SAT group (n=10)	Conventional Therapy group (n=7)	Z	Statistically difference
SATIC (20-60)	41.0±5.9	38.0±4.4	-0.64	n.s.
Self-repression (0-20)	8.7±4.7	8.0±4.1	-0.16	n.s.
Emotional dependency (0-10)	6.7±1.8	6.9±1.6	-0.11	n.s.
Self-esteem (0-10)	4.4±2.1	4.0±1.6	-0.70	n.s.
Percived emotional support from Father (0-10)	4.3±1.7	4.1±1.3	-0.16	n.s.
Percived emotional support from Mother (0-10)	5.8±2.6	6.9±2.0	-0.20	n.s.

Mann-Whitney U test

2) Changes in psychological characteristics and psychotic symptoms before and after therapeutic intervention depending on the method of treatment.

(i) Trait anxiety (STAIC)

Before commencing SAT treatment the score was on average 41.0±5.9 points, soon after SAT therapy it was on average 31.9±4.1 points, at the medium-term prognosis study time point, it was on average 32.1±9.0 points, and at the long-term prognosis study time point, it was on average 28.3±6.3 points, showing a significant difference at the 4 observation time points (Friedman, p=0.022). Compared to before intervention, a significant drop was seen soon after intervention ($p<0.05$) and at the long-term prognosis study time point ($p<0.05$), and the drop of scores at the medium-term prognosis study time point had a significant tendency ($p<0.10$) (Table 3-1).

Meanwhile in the conventional-type therapy cases, the score prior to treatment was on average 38.0±4.4 points, after therapy it was on average 36.7±3.1 points, at the medium-term prognosis study time point, it was on average 39.7±3.9 points, and at the long-term prognosis study time point, it was on average 37.2±7.1 points, showing no significant statistical difference at the 4 observation time points (Friedman, p=0.267 n.s) (Table 3-2).

(ii) Self repression

Before commencing SAT treatment the score was on average 8.7±4.7 points, soon after SAT therapy it was on average 4.2±2.1 points, at the medium-term prognosis study time point, it was on average 4.6±4.9 points, and at the long-term prognosis time point, it was on average 3.0±2.3 points, showing a significant difference at the 4 observation time points (Friedman, p=0.015). Compared to before intervention, a significant drop was seen soon after intervention (p<0.05) and at the long-term prognosis study time point

(p<0.05)(Table 3-1).

In the conventional-type therapy, the score prior to treatment was on average 8.0±4.1 points, after therapy it was on average 7.6±3.9 points, at the medium-term prognosis study time point, it was on average 9.3±3.9 points, and at the long-term prognosis study time point, it was on average 5.6±2.0 points, showing no significant statistical difference at the 4 time points (Friedman, p=0.3916, n.s.) (Table 3-2).

(iii) Emotional dependency

Before commencing SAT treatment the score was on average 6.7±1.8 points, soon after SAT therapy it was on average 4.2±1.2 points, at the medium-term prognosis study time point, it was on average 5.2±1.9 points, and at the long-term prognosis study time point, it was on average 4.4±2.3 points, showing a significant difference at the 4 observation time points (Friedman, p=0.0415). Compared to before intervention, a significant drop was seen soon after intervention (p<0.05). In medium-term prognosis and long-term prognosis, even though there was a drop of the average scores compared to that before intervention, there was no significant statistical difference (Table 3-1).

In the conventional-type therapy, the score prior to treatment was on average 6.9±1.6 points, after therapy it was on average 6.3±1.7 points, at the medium-term prognosis study time point, it was on average 7.4±1.4 points, and at the long-term prognosis study time point, it was on average 7.4±2.7 points, showing no significant statistical difference (Friedman, p=0.3033 n.s) (Table 3-2).

Table 3-1 Longitudinal observation on psychological characteristics in SAT therapy group

	before intervention	after intervention	2 years follow-up	4 years follow-up	Friedman χ^2= (df)	Statistically difference
SATIC	41.0(5.9)a	31.9(4.1)b	32.1(9.0)c	28.3(6.3)d	14.6 (3)	a>b, a>d* a>b†
Self repression	8.7(4.7)a	4.2(2.1)b	4.6(4.9)c	3.0(2.3)d	10.5 (3)	a>b,d*
interpersonal dependency	6.7(1.8)a	4.2(1.2)b	5.2(1.9)c	4.4(2.3)d	8.2 (3)	a>b*
Self esteem	4.4(2.1)a	8.9(1.2)b	6.4(2.7)c	6.9(1.1)d	14.2 (3)	a>b* a>d†
perceived emotional support from Father	4.3(1.7)a	8.3(1.1)b	5.2(4.1)c	6.0(2.8)d	7.3 (3)	a>b*
perceived emotional support from Mother	5.8(2.6)a	9.6(0.5)b	9.0(2.1)c	9.1(1.5)d	9.6 (3)	a>b* ,a>c†

Friedman rank sum test

† Significant at P<.08 Wilcoxon paired signed rank testwith Bonferroni adjustment (Post hoc test)

* Significant at P<.05 Wilcoxon paired signed rank test with Bonferroni adjustment (Post hoc test)

** Significant at P<.01 Wilcoxon paired signed rank test with Bonferroni adjustment (Post hoc test)

Table 3-2 Longitudinal observation on psychological characteristics in conventional therapy group

	before intervin tion	After interve ntion	2 years follo w-up	4 years follo w-up	Friedman χ^2 = (df)	Statistically differe nce
SATIC	38.0(4.4)	36.7(3.1)	39.7(3.9)	37.2(7.1)	4.8 (3)	n.s.
Self repression	8.0(4.1)	7.6(3.9)	9.3(3.9)	5.6(2.0)	4.0 (3)	n.s.
Emotional dependency	6.9(1.6)	6.3(1.7)	7.4(1.4)	7.4(2.7)	3.6 (3)	n.s.
Self esteem	4.0(1.6)	4.4(2.0)	3.7(3.4)	4.8(3.4)	0.6 (3)	n.s.
Perceived emotional support from Father	4.1(1.3)	4.9(1.8)	6.3(3.8)	3.8(3.2)	1.6 (3)	n.s.
Perceived emotional support from Mother	6.9(2.0)	6.5(2.1)	6.5(4.0)	7.8(3.9)	1.3 (3)	n.s.

Friedman rank sum test

(iv) Self-esteem

Before commencing SAT treatment the score was on average 4. 4±2.1 points, soon after SAT therapy it was on average 8. 9±1.2 points, at the medium-term prognosis study time point, it was on average 6. 4±2.7 points, and at the long-term prognosis study time point, it was on average 6.9±1.1 points, showing a significant difference at the 4 observation time points (Friedman, p=0.027). Compared to before intervention, a significant rise was seen soon after intervention (p<0.05). In long-term prognosis

(p<0.07), a rise with a significant statistical tendency was seen (Table 3-1).

In the conventional-type therapy, the score prior to treatment was on average 4.0±1.6 points, after therapy it was on average 4.4±2.0 points, at the medium-term prognosis study time point, it was on average 3.7±3.4 points, and at the long-term prognosis study time point, it was on average 4.8±3.4 points, showing no significant statistical difference (Friedman, p=0.8866, n.s) (Table 3-2).

(v) Perceived Emotional Support from father

Perceived Emotional Support was on average 4.3±1.7 points before commencing SAT treatment, soon after SAT therapy it was on average 8.3±1.1 points, at the medium-term prognosis study time point, it was on average 5.2±4.1 points, and at the long-term prognosis study time point, it was on average 6.0±2.8 points, with a significant tendency at the 4 observation time points (Friedman, p=0.0638). Compared to before intervention, the score following intervention was significantly high (p<0.05) (Table 3-1).

In the conventional-type therapy, the score prior to treatment was on average 4.1±1.3 points, after therapy it was on average 4.9±1.8 points, at the medium-term prognosis study time point, it was on average 6.3±3.8 points, and at the long-term prognosis study time point, it was on average 3.8±3.2 points, showing no significant statistical difference (Friedman, p=0.6525) (Table 3-2).

(vi) Perceived Emotional Support from mother

Perceived Emotional Support from mother was on average 5.8±2.6 points before commencing SAT treatment, soon after SAT therapy it was on average 9.6±0.5 points, at the medium-term prognosis study time point, it was on average 9.0±2.1 points, and at the long-term prognosis study time point, it was on average 9.1±1.5 points, showing a

significant change at the 4 observation time points (Friedman, p=0.0222). Compared to before intervention, the score following intervention was significantly high ($p<0.05$). Even at medium-term prognosis, a rise was seen although with a significant tendency ($p<0.10$)（Table 3-1）.

In the conventional-type therapy, the score prior to treatment was on average 6.9±2.0 points, after therapy it was on average 6.5±2.1 points, at the medium-term prognosis study time point, it was on average 6.5±4.0points, and at the long-term prognosis study time point, it was on average 7.8±3.9points, showing no significant statistical difference at the 4 observation time points (Friedman, p=0.7379) (Table 3-2).

4.3.5 Analysis of causes behind recurrence in recurrent cases (Table 4)

Features of changes in psychological characteristics in the 3 recurrent cases seen at the medium-term prognosis study time point were analyzed. Case A and B had received conventional therapy, and Case C had received SAT therapy. Recurrence was confirmed in Case A even at the time long-term prognosis study time point.

(i) Recurrent cases in the SAT-therapy group (C) – Table 4-1

After intervention, the scores of SATIC, self-suppressive behavioral characteristics and interpersonal-dependent behavioral characteristics showed a drop, but there was a significant rise in the scores at the time of recurrence (medium-term prognosis study time point). After that, vision improved by SAT intervention and at the long-term prognosis study time point all the scores had remarkably improved.

The degree of awareness of emotional support from father and mother showed an improvement following intervention, but at the time of recurrence (medium-term prognosis study time point), a significant drop in scores was observed. The scores then improved at the long-term prognosis study time point.

Table 4-1. Features of psychological characteristics in the recurrent cases in the SAT-therapy group

Scale(Min-Max)	Case	before intervention	After intervention	2 years follow-up	4 years follow-up
SATIC(20-60)	C	36	32	49↑	34
Self repression (0-20)	C	6	4	16↑	6
Interpersonal dependency (0-10)	C	8	5	8↑	4
Self esteem (0-10)	C	2	8	2↓	8
Perceived emotional support from Father (0-10)	C	3	10	4↓	7
Perceived emotional support from Mother (0-10)	C	4	9	4↓	9

Table 4-2. Features of psychological characteristics in the recurrent cases in Conventional therapy group

Scale(Min-Max)	Case	before intervention	After intervention	2 years follow-up	4 years follow-up
SATIC(20-60)	A	42	40→	41→	34↓
	B	32	31→	42↑	48↑
Self repression (0-20)	A	3	3→	11↑	9↑
	B	7	7→	5↓	6
Interpersonal dependency (0-10)	A	6	5→	9↑	7
	B	6	5→	7↑	10
Self esteem (0-10)	A	4	4→	7↑	5
	B	3	3→	0↓	0↓
Perceived emotional support from Father (0-10)	A	3	3→	0↓	0
	B	5	5→	10↓	1
Perceived emotional support from Mother (0-10)	A	6	8↑	3↓	2↓
	B	5	6→	0↓	10↑

(ii) Recurrent cases in the conventional-therapy group – Table 4-2

In the 2 recurrent cases of the conventional-therapy group, there was no change in scores, and a high degree of anxiety continued until the time of recurrence (medium-term prognosis study time point). In Case A where recurrence was confirmed at the time long-term prognosis study time point, the anxiety had become even stronger. Degree of

self-repression showed no change in Case B from before treatment to long-term prognosis study time point, whereas a rise in the score was seen for Case A at time of recurrence.

Scores of interpersonal dependence-type behavioral characteristics hardly changed in both cases even after therapy, a rise was seen at the time of recurrence (medium-term prognosis study time point), which continued to be high even at the long-term prognosis study time point.

Self-esteem scores showed no change before and after therapy, and continued to be low, showing a further decline at the follow-up study time point.

Perceived Emotional Support from father showed no change following therapy, and although a drop was seen in one case at the follow-up study time point, in the other case, there was a rise in the score. As for the Perceived Emotional Support from mother, a slight rise in scores was observed in both cases, but at the time of recurrence (medium-term prognosis study time point), the scores had sharply declined. In Case A where a further decline in vision was seen at long-term prognosis, this score showed an increase, but in Case B, there was a further decline.

3) Narrative evaluation of recurrence causes recognized by the patient himself and parents in recurrent cases

Inquiries were made as to causes that influenced recurrence in the 3 recurrent cases. There were important causes such as the way love was expressed, lack of communication within the family, etc.

4. Discussion

In the present study, recurrence was seen in 2 out of 7 patients (28.6%) in the group that underwent conventional therapy, and in 1 out of 10 patients (10.0%) in the

group that underwent SAT therapy, at the medium-term prognosis observation time point. At the long-term prognosis observation time point, recurrence was seen in 1 out of 5 patients (20%) in the conventional-type treatment group, whereas in the SAT therapy group, no visual disturbance recurrence was found in any of the patients (0 out of 9, 0%). Up to now, reports on PVD prognosis following therapy have described non-healing or recurrence in 7 out of 15 patients (46.7%) as reported by Rada et al. [22] from the field of clinical psychiatry; in 8 out of 19 patients (43.1%) as reported by Abe et al. from the field of ophthalmology; in 4 out of 14 patients (28.6%)) as reported by Sletterberg et al.[7]; and in 1 out of 23 patients (4.3%) as reported by Catalano et al. [23]. Even when these past reports and the present study's results for conventional therapy are compared, the long-term prognosis following SAT therapy was the best after the Catalano report. Catalano et al. [23] report that 35% of the cases showed an improvement within 24 hours and 61% showed an improvement within a month by merely a guarantee that the patient will be "definitely cured". In contrast, the subjects of present study's SAT therapy included many cases that had showed no response even to treatment spanning a few months to one year or more after being diagnosed with PVD. Even though a simple comparison is not possible, SAT therapy effects are thought to be good considering these differences in severity of the cases studied.

Mochizuki et al.[24] divided into two groups 42 patients who has been diagnosed as having conversion disorders by DSM-III-R based on decreased vision as the main complaint. The two groups were improved group and protracted group. Mochizuki et al.[24] reported that children who refused to attend school were significantly higher in the improved group. In the present study, although there was one child who refused going to school after SAT therapy, going to school became possible shortly after the child himself chose to undergo SAT therapy and when the problems were solved after the

intervention. This showed that symptom shifts to other somatizations and behavioral symptoms is hardly seen in SAT therapy intervention, and that resolution of underlying issues is urged.

There are extremely few reports relating to long-term prognosis of PVD. Yokoyama[10] observed long-term prognosis for 2 PVD cases and reported a psychological mechanism that mental swings of adolescence, namely sibling conflicts was the cause. The present study elucidated a long-term prognosis of PVD (4 years in average after healing) for the first time in a positive study with a control group and based on detailed data on visual functions and psychological characteristics following active intervention.

This study revealed that (i) trait anxiety, self-suppression, and interpersonal-dependence that decreased following SAT therapy remained low even at the long-term prognosis observation time-point, and (ii) self value and degree of awareness of mother's emotional support that improved following SAT therapy remained high even at the long-term prognosis observation time-point, although there was a slight drop. Detailed evaluation of each psychological characteristic showed that, first, PVD has a characteristic low self-value, which is improved after SAT intervention. Self-assessment and feelings of self-respect which are similar to self-value are said to arise from the age of eight[25]. This is the stage around which self-consciousness develops, enhancing an interest in internal matters. Incidentally, this period around 8 years of age overlaps with time when symptoms of psychogenic visual disturbances peak. Self-assessment at this stage depends on the assessment of others by significant others (generally, the mother). C. Rogers describes that children perceive themselves through clarification of self-concepts within interactions with significant others, and require positive assessment from significant others[26]. It is thought that self-images and self-concepts get determined by assessments of those around from early childhood, and self-confidence is

created and acted out via having a positive image of oneself. Having a low self-value at a time when the foundation of self- assessment is being completed, is thought to create defects in self-confidence and increase uneasiness when taking various actions, because the child always worries about other people's opinions. Therefore, psychological interventions at this stage that focus on self-image enhancement are extremely important.

In SAT therapy, latent traumatic memories such as sensation images in the fetal stage or early childhood were approached from problems recognized at the present time, and image conversion was conducted to satisfy unfulfilled internal demands of the mind and unresolved emotions associated with the trauma. To mention, re-learning of perception and behavior based on positive images was encouraged. Munakata has described that "dangers to survival experienced in infancy and birth are unconsciously played back[27)]". There are also reports that causes of certain mental and physical problems may lie in the fetal period, and experiences made during this fetal period and at birth have a huge influence on the life thereafter[28)]. By trying to approach traumatic memories that the patient is not aware of, SAT intervention is thought to have made it possible to transform various images of oneself and one's surroundings.

The following may explain the low self-suppression and interpersonal-dependence. What is behind strong interpersonal dependence are non-fulfillment of needs and desires to feel affection such as "not being understood", "not being able to emotionally depend on someone". High -suppression has the tendency to suppress ones thoughts and feelings to suit the expectations of those around. Negative latescent image memories such as fear of being abandoned, self denial, and loneliness are behind the patient being forced to become independent, giving up the need to emotionally depend on others. In SAT therapy intervention, real desires within the heart may be fulfilled due to the formation of the self-image that the patient is treasured by his/her parents, thus decreasing the

dependence and self-suppression.

Although a rise in the degree of awareness of the mother's emotional support was seen the SAT therapy group, this degree was low in all recurrent cases at the recurrence point. Deterioration of relationships with family and parents is thought to deteriorate the self-image along with the decrease of the feeling of having emotional support. This is thought to lead to stronger stress responses, and cause, as a physical response, the onset of visual disturbance recurrence. Wynick et al.[29] showed by analyzing PVD children's assessments of their mothers, that these children thought that while the mother was very loving and receptive towards him or herself, she was also dominating and meddlesome. The improvement of the degree of awareness of the mother's emotional support through SAT therapy can be presumed to have been the result of an improvement in the awareness of support from a significant other due to the decrease of the child's degree of dependence. However, in future, it would be necessary to conduct SAT therapy taking the influence of the family environment surrounding the PVD child into consideration.

Causes of PVD recurrence had, as intrapersonal factors, the features of (i) high anxiety, (ii) high self suppression and interpersonal dependency, and (iii) low self-value and low degree of awareness of the parents' emotional support. In cases in whom an improvement was seen after SAT intervention, the state of psychological characteristics were more or less maintained from the time soon after intervention, whereas recurrent cases showed a deterioration of psychological characteristics that once improved at the time of intervention. Taking into view situations where the gap between image scenarios created for SAT therapy and the actual images are too big, in order for the patient to convert the parental image and for that image to become established, SAT therapy currently considers it vital that (i) the parents themselves grow and accept psychological

interventions to change the personality so that they would become able to unconditionally accept the child, and (ii) the child lives separated from the parents for a while [30]. Even in the present recurrence, the improved parental image may have become bad again because the improved image was considerably different to the actual.

Turgay[31] gives the following as factors that correlate with good therapeutic achievements for conversion disorders in childhood and adolescence: (i) being a juvenile, (ii) having a healthy personality, (iii) having healthy family functions, and (iv) the family understanding the psychological features of the disorder. The present result also suggests that even in the PVD healing process, healthy psychological characteristics equivalent to Turgey's "healthy personality", in other words personality development, and the surrounding environment that "the family understanding the psychological features of the disorder" are highly important.

The present study reveals that to treat PVD, counseling of the patient and providing guidance for the mother are effective in most of the cases. However, analysis of recurrent cases teaches the necessity for the following improvements. Likelihood of recurrence is highly increased when the mother's level of anxiety is high, and the affection of "unconditionally accepting the child" is low. In such cases, it is vital that first the mother herself becomes emotionally stable to accept the child under any circumstance. Therefore, the authors believe that simultaneous SAT therapy intervention for the mother would lead to the prevention of recurrence and even solution of family issues that are appearing as a physical reaction in the child.

The sorting into each of the intervention groups done in the current study is not homogeneous. For example, the SAT group included cases in whom healing could not be seen even after several months, and too few cases were studied. Therefore, there still issues remaining for strict evaluation of SAT intervention group and conventional

therapy intervention group.

4.2 Conclusion

Effects of psychological intervention by SAT therapy were observed for a long duration assessing recurrence rate, behavioral characteristics and changes in psychological symptoms. As a result, the following findings were obtained:

(i) Recurrent numbers for each method of therapy was 2 out of 7 patients (28.6%) in the conventional-type therapy group at the medium-term prognosis observation time point, whereas it was one case out of the 10 subjects (10.0%) in the SAT therapy group, although there was no statistically significant difference. At the long-term prognosis observation time point, visual disturbance recurrence was seen in 1 out of 5 patients in the conventional-type therapy group, whereas recurrence was not seen in the SAT therapy group. Therefore, in both groups a significant difference in visual disturbance recurrence was not seen even at the long-term prognosis observation time point.

(ii) In the SAT therapy intervention group, scores of self-repression, emotional dependency and trait anxiety that improved soon after intervention remained low even though there was a slight increase at the long-term prognosis observation time-point. Similarly, scores of self value and degree of awareness of mother's emotional support similarly remained high, even though there was a slight drop. On the other hand, scores of self-repression, self-esteem, trait anxiety, and perceived emotional support were hardly changed in the conventional-therapy group.

(iii) In PVD recurrent cases, it was confirmed that anxiety, self- Self-repression, and

emotional dependency are high even though an improvement is temporarily seen, and self-value and degree of awareness of mother's emotional support are low, thus accompanying a change in psychological characteristics.

The above results suggest that since psychological conflicts are behind the onset of PVD, therapy should not focus on resolving superficial issues such as visual disturbance, but should involve psychological interventions that encourage finding solutions to those psychological conflicts.

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Reconstructing Life and Society with SAT Therapy
: Foundations of the New Generation CBT

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Summary

All mammals, including humans, instinctively control through attachment behaviors their fear of not being able to subsist. Under normal circumstances, a child's principal care provider is his or her parents or guardians. However, if the latter are emotionally unstable, the child, who is supposed to be the care recipient, unwittingly becomes the one that provides the emotional care the parents or guardians covet. As a consequence, even after the child becomes an adult, he/she will unconsciously seek out an emotionally unstable family member or colleague at work and build a codependent attachment relationship replacing the former parent-child relationship in which one relies on the other and vice a versa. Such relationships, however, create a whirlpool of undue stress accompanied by "insecurity, distrust and exploitation." To be able to overcome subsistence fear and build a stable attachment relationship marked by "ease, respect and gratitude," the individual needs to change the facial expressions and images of "tension and irritability" he/she remembers of their parents or guardians to those of "smile and serenity."

SAT is a structured imagery therapy used to promote reconstruction of stable attachment

relations through the application of a subjunctive mood that takes clients back through evolutionary time to their ancestors and ultimately to their particles. A certified SAT therapist uses a retrospective image projection technique, including pictures, paintings, religious paintings, and comic books, to help clients discover their parental surrogate representations. By having clients observe these parental surrogate representations instead of the expressions and images of their actual parents or guardians, the SAT therapist helps clients reduce their negative emotions, thereby helping them to break up their codependent attachment relationships. SAT therapy is thus a new-generation CBT (cognitive behavioral therapy) that promotes rational thinking compatible with the client's genetic disposition.

Keywords:

attachment, codependency, parental surrogate representation, cognitive behavioral therapy, SAT therapy

Introduction

Since ancient times, society has been organized in such a way that people have to rely on others to gain access to scarce rewards. In such a society (hereinafter referred to as "other-reward-seeking society), people have to compete or fight with each other to gain access to scarce rewards such as evaluation, praise, honor, income and status. In an other-reward-seeking society, people cannot help but be stressed out. But what if we could build a society where people help each other to gain access to unlimited rewards such as self-growth, self-satisfaction, gratitude, empathy, inspiration, pleasure and sense of accomplishment. Even in such a society (hereinafter referred to as "self-reward-seeking society") people will still be under stress, but stress here would be benign enough to allow people to learn from their mistakes and develop a genuine sense of well-being. According to surveys conducted by the Cabinet Office, since the 1980s, the tendency of Japanese to seek richness of mind, such as spiritual growth, gratitude and inspiration, rather than material affluence has increased significantly over the passed 30 years. Indeed, expectations have heightened for the creation of a self-reward-seeking society.

However, in a traditional other-reward-seeking society, where people have to rely on others to gain access to limited resources, top priority is put on social adaptation. Consequently, from our early childhood, parents and guardians, in the name of discipline, refuse to let us "just be ourselves," and subject us, to a greater or lesser extent, to emotional and physical abuse that conditions us to physical fear. Thus we are afraid to express "our true selves," which inherently lie deep in our hearts. We are unable to change, even if we wanted to. As our self-conflict deepens and our malignant stress intensifies, our stress disorder continues to expand. However, it can

also be said that as our stress disorder continues to expand, we are actually accumulating energy for self-growth. In order to realize a self-reward-seeking society where people can universally experience a sense of well-being by realizing their “true selves,” in this paper I would like to take up the theory of SAT therapy, along with its methodology, as a form of cognitive behavioral therapy that will help clients solve their unresolved issues over codependency attachment relations, which will enable them to survive in an other-reward-seeking society.

In recent years, cognitive behavioral therapy (CBT) has been applied to help people change their thinking habits from those that cause them to suffer malignant stress to those that are more adaptive to their situation. However, while it is true that CBT has helped people change their thinking habits in the short-term by making changes that, on paper, appear rational, CBT may also lead to somatization and acting out of stress. This is because, when the forebrain, (which is involved with reasoning) and the limbic brain (which is involved with emotions) are in opposition, the latter trumps the former. This is why a new generation of cognitive behavioral therapy is needed that will not only change our thinking habits but also directly alters our emotions.

1. Attachment is indispensable for life

Attachment runting syndrome

A runt – the smallest and weakest animal of a litter – will die a few weeks after birth even when no change has occurred in the environment. This is because the runt is too weak to stimulate the mother’s nipple for milk and induce her to engage in the attachment behavior associated with

grooming. A form of human bonding called attachment is formed between a mother and a child via oxytocin secretion not only at the time of delivery but when there is physical contact including when the baby suckles. Unless this attachment bond is formed, the mother will be less and less inclined to give the runt physical care such as grooming. As a result of this neglect, the runt will experience so much stress that it becomes difficult for its body to secrete growth hormones. The same thing occurs in human offspring as evidenced by the fact that many children in orphanages have been reported to suffer from a low level of a growth hormone known as nonorganic hypogenesis (Stanhope et al., 1994; Albanese et al., 1994). These runting syndrome cases demonstrate the importance of getting parents and guardians to engage in attachment behavior to control subsistence stress and ensure survival.

That said, I think forming a stable attachment relationship after birth requires almost a miracle. Of course, trying to make that miracle happen may be admirable, but it is better to take the view that each client has an attachment relationship suited for him or her situation. Nevertheless, depending on the nature of the attachment relationship formed, the client will in some cases end up leading an unexpectedly complicated life.

What Is Attachment?

Johan Bowlby (1969) named the “emotional bond” formed between mother and child “attachment,” arguing that even infants inherently seek to form proximity relationships with selected targets. In other words, to gain their affection, infants behave in a way that will bring them closer to their caregivers. There are a number of attachment behavioral patterns that are

formed in this process. According to the famous technique for measuring the quality of attachment that Mary Ainsworth (1978) developed by applying her Strange Situation method, there are four types of attachment patterns: “avoidant attachment,” “secure attachment,” ambivalent attachment” and “disorganized attachment.” Attachment behavior is “behavior that seeks to gain a sense of security in time of fear by drawing the caregiver’s attention and seeking proximity. By repeating this behavior, the infant is assured that the caregiver will provide protection, thereby enhancing its ability to cope with stress.

Roundabout way of forming attachments

What happens to children when their parents or guardians mentally and physically reject them by refusing to accept them “as they are” and are thus subjected to such severe emotional and physical abuse that they are unable to form safe and secure attachment relations with their parents or guardians?

First of all, they will show behavioral patterns in which they personally try to void attachments out of feeling of dread. Being suspicious of caregivers they encounter, they might show self--repressive behaviors, that is, behavior patterns in which they try to suppress their longing to be looked after by their parents or guardians. They do this because they have developed a sense of caution in their past relationships with their parents or guardians, and have transplanted these unstable attachment relationships to their other relationships. In extreme cases of avoidant attachment, fearful of being rejected by their caregivers, and out of a sense of caution, children develop a belief that they should not turn to their caregivers for help and so

unconsciously begin to suppress their longing for care. These children then begin to show alexithymia behaviors in which they try not to show any emotions and work very hard to do things by themselves.

When parents or guardians refuse to accept children as they are, the latter may also show problem-avoidance behaviors that cause them to act independently and become insensitive to their own problems. They may also show problem-avoidance behaviors that compel them to act as if their problems were not really theirs, and show depersonalized behaviors in which, instead of relying on their parents or guardians to give them care, they turn to themselves. Because of these behaviors, children become insensitive to tensions associated with stress and continue to accumulate such more stress that they manifest physical disorders, which in turn lead to stress disorders and diseases associated with adult lifestyle (Munakata, 2004, 2006; Munakata, Kobayashi, 2007). But these can be regarded as illness behaviors that seek attachments in a roundabout way by drawing the attention of caregivers and promoting formation of proximity relationships.

Children who fail to form legitimate attachment relationships not only distrust others but also become more inclined to deepen their sense of self-denial, thus driving them to seek care from caregivers in a distorted manner known as parasuicide, which includes cutting one's wrist, planning to commit suicide, and increasing accident proneness. Or, because of their inability to trust others, they refuse to rely on people's kindness and end up developing substance dependence on alcohol, drugs and the like that affect their psychoneurotic system.

2. Trauma dependency syndrome and codependency bond

Trauma dependency

I'm sure most of you have heard the term "runner's high." Human beings possess a stress reaction system that discharges a chemical substance called endorphin in the brain to relieve pain and bring comfort when they find themselves in a highly stressful, life-threatening situation (Perry & Szalavitz, 2006). Those with a traumatic experience of being powerless in the face of life-threatening danger to themselves or to others have experienced being in a highly stressful situation where a chemical substance is discharged in the brain to relieve pain and bring comfort. This is why when those with serious traumatic experiences are delivered from their high levels of stress, they develop a sense of irritability, fear, excess arousal and feeling of helplessness not unlike the symptoms addicts experience when they stop taking morphemes or heroine. However, because trauma patients do not suffer the same withdrawal symptoms as drug addicts do, they compulsively seek even higher levels of stress. Consequently, they become more inclined to become addicted to trauma (Van der Kolk & Greenberg, 1987).

Children with serious traumatic experiences can't bear being in a quiet place. They are prone to risk-taking behaviors like fighting, bullying, gang warfare, delinquency, wrist cutting, accident proneness, depression and suicide attempts, as well as tobacco, alcohol and drug dependency. They avoid quiet atmospheres, draw the attention of caregivers by acting precariously, and try to stay attached to them by forming proximity relationships. In addition, at least physiologically, they maintain the highly stressful condition they're in and retain the high

level of endorphin secretion in their brain in order to overcome their irritability, sense of fear, and feeling of helplessness.

Trauma-bonding

Out of fear or disgust, children who have been sexually abused by their fathers may be expected to be completely repulsed by sex. But contrary to such expectation, sexual abused trauma survivors tend to engage in promiscuous sexual behavior even with complete strangers (e.g., fellatio). They engage in such acts not as an expression of affection, but rather as an “act of submission.” By acting this way, survivors of childhood sexual abuse learn that adults who are potentially dangerous may not turn out to be their worst enemy.

The following behavioral pattern is generally observed among many Japanese. Trauma survivors raised by physically abusive fathers and mothers who refused to come to their rescue tend to engage in self--repressive behavior known as “act of submission” in which they send strong authority figures expressive messages in the form of facial, voice, and bodily movements to let them know how harmless and submissive they are, thereby leaving a favorable impression on the other party.

Because they experienced relationships based on fear, survivors of childhood traumatic experiences such as sexual abuse, abusive upbringing, and neglect are unable to form stable attachment relationships based on an original sense of reassurance. As a result, they form distorted codependency relationships (both dependency they want for themselves and dependency they want to force on others) known as trauma-bonding that goes beyond social

convention. Trauma victims tend to form codependency relationships with other trauma victims. Perhaps, they do this because, on a gut level, they feel they cannot form such relationships with anyone who does not have similar traumatic experiences. In other words, based on the expressive messages of caregivers conveyed in the form of facial expression, voice and bodily movement, trauma victims, as members of the disadvantaged, on a gut level, foresee receiving care from caregivers who are themselves trauma victims. They feel in their bones that such caregivers will without a doubt rescue the disadvantaged, and in the process they come to know intuitively how to exploit their caregivers to their advantage. Since caregivers who are themselves trauma victims can gain self--satisfaction or be rewarded in the form of being healed by having the underdog trauma victims become depended on them, the latter anticipate that caregivers will come to rescue them, just as drug addicts seek relief by turning to drug dealers.

Although the act of one trauma victim rescuing another trauma victim may appear altruistic, the former is actually rescuing himself. His is a narcissistic behavior. When a rescuer rescues a person who is disadvantaged in order to rescue himself, he is doing this only to satisfy himself. Thus, when such a rescuer is unable to get satisfaction, the person who is supposed to be rescued is not rescued; instead, he is more likely to be betrayed. Regardless whether relationships are based on social functions – such as those between husband and wife, parent and child, and master and pupil – or therapeutic relationships, as long as they are codependency relationships, those with traumatic experiences, because they are disadvantaged, may, upon seeing the expression of the disadvantaged, react by trying to rescue the disadvantaged. However, caregivers who are supposed to rescue trauma victims from their sufferings, because

they cannot get satisfaction themselves, are apt to turn into trauma caregivers who are apt to be a source of fear and sufferings for trauma survivors.

If trauma survivors are able to form only distorted attachment relationships dominated by fear, they may develop Münchausen syndrome, which forces patients to draw attention of caregivers to themselves in the hope of forming proximity relationships with them by engaging in parasuicidal behaviors, or they may develop Münchausen syndrome by proxy, a variant of Münchausen syndrome, that forces them to draw attention of those around them and form proximity relationships with them by caring for children or adults who have experienced tragedy. A person affected with Münchausen syndrome in proxy ensures that her child will become ill, thereby forcing the child to take tests and undergo treatments that are not really necessary. While the affected person takes care of the child, those around her direct their concerned look toward her and begin to hug her as a sign of encouragement. This response is precisely what the affected person seeks.

According to past studies of Münchausen syndrome in proxy, patients with serious symptoms may experience tragic consequences. In one study, the researchers recorded on video the behaviors of 39 mothers apparently afflicted with this disorder. When the video was shown, one of the mothers actually confessed to killing her child (Southall et al., 1997). In Japan, Europe and the U.S., there are cases where nurses and other caregivers, possibly with Münchausen syndrome in proxy, have driven patients to tragic ends.

While those afflicted with codependency pathology may commit the most heinous acts of tyranny imaginable, it is also true that, as they wander astray, they may be observed performing

the most beautiful acts of kindness humans are capable of performing (Perry & Szalavitz, 2006). In my view, trauma victims can only be rescued by trauma victims. Only those who have experienced traumatic events themselves will stay around those with trauma dependency syndrome. Whether they are husband and wife, parent and child, master and pupil, or in therapeutic relationships, they are expected to overcome their anxiety, distrust and exploitation of the codependency type of attachment relationships and in the process establish stable attachment relationships of reassurances, respect and gratitude. Toward this end, it is necessary for both parties to become aware of their mutual longing for codependency.

3. How to overcome codependency

Other-reward-seeking behavior and self-reward-seeking behavior

Although there are individual differences, children are usually motivated to act in ways that will reinforce the reward responses in which the expressions and images of the faces, voice and bodily movements of their parents or guardians express “happiness.” Or they may be motivated to avoid responses of revulsion that express the doubt, anger and sadness of their parents or guardians. In other words, children choose behaviors that reinforce the formation of attachments. Even when they become parents or guardians, themselves, they are motivated by the reward responses of their significant others in social groups like school, society, and post-marriage families, resulting in the formation of other-reward-seeking behaviors that help reinforce attachments

On the other hand, from our childhood days, it is through self-reward-seeking responses,

such as solitary play, playing with friends, adventure, art and sports activities, and caring for plants and animals, that we can enjoy ourselves and become motivated to act in ways that will reinforce these responses These responses help increase our sense of self- trust and enable us to develop into mature individuals capable of controlling the countless stressors we encounter in life. These motivations enable us to form self--reward-seeking behaviors after we mature into adults.

Since other-reward-seeking behaviors conform to the evaluation of others for forming attachments, it is easy to avail oneself to the resources of others. That said, it is others who possess positive resources – e.g., praise, favorable impression, repayment, honor, status, income – and negative resources – e.g., threat, punishment, restraint, disregard, discrimination, indifference. Consequently, with other-reward-seeking behavior one is easily swayed by the evaluation of others, which is often accompanied by tension and insecure feeling, resulting in accumulation of even more stress. Also, since other-reward-seeking behaviors require the evaluation of others, those who engage in them are apt to suppress their true feelings, thus resulting in self- denial and further aggravation of their depression.

By contrast, in the case of self-reward-seeking behaviors, it is difficult to get rewards from others but easy to give rewards to oneself – rewards like pleasure, interest, inspiration, resolve, sense of accomplishment, growth, self-satisfaction, gratitude and empathy. Since you yourself possess the resources involved in self-reward-seeking behaviors, self-rewards are easy to get, provided you are able to learn from your mistakes. This is why self-reward-seeking behaviors do not lead to accumulation of stress as with other-reward-seeking behaviors.

People cannot tell between Self and Others – Mirror Neurons

If you have experienced physical trauma in the form of emotional and physical abuse, you will be too afraid to take up self-reward-seeking behaviors, and will likely be frightened, anxious, harbor a sense of guilt, resignation, and so on, and as a result, you will not be able to act appropriately. You need to become aware that emotions such as fear, anxiety and sense of guilt are conditioned by the fear written on the expressions of your parents or guardians constituting the trauma they have experienced.

The areas of the brain that are activated differ in accordance with the difference in the expression of revulsion people make. In either case, it is now clear that, through the mediation of mirror neurons, the same location of the brain is activated in both the person making the expression and the person looking at the expression (Carter, 1998). In other words, when we look at the expression of revulsion in the faces of others, we end up having the same feeling of revulsion. If the relationship with parents or guardians is such that if we are always looking at the expression of revulsion on the face of others, the expression on our face will also become expression of revulsion. This is why children who grow up looking at expressions of revulsion on the faces of their parents or guardians find themselves making similar expressions.

How will your body react when you look at the picture below of a woman with an expression of revulsion (Fig. 1)? You might feel stiff in the shoulder. Your heart might start pounding. You might have difficulty breathing. Your hands and feet might start feeling cold. Your

whole body might stiffen. How will you react if the person in Figure 1 were living next to you? How would you feel? What kind of body sensation will you have? What about your facial expression?

Fig. 1 Woman with an expression of revulsion

Fig 2. Family with a smile on their faces

How about when you look at smiling faces those in Figure 2? What about your body sensation? And what kind of expression will you have on your face? For no apparent reason, you can feel yourself beginning to smile, can't you? This is the effect mirror neurons may have. In other words, your self-image is created by the image you have of your parents or guardians.

When your mother has a fight with her mother-in-law or with your father and mother is attacked by father, and mother looks sad like the woman in Figure 1, the mirror neurons of their children will show the same kind of excitement as their mother's emotions. From then on, for the children, the mother becomes someone they have to protect. The only way they can now form attachments with their mother is by protecting her. And the mother ceases to be a "parent" with whom they can form attachment relationships and a "parent" who will give them comfort and sense of stability. In a word, they can no longer expect their mother to look after them. This is a form of emotional neglect. To remain attached to such a mother, the children are compelled to form a self- image that seeks rewards from others. Unable to seek help from others, they have

difficulty recognizing other people's feelings. Excessive positive thinking makes them avoid facing problems. They show a sympathetic nervous tone characterized by self- dissociation, which compels them to constantly watch over themselves.

When boys mature into adults and find codependent partners who resemble their mothers, they find them endearing and develop an illusion that they are in love with them. By contrast, girls grow up to become mothers closely resembling their own mothers and find codependent partners who are apt to act violently toward them.

On the other hand, how do children relate to their fathers? If they're the type who seek attachments with their father even as they revolt against him for reproaching their mother, their mirror neurons, empathizing with the father, will try to develop an other-reward-seeking type of self with whom their father will feel comfortable and safe. From then on, for the children, the father becomes someone they have to protect. The only way they can form attachments with their father is by protecting him, and from that moment, the father ceases to be a "parent" with whom the children can form attachment relationships that provide comfort and sense of stability, and the children can no longer expect their father to look after them. This too is a form of emotional neglect. Moreover, if a boy tries to protect his mother, the father will verbally or physically attack him. By being emotionally and physically abused in this manner, the boy will grow up not having formed any other father image than that of his abusive father, with the result that he will end up being just like his father, or find a partner who is obedient just like his mother. This is how the codependent attachment relationships are handed down from generation to generation.

Self-image can be changed by a proxy image of parents or guardians

Those who have a positive self-image with a strong sense of self-affirmation tend to be self-confident and are likely to anticipate that their future will open up for them. Thus they are free of anxiety and full of hope. They are proud of their past and filled with gratitude. Also, they have no regrets, are patient, free of uncertainty and depression. They have excellent mental health.

By contrast, those who have a negative self-image with a strong sense of self-denial always tend to expect the worst about their future. They easily harbor fear, anger and sadness, and therefore are unable to gain a sense of well-being. Individuals like this have a self-image marked by self-repressiveness that can be thought of as attachment relationships that bring neither comfort nor sense of stability (repressing the self to gain recognition of those around you), difficulty with emotion recognition (working hard without relying on the help of those around you), self-disassociation (maintaining composure by regarding your problem as somebody else's problem), and problem avoidance (coping with a particular situation ignoring the underlying problem and with undue positive thinking). It has become clear that, in all cases, the more pronounced these traits characterize the self-image of an individual, the more severe his or her depression gets (Munakata, 2003: 2004).

As noted above, the self-image of a client is likely to correlate with the image of his or her parents or guardians. That is to say, those who have a bad image of their father or mother also have a bad self-image and lack a sense of well-being. For example, it is now clear that those who remember their parents having an expression of revulsion like the facial expression on the woman in Figure 1 tend to have such physical symptoms as headache, stiff shoulder, lower-back

pain and allergy, and have a deeply repulsive self-image, and lack a sense of well-being (Munakata, 2009).

SAT therapy

In SAT therapy, the counselor applies a subjunctive mood* to determine what would happen if a client is taken back through evolutionary time to their ancestors and ultimately to his or her particles, and as a result, the client's past is changed in a way that improves the client's own life situation. A retrospective image projection technique is applied to help the client visualize his or her parents or guardians as people who provide care unconditionally. On the basis of this image, the client discovers his or her parental surrogate representation in photographs, paintings, religious (Buddhist) paintings and bronze statues that resemble the image the client originally had of his or her parents or guardians. The client is instructed to continue looking at the parental surrogate representation so that the brain will receive visual stimulations frequently enough that they will become firmly fixed in his or her brain. Instead of looking at the facial expressions of his or her actual parents or guardians, everyday the client looks at the parental surrogate representation in photographs, paintings, religious icons, comics and the like that have the same facial expressions as the ones the client imagines his or her true parents or guardians have. Forming an attachment relationship with the improved parental surrogate representation helps the client feel better and more refreshed, which in turn enables his or her body to relax. The brain is easily affected by mirror neurons, and this is especially prominent in facial expressions. By imagining the facial expressions of his or her parents or guardians to be like those of persons

who provide care unconditionally, the client is able to improve his or her self-image to resemble the smiling faces shown in Figure 2. In this way, the client learns to fix in his or her mind those smiling facial expressions as the self-reward-seeking type of self-imaging script (Munakata, 2009). Of course, together with raising his or her expectations for self-growth, the client seeks further improvement of his or her self-image, which in turn may inspire the client to come up with an upgraded version of the substitution expressions and images that he or she had already decided on.

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*Note:

The retrospective journey through time covers the entire evolutionary process ranging from the Big Bang to particles to atomic nuclei to atomic elements to molecules to proteins to living organisms, and to humans. In this journey, the client is guided to recall up to the time of his or her ancestors, and through his or her parents or guidance, to his or her own births and growth. The client is then taken back to any one of the earlier evolutionary stages, where he or she improves the image of his or her parents or guardians, and in turn improves his own self-image script. Below are four ways of rewriting one's self-image script:

1. Re-resolving imagery therapy: This is a technique for supporting clients' efforts to change their present self-image script by counseling them to re-learn how to solve unresolved problems dating back to their childhood days and thereby also changing the self-image script of their parents or guardians.
2. Three-generation script imagery therapy (formerly, rebirth and re-rearing therapy): This is a technique for supporting clients' efforts to change their present self-image script by altering the image script they have had of their parents or guardians by urging them to go back three generations to re-resolve the crisis in the womb recalled during the womb-regression therapy.
3. Pre-generation retrospective imagery therapy: This is a technique for guiding clients to change their present self-image script by altering the image script of their parents and guardians by urging them to go back in time to re-resolve the survival crisis of previous generations recalled during the womb retrogression therapy.
4. Retrospective evolution imagery therapy: This is a technique for guiding clients to change their present self-image script by urging them to go back through time to re-revolve the crisis of their particles or biological existence recalled during the womb regression therapy.

Controlling the fear of human relationships

We alternate between hope and fear as we watch television and movies. It's as though we were talking with our past. We project and fear those characters in stories we ourselves have experienced in our past, and relive the anxiety, sadness and other emotions that we experienced then. Similarly, among those we have encountered since infancy, most of the others who make us feel stressed have some of the same expressions that our parents or guardians who made us feel stressed in the past had. This is why we relive the same stress. We respond to some of those expressions in the same emotional way. To explain this phenomenon, it will be useful to give yourself the test described below.

Picture in your mind the good expressions and expressions of revulsion of either your father or mother, and see how your body reacts to the expressions and images you've recalled. If the parent you recall has a good expression, of course, your body will relax, but if the parent has an expression of revulsion, your body will respond in a variety of ways: I feel tense in some parts of your body. I feel a knot of pain in my head; I feel stiff in the shoulders; I have a pain in my chest; my heart starts pounding; my stomach feels funny; my hands and feet feel cold; and my whole body becomes rigid.

Now, consider how a client's body might react if the counselor asked him or her to recall the expression on the face of a person who made him or her feel stressed. If the client were properly guided in this, you would be surprised at the expression of revulsion on the face of either the aforementioned father or that of the mother, or at the similarity of the body's responses when the client looked at the expression of both the father and the mother (Munakata, 2009).

Until the client becomes self-reliant, it is understandable that the therapist should try to control the client's survival fears by controlling the attachment relationship between the client and his or her parents or guardians. But there is no reason to fear one's parents or guardians or to be saddened after becoming independent. If you can control this fear by applying the proxy expressions and images of your parents or guardians, by all means, use them to your advantage.

Cutting the umbilical cord of codependency with SKP surrogate representation

However, there are cases where you cannot reduce your own stress merely with the parental surrogate representation. Many symptoms, like suicide attempt, alcohol/substance abuse, personality disorder, and mental illness that you cannot control acting on your own will, cannot be explained by what psychoanalytic theories (including Bowlby's theory) refer to as the way you were conditioned by your parents or guardians in your infancy. This is because there are many cases where people find happiness despite their parents' or guardians' failure to raise or condition them properly in their infancy. This is why treatment strategies (attachment therapy, play therapy) that focus only on conditioning rarely lead to cure. Such treatment strategies are more likely to lead to a pathological condition of codependency of care providers. I believe the reason these symptomatic behaviors cannot be controlled by you acting on your own is that they have their origin in the fear that conditions you during the period between the embryo and the fetus.

The first factor to consider in analyzing the period when you are still in your mother's womb is the significant effect emissions of various chemical substances (e.g., noradrenalin, stress hormones) have on the embryo and fetus that reflects the relation nature of your mother and

father.

Another factor is the possibility of embryonic and fetal deaths in multiple births. Medical research has shown that only one in three zygotes test positive when urinalyses are administered on pregnant women, the rest (i.e., two-thirds) die and disappear. Although most miscarriages are caused by abnormality of chromosome, since other causes of miscarriages (i.e., half of the genetic material contained in the blastocyst) are inherited from the father, the mother's immune system regards them as viruses and attacks them, thus resulting in fetal deaths - The chemical material that remains after the remains of the dead fetuses is reabsorbed by the mother. The information carried by the reabsorbed chemical material may be stored in the cell membranes of more than 50,000 uterine cell receptors.

In the case of unborn babies of multiple conceptions, it may be that fear, anger, sense of grief and other emotions felt by the "siblings that died" are transmitted to the "siblings that survived" via their mirror neurons. This is why may be there is the possession of emotional information of our other siblings. Even if a client strongly desires to live, if the death wish, fear and sense of grief of his or her siblings have been transmitted to the client, then the client will bear a baby with contradictory emotions and personalities.

Clinical cases using SAT imagery therapy make it clear that patients with these contradictory personalities engage in destructive behaviors like attempted suicide and alcohol/substance abuse and suffer from personality disorders and mental illness. These disorders are considered to be purely diseases of the body. However, our research demonstrates that even those suffering from autoimmune diseases have similar backgrounds (Munakata, 2005;

Munakata, 2007; Munakata, Kobayashi, 2007).

This is why it is necessary to devise a treatment program that will cut off the transmission of emotions afflicting the client's deceased siblings. In SAT therapy, a three-generation retro narrative imagery technique is used to trace the crisis that have fallen on the client's three generations – parents, siblings and children – by having him or her go back three generations and re-resolve the crisis in the womb recalled during the womb-regression therapy, thereby liberating itself- from his or her subconscious control by turning his or her facial expression into proxy expressions and images.

Of the three-generation family, including those "siblings that died an absurd death (miscarriage, still birth, death by accident, death by disease, etc.), "those who protect us, or those with whom we wish to form codependency relationships" are referred to as spiritual key persons (SKP). By consciously visualizing the surrogate representation of the expressions on the faces of SKPs, clients undergoing the womb-regression therapy are clearly able to feel at ease and form a tension-free self-image.

If a client does not have the necessary SKP surrogate representation, the counselor will guide him or her to seek "a person who will protect him or her, or a person he or she would like to protect" and form a codependency relationship in which the client plays the role of the underdog or the caregiver. The client is guided this way because the codependency relationship will reproduce a whirlpool of malignant stress that in turn will produce stress-ridden patients and create intractable problems. Consequently, if the client continues to look at his or her parental or SKP surrogate representation, he/she will be able to proceed to form a secure attachment

relationship based on sense of ease, respect and gratitude. And if the client's parents or guardians are still alive, the latter will now be able to change his or her relationship with his or her real parents or guardians.

Conclusion

Other-reward-seeking society where people fight over limited resources, which generate a lot of malignant stress that systematically batters the very social fiber, is about to outlive its usefulness. The time has come to build a self-reward-seeking society marked by a highly-organized structure where people cooperate with each other to gain unlimited self-rewards such as self-growth, self-satisfaction and gratitude. To build such a society, we must move beyond conventional codependency relationships and form secure attachment relationships based on sense of ease, respect and gratitude.

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Comparative examination of the effects of the SAT-DVD Learning Program Therapy and the Qigong (the traditional Chinese breathing exercise) Therapy to alleviate stress in cancer survivors

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Summary

〔Purpose〕 This study aimed to examine the stress-alleviative effects of the self-learning SAT Imagery Therapy recorded on DVD (hereinafter called as SAT-DVD) in cancer survivors. With the qigong therapy, a representative alternative medicine that makes use of images, as the control group, various changes before and after the intervention were examined to alleviate depression, psychological traits and biochemical indexes of salivary immunity.

〔Methods〕 The subjects were 17 cancer survivors (aged 52.2±8.7). The study design: Prospective, pre/post-test intervention, single-arm trial Intervention Methods: the qigong therapy, SAT-DVD watching therapy. Psychological indexes were measured by means of self-report questionnaire before, immediately after and one week after each intervention of the qigong practice and SAT-DVD watching. Saliva for test was collected before and after each

intervention and was analyzed statistically. Measured items: Distinction of sex, age, and psychological indexes (scales of depression, self-control, difficulty of emotional recognition, problem solving, dissociative identity, and trauma syndrome).

〔Results and Discussions〕As to the biochemical indexes, significant decline of the adrenocortical hormone level after the qigong intervention and significant rise of salivary secretory immunoglobulin level after SAT-DVD watching were observed. As to the psychological indicators on the other hand, no significant change was observed in the scores of any psychological characteristics after the qigong intervention while significant decline was observed in the scales of depression, self-control, difficulty of emotional recognition and the scores of trauma syndrome after the SAT-DVD watching.

It was presumed that improvement of self-image and alleviation of depression was the possible means that SAT-DVD watching therapy improved immunity responses (the increase of salivary secretory immunoglobulin) in the cancer survivors.

Keyword: cancer survivor SAT stress management depression salivary SIgA salivary cortizol

1. Introduction

The number of cancer survivors in Japan is estimated to have reached 3,650,000 at the year-end of 2004 and is forecasted to increase to as many as 5,000,000.[1)] According to the study by Hoffman et al on cancer survivors in the US, long-term cancer survivors are at increased risk of experiencing serious psychological distress compared with people who have never been diagnosed with cancer.[2)] Also in Japan there are indications of problems of mental health for rapidly increasing cancer survivors, and particularly problems of their living with fears of recurrence and metastasis of cancer.[3)] The measure from the view point of mental health is an urgent need for the cancer survivors since the very fear has indirect effects to intensify stress and prevent spontaneous cure. When it comes to a relation between cancer and psychosocial factors, studies on the relation between cancer and personality have been known for a long time. Suppression and denial of emotional expression, failure in coping with stress, and Type C personality[4)] characteristically with such resigned reactions as hopelessness and helplessness have been reportedly related to outset and progression of cancer. According to Maeda et al[4)], the self-suppression type (self-suppression aiming to be appreciated by the people around) and the type of difficulty in recognizing emotion (having difficulty in recognizing own emotion and inclination to keep going to the end without seeking assistance from the people around) are remarkable as the character traits of the patients after gastric cancer resection. To be more precise, they have difficulty in recognizing their own senses and emotions and they have little inclination to express themselves but they are very much persevering. In addition to the above,

Munakata[5] indicated that the dissociative identity type (to see one's own matter as if it were somebody else's in order to remain calm), the problem avoidance type (to avoid facing a matter squarely and tackle anything with a super-positive attitude of mind) and the self-pity type (to look at oneself with pity) are also remarkable as the character traits of the patients after gastric cancer resection. By all accounts, they have difficulty in recognizing their own senses and emotions, seeking help from the people around and facing up the reality. Also, they are apt to take a super-positive attitude of mind and keep going to the end tenaciously alone. Some people explain that the immunity against tumor cells gets lowered because they cannot openly express their displeasure, try to carry out all the way through their duties over-seriously and thus keep stress chronically in. Many a prospective cohort study on a causal relation between cancer-prone personality and outset of cancer reports the relationship between outset of cancer and depression and emotional suppression.[6)-8)] On the other hand, there are some reports indicating no clear relationship between them.[8)-11)] Thus academic opinion is still divided on this question.

Personality is made up in the core of temperament that is subject to genes and self-image script that creates the behavioral traits based on the temperament. As to the characters related to stress, there are in the core some hereditary temperament such as anxiety-prone temperament and tenacious temperament that is highly sensitive to stress. When people have experiences of birth trauma and infancy trauma, the self-image of the others-reward oriented type which easily over-reacts to stress remains in their memory, the scripts for their behavioral traits are finished,

and as a result the stress-prone temperament such as self-suppressive, difficult to recognize emotion, and problem avoidant are believed to be formed.

A person with the stress-prone temperament easily stretches his/her sympathetic nerve and is forced to continuously secrete adrenaline. Consequently, it easily leads to the decrease of lymphocytes in a leukocyte and the increase of granulocyte due to the continuous secretion of adrenaline. The active oxygen released from granulocyte serves to exclude foreign matters entered into the body. It is suggested at the same time that it may possibly cause the outset of cancer by damaging cells and nucleuses and genes in cells.[12)]

According to some previous reports, cancer patients are so aspiring having strong tenacious temperament, so thick-skinned that they would not recognize their own emotions and senses, and so solitary without trying to seek help from others. They try to keep going to the end with the other-reward oriented behavior so that they may be appreciated by other people. They tend to lack in communications with their families and their family relationship is weakened.[13)14)] If we look at it from a different angle, the disease called in the name of cancer has some truth to help the patients find the original way they feel in accordance with their inherited genes, and also find the necessity of enjoying themselves, of mentally communicating with families, and of the self-reward oriented behavior with which they may seek self-satisfaction and appreciation.[15)]

On the hypothesis that stress has an influence on the outset of cancer, lots of psychotherapy have been conducted for cancer patients both domestically and abroad. Making the survey of studies on psychological interventions with the study design of randomized clinical trials, we learn,

from a study on the intervention to breast cancer patients with symptoms of metastasis, life prolonging effect of the intervention for those in the intervention group.[16)]

Although longer survival was denied in the follow-up trials, the intervention has proved to have effects to decrease psychological stress and ease pains.[17)] Post operative patients of malignant melanoma in the short-term cognitive behavioral intervention group reportedly showed more increase in the ratio of NK cells compared with those in the control group.[18)19)] It is reported by Rehse et al[20)] that psychological intervention is valid for improving QOL based on the results of meta-analysis concerning the effects of psychosocial intervention for adult cancer patients. While on the other hand, we see, among studies on randomized socio-psychological intervention, some negative reports that psychological intervention is not effective for longer survival.[21)22)] Notwithstanding accumulated researches and studies as seen above, It is hard to say that evidences for the effects of psychological intervention have been amply provided.

The SAT imagery therapy helps the patient become aware how the self-image is changed with the changes in other past images as if he/she were brought up by an unconditional caretaker under improved conditions for his/her own growth. According to our clinical research, it confirms the weakened behavioral traits of others-reward oriented type such as self-suppression and difficulty in emotional recognition, as well as the significant effect to enhance the immunity responses (to increase lymphocyte count and degree of activation) and the rate of tumor suppressor gene expression.[23)24)25)]

In practice, a hypothetical way is used in the SAT imagery therapy: The patients, with the meditative imaging technique to go backwards to the past in the evolutionary process (self - a fosterer - an ancestor - a biological being - a particulate being), experiences time regression. And in the newly created image, their past are changed as if their growing background were improved and as if they were brought up by those who offered unconditional care. Then, the self-image is also changed in some way or another. In order for them to form their future self-image, we help the patients become aware of the self-image script that they were brought up under natural growing background with unconditional care although it has not been transmitted from their ancestors over generations. And we encourage them to become aware of the action plans (major, middle, and minor objectives) for realizing the improved self-image script. It is the Third Generation Cognitive Behavioral Therapies with which emotional change, cognitive change and behavioral change are promoted. We, on the basis of the SAT Imagery Therapy, have been developing the stress management system with resources available for cancer patients for increasing their mental health, immunity and expression of tumor suppressor genes.

The purpose of this study is to examine the effects of the SAT self-learning program recorded on DVD with a control group as a basic study for developing a stress management e-learning program for cancer survivors utilizing web-technique and the SAT Imagery Therapy. We adopted the qigong therapy and set it as a control group, partly because it is utilized by many cancer survivors though it is different from this program in utilizing physical exercise, and partly because it, utilizing various images, shares common feature of imagery therapy with this program.

It is hypothesized that watching the SAT-DVD self-learning program for cancer survivors with the control group of the qigong therapy may alleviate depression, change psychological traits, improve immunity responses/salivary corticosteroid index.

2. Method

Theoretical Background

The Qigong Therapy: The basic elements of the qigong are said to be the control of body, breathing and mind. The autonomic nervous system gets stabilized by moving the body, catching the breath and relaxing. By exercising the so-called “space time method” centered on the solar plexus breathing, the effects to prevent recurrence and metastasis of individual disease by site are expected for cancer patients.[28)]

SAT-DVD self-learning program: With this approach to let cancer survivors watch SAT-DVD, we aimed to let them weaken the image of expected death and alleviate the fears by having a sense of gratitude for being alive and change their behavior from the self-reward oriented type to the others-reward oriented. A couple of learning assistants sat in company with the subjects of one to four in number each time and supported their learning through watching the SAT-DVD including PC operations. It took 90 minutes only each time for watching the SAT-DVD. Details of the support are shown in Table1. The SAT-DVD watching was executed with interval of 2 to 3 weeks after the qigong intervention.

Table 1 Contents of each intervention program

	Purpose of intervention	time (min)	basal skill	contents
The Qigong Program	lecture	10		Lectures of *Koku*
	Practice of Qigong	45		1. Preparatory exercises 2. To become familiar with qi (energy) 3. To feel the rhythm at the water's edge 4. To interchange with empty space 5. Closing exercise
SATDVD program	Introduction and guidance Relation of cancer with stress	5		Lectures on the influence of stress on cancer, immunity responses and defensive strength of genes
	E-coaching based on the stress management by selfunderstanding Self-image in which stress is easily accumulated	10	Health Coaching	To promote recognition of influences of stress on the onset and the course of cancer, and of stress-prone characters such as high level of self-suppression, difficulty in emotional recognition, problem avoidance, trauma, and low level of sense of self-value.
	To promote the self-understanding on hereditary stress-prone temperament To promote balancing self-reward oriented type of living with others-reward oriented type	15	Temperament Coaching	To promote the self-understanding and understanding the other people through knowing of the inborn and hereditary temperaments. To promote checking the self-care activities corresponding to respective temperaments, and setting detailed objectives for self-care items in which self-confidence to carry out is low.
	Reconstruction of Self-image Script To promote recognition of the innate self-image and to set the objective for fixing a narratively positive self-image	15	The future self-imaging	The past image of aversive memory produces negative cognition on the present and the future. To create a rewarding self-image script for the future innate self without referring to past memories To promote setting the concrete objectives of self-rewarding type showing what should be done to live with the innate self through learning the gap between the newly created self-image and the present actual one
	To promote recognition of "the innate self" of self-reward oriented type and also to promote empowering the identity by setting concrete and detailed objectives	30	Self -imaging of a spatial particle	To make the self-image go back to the age of space, origin of all things Imaging work to reconstruct, via the visualized image of favorable light in the space, an evolutionary passage for the self-image starting from a spatial particle, going through a living thing and reaching a man To form the positive self-image to have been loved unconditionally, to learn the gap between the innate self-image and the actual one in the same manner in the method of imaging the future self, and to promote setting the concrete objectives for the self-reward oriented type seeking the way to live the innate self.

To promote their self-understanding the temperament coaching therapy and psychological trait checking were utilized. Hereditary temperament, nucleus of one's nature consisting of hereditary factors and biological factors related to neurotransmitter, does not change throughout

one's lifetime. Among them all, those who have either "the Persistence Type of Temperament" observed in perfectionists or "the Anxiety Type of Temperament" represented by pessimism and tendency to be opinionated are inclined to become fearful, solitary and stressful. So they needed to be coached for their self-care activities.

Furthermore, in order to help them change their self-image of suppressing the self and accumulating it in the soul, blunting the emotion, and staying the course at the sacrifice of the self, to the new one of enjoying the own life, and exchanging heartfelt communications with their families and friends, we let them experience the two kinds of imaging works used in the SAT imagery therapy as shown in Table 1. We helped them notice the necessity to change their behavioral trait to the one of the self-reward oriented type that is hard to accumulate stress by way of letting them know the gap between the innate self obtained through these exercised self-image trainings (the self protected and brought up at will) and the actual one.

Research Collaborators

A meeting for explaining the study was held for participants to the qigong class sponsored by a clinic specialized in cancer treatment in the Tokyo metropolitan area, and research volunteers were collected among them. On explaining the objectives and meaning of the research, close attention was paid by the researchers including one in charge of practicing qigong to keep neutrality so that any biased information might not be inputted. There were 34 prospective research volunteers: 17 cancer survivors and 17 healthy individuals including families of cancer

survivors. The intervention period lasted about one year: December, 2007 ~ February, 2008.

Participants

The 17 cancer survivors who had agreed to the explanations on the intended and meaning of the research were set as the analysis subject. Healthy individuals were excluded from the analysis for the purpose of the study was to examine the stress management therapy for the cancer survivors. As to the changes in the psychological indexes, analyzed were the 15 subjects (2 males and 13 females) excluding 2 who were not available at the time of research conducted 1 week after the intervention. Attributes of the study participants are shown in Table 2.

Table 2. Attributions of the analysis subjects and the kinds of cancer they are now contracting

Attributions				
Sex	male	4	female	13
Years of age	52.2±8.7			
Marital status	Married	11	single	6
Living pattern	together	14	alone	3
Length of morbidity(years)	4.6±8.7(0.5-23)			
Kinds of cancer caught	number (%)			
Breast cancer	5 (29.4)			
Uterine cancer	2 (11.8)			
Pancreatic cancer	1 (5.9)			
Gastric cancer	1 (5.9)			
Oral / lip cancer	1 (5.9)			
Liver cancer	1 (5.9)			
Prostate cancer	1 (5.9)			
Lung cancer	1 (5.9)			
Others (including the cured)	4 (23.4)			

Ethical Considerations

Approval was obtained for this study from the Board of Examination of Epidemiological Study, the University of Tsukuba. Explanation on the intended meaning of this research was made in writing and orally to the subjects and the research was conducted after obtaining the agreement of the subjects.

Study measures

Psychological traits

1. Self-rating depression scale (SDS, Zung)[23] [20 items, maximum of 80 points]: SDS is a measures of depression. The higher the points are, the higher the depression.

2. Scale of self-suppressive behavioral trait (Munakata, 1996)[24][25] [10 items, maximum of 20 points]: The scale measures the expectations of favour from those people around by suppressing own emotions to satisfy those around. The scale comprises of 10 items; 2 points is given to “always so”, 1 point “usually so” and 0 point “not so”, with total scores of minimum 0 to maximum 20 points.

3. The scale of problem solving behavioral trait (Munakata, 2001)[25] [10 items, maximum of 20 points] : This is the scale to measure the behavioral trait to try to positively, effectively and

realistically deal with the tasks and problems standing in front. The scale comprises of 10 items including “In anything I rather make judgment while confirming the fact”. The higher the points are, the more remarkable is the trait to try realistically dealing with the problem for solution. Lower points in this item suggest the tendency to repeat the same kind of failures and errors for postponing the solving of problems without facing up to the reality. It is also believed that there exist some stressful memories with aversive emotions behind the low points in this item.

4. The scale of difficulty in recognizing emotions (Munakata, 2001)[25] [10 items, maximum of 20 points]: This is to measure the tendency of difficulty in recognizing emotions that is to endure the hardship without getting emotional and to easily somaticize stress.

5. The scale of the dissociative identity (Munakata, 2001)[25] [10 items, maximum of 20 points]: This is to measure the scale of dissociative identity, that is the split self, one being embarrassed with a serious problem and the other calmly watching the former. The higher the points for this item are, the stronger is the emotion of dissociative identity such as fear, impatience and panic.

6. The scale of the post-traumatic stress syndrome (Munakata, 2001)[25] [10 items, maximum of 10 points]: This is to measure the seriousness of traumatic stress symptom. The higher the points for this item are, the stronger is the emotional reactions under a specific key situation with the recognition of trauma.

Biochemical Indexes

In order to examine the stress management effects of practicing the qigong program and SAT-DVD electronic self-learning program for the participants, saliva was collected before and after the qigong class and SAT-DVD watching, and then the changes in the salivary corticosteroid and salivary SIgA were measured.

1. Salivary corticosteroid (Cortisol): Steroid hormone secreted from adrenal cortex is discharged into the blood and then is carried to saliva. It is said that stress can be quantitated to some extent by them.[26] It is known that there is a time lag of about 20 to 30 minutes between stressor and response.

2. Salivary Secretory Immunoglobulin A (salivary SIgA): Salivary SIgA has a major function in mucosal immunity. It is said that under stressful conditions the concentration of SIgA, a complement component of immunity in saliva, is lowered.[27]

Analysis

Responses to the questionnaire were collected 5 times in total, namely, before the intervention, immediately after the qigong class, one week after the qigong class, immediately after watching

SAT-DVD self-learning program, and finally one week after watching SAT-DVD self-learning program.

Psychological indexes of the 15 subjects were measured before, immediately after and one week after intervention. Their biochemical data, measured before and immediately after intervention, were statistically analyzed. Normality of psychological indexes was checked, and the two way repeated measures (within subjects × within subjects) analysis of variance (ANOVA) was conducted. As to the changes in biochemical data, the Wilcoxon Test, which is a non-parametric statistical hypothesis test, was used due to the large scale individual variation of data.

3. Results

The changes in biochemical indexes between pre- and post- intervention (Table 3)

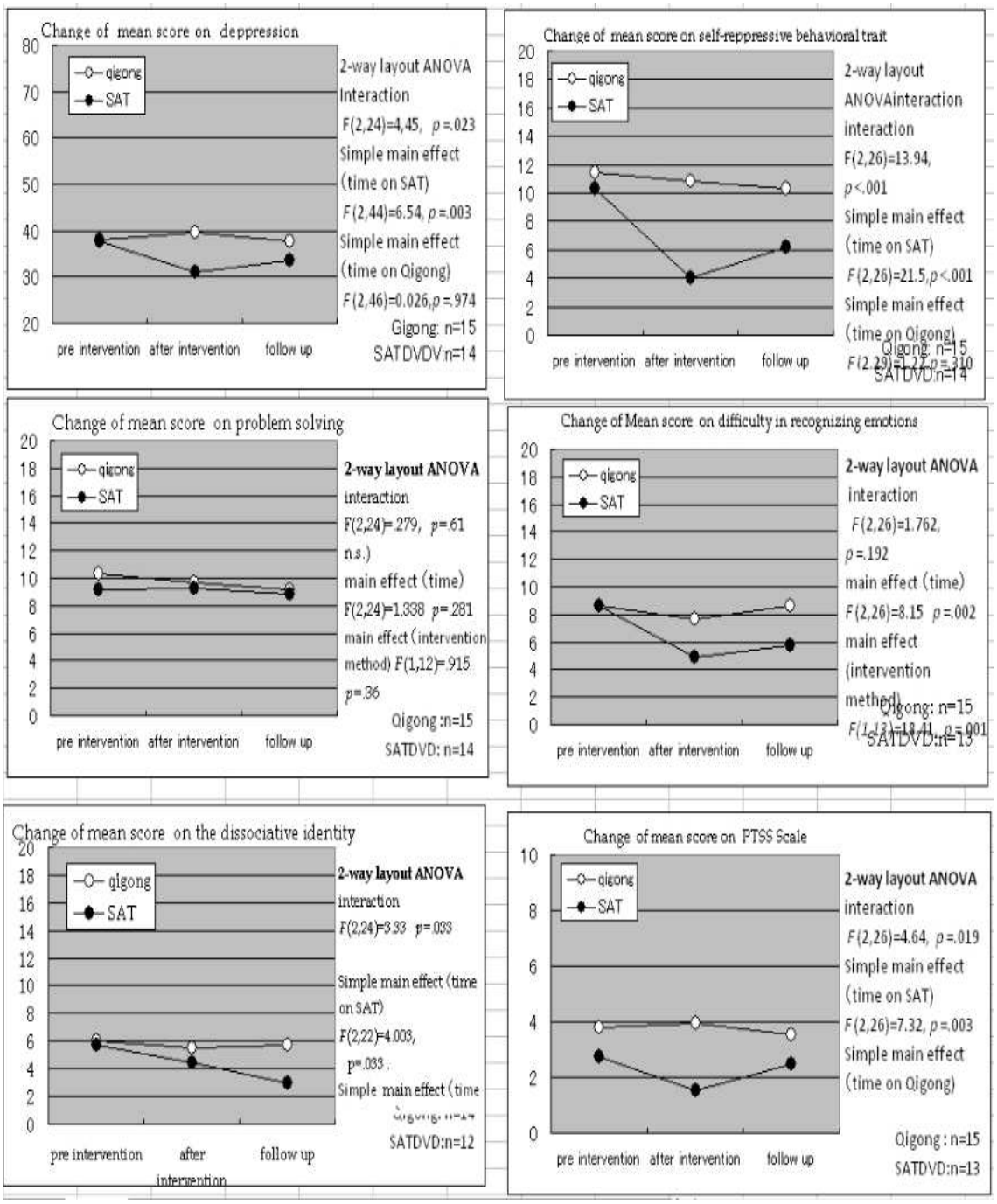
Table 3. Changes in immunity responses of subjects on each program (n=17)

		before intervention	after intervention	Z	*p* value
Qigong	cortisol (μg/dL)	0.49	0.35	-2.23	0.03
	amylase (U/L)	194820.00	195330.00	-0.34	0.73
	sIgA (μg/mL)	356.50	452.70	-1.82	0.07
SATDVD	cortisol (μg/dL)	0.40	0.31	-1.19	0.23
	amylase (U/L)	78500.00	188700.00	-0.23	0.82
	sIgA (μg/mL)	328.30	681.00	-2.27	0.02

Before and after each intervention of the qigong practice and the SAT-DVD watching examined was how the secretion levels of salivary corticosteroid and salivary SIgA immediately after and 1 week after intervention were changed in comparison with those before intervention. Significant

decline of corticosteroid was observed after the qigong intervention (Z=—2.23, *p*=0.03). Also significant was the observed rise of salivary SIgA after the SAT-DVD watching (Z= -2.27, *p*=0.02).

The changes in psychological traits before and after the intervention (Figure 1)



Scores for the qigong therapy and the SAT-DVD e-learning program before, immediately and 1 week after intervention were analyzed with the repeated measures (corresponding × corresponding) two way analysis of variance (ANOVA). As a result, the interaction effects between time and intervention were observed in the self-rating depression scale (*F(2,24)=4.45, p= .023*). Now after the examination of simple main effect by the intervention method, the decline of the self-rating depression scale was observed in the SAT-DVD watching group while no such change was confirmed in the qigong group. As the result of examination by multiple comparison, improvement of the self-rating depression scale was observed by the fact that it turned out to be significantly lowered immediately and 1 week after watching compared with the one before watching (before intervention – immediately after intervention; $p<.05$, before intervention – 1 week after intervention; $p<.05$).

Then, the interaction effect of time by intervention was confirmed in the scale of self-repression (F(2,26)=13.94, $p< .001$). Now after the examination of simple main effect, significant decline of scale of self-suppression was confirmed in the SAT-DVD watching group (F(2,26)=21.5, $p=.001$) while no significant change was observed in the qigong group either at three points of time of the qigong intervention(F(2,29)=1.219, $p=.310$, n.s.). With the fact that in multiple comparison the scores were significantly lowered at both points of time, immediately and 1 week after intervention compared with those before intervention (before intervention – immediately after intervention; $p < 0.5$, before intervention – 1 week after intervention; $p < .05$), the weakened self-suppression and promoted self-expression were observed.

Significant change was seen in the scale of problem solving behavioral trait neither as the interaction effect of time by intervention nor as the simple main effect of respective time and intervention (interaction effect: F(2,24)=.279, p=.61, simple main effect (time): F(2,24)=1.338, p=.281, simple main effect (intervention method) : F(1,12)=.915, p=.36).

The interaction effect of time by intervention was not confirmed in the scale of difficulty in emotional recognition (F(2,26)=1.762, *p*=.192, n.s.), but the simple main effect was confirmed both at the time of intervention and in the intervention method (intervention method: F(1, 13)=18.41, *p*=.001; time of intervention: F(2,26)=8.5, *p*=.002). Significant changes in scores by the timing of intervention were confirmed between the two groups. With the fact that in multiple comparison the scores were significantly lowered for the SAT-DVD watching group at both points of time immediately and 1 week after intervention compared with those before intervention (before intervention — immediately after intervention; $p<0.5$, before intervention — 1 week after intervention; $p<.05$), blunting of emotion was confirmed to be alleviated.

The interaction effect of time by intervention was confirmed in the scale of the dissociative identity (F(2,24)=3.33, *p*=.033). Now after the examination of simple main effect by the intervention method, significant decline of scale of the dissociative identity was confirmed in the SAT・DVD watching group while no significant change was confirmed in the qigong group (simple main effect; at the time of intervention for SAT-DVD watching group: F(2,22)=4.003, *p*=.003 at the time of intervention for the qigong group: F(2,29)=0.062, *p*=.94). After the examination with multiple comparison, significant changes in scores were confirmed by the timing of intervention.

With the fact that in multiple comparison the scores were significantly lowered for each group 1 week after intervention compared with those before intervention (before intervention — immediately after intervention; $p<0.5$, before intervention — 1 week after intervention; $p<.05$), tendency of the dissociative identity was confirmed to be weakened.

The interaction effect of time by intervention was observed in the scale of the post-traumatic stress syndrome ($F(2,26)=4.64$, $p=.019$). Now after the examination of simple main effect by the intervention method, significant changes in scale of the post-traumatic stress syndrome were observed in the SAT-DVD watching group, and after the examination with multiple comparison, the scores were significantly lowered for the SAT-DVD watching group at both points of time, immediately and 1 week after intervention, compared with those before intervention (before intervention — immediately after intervention; $p<0.5$, before intervention — 1 week after intervention; $p<.05$),

As to the contents of the program, many of the participants looked to have enjoyed their imaging experiences in both programs as seen in the following opinions; “It was an enjoyable work to image the space and the interior of the womb. I heard in the practice of qigong that we were linked with the space. I was excited with the sense of going to and from the space.” “I was entranced as if I had been in a dream.”

As to the SAT-DVD watching, many of the participants looked to have realized the necessity to live in a relaxed manner as seen in the following opinions; “I suffer from trifling matters in my

everyday life. I wanted to live in an easy state." "I thought I had improved fairly successfully my ways of thinking and living in my own way, but I was awoken to the fact that actually I had been leading conventional life with an idea that it must be so and so. Now I want to explore the possibility to realize myself in accordance with my visualized self-image by relaxing a bit more and trusting myself."

As to the innate self-image and behavioral objectives for living with it, many of the participants looked to consciously practice the self-reward oriented way of living as seen in the following opinions; "From time to time I remember and image my inner self." "I practice to live in accordance with my innate self-image." "I practice looking at the displayed memo."

4. Discussion

Changes in the biochemical indexes

In this study we examined changes in immunity responses for cancer survivors, taking the SAT-DVD watching and the qigong, one of the alternative medicines, as control groups. The qigong reportedly enhances spontaneous cure[28], and also reported is that it is effective for decreasing leukopenia in case it is used in combination with chemotherapies for cancer patients.[29] Density of salivary corticosteroid showed a significant decline immediately after the qigong class, which suggested its effectiveness for alleviating stress. Corticosteroids increase

when human bodies are exposed to stress and tension while they decrease when human bodies are in the state of relaxation.[26] Accordingly, the decline in corticosteroid was thought to be attributable to the acquirement of the state of physical relaxation by participation to the qigong class. However, it is known that the level of corticosteroid is subject to diurnal variation with its peak at 8 o'clock in the morning and gradual decline thereafter until noon.[30] Since the qigong class was conducted from 9 o'clock until 10 in the morning, effect of diurnal variation on the decrease of corticosteroid cannot be denied, and therefore, there is a limit to insisting the unmixed effect of the qigong.

The decrease of corticosteroid in the blood was reported by Van der Pompe G et al as the result of 13 week short-term psychotherapy program for breast cancer patients, but no such significant change was seen in the density of corticosteroid by the comparison of the levels before and after our 90 minute SAT-DVD intervention. However, significant increase was observed in SIgA. It is known that SIgA reflects the psychosomatic stress. SIgA secretion is decreased by placing a burden of stress on the body or bearing negative emotions in mind.[27] It was suggested as a result of this study that SAT-DVD watching, immediately after carrying it out, had stress alleviating effect.

It is said that salivary SIgA easily reflects psychosomatic stress[27] while salivary corticosteroid rather physical stress. When the contents of the intervention program of this time are taken into consideration, the effect to alleviate psychological stress may have been reflected in the SAT-DVD watching and the effect to alleviate somatic stress in the qigong class.

Changes in Psychological Indexes

By the qigong intervention, no change was confirmed in any psychological indexes. By the SAT-DVD watching on the other hand, improvement was confirmed in all the psychological indexes except for the behavioral trait of problem solving type. After all, those who participated in the SAT-DVD watching intervention program were promoted to change their self-image to the one in which negative events were hard to be grasped as mental damages, self-expression was easy and support from the people around was easily sought when necessary.

Surveying the interventions conducted in the past, reported was a case showing the effectiveness to alleviate depression with the combined use of Simonton's image control method for cancer care and biofeedback.[32] In it, the correlation is studied between alleviation of depression and recovering "the identity" that can control disease by creating the image of own lymphocytes attacking and eating cancer cells. Reported also by Fawzy et al[33] was that as the result of the psychological intervention by the supporting group (tackling the cancer problems with colleagues) the mortality rate of the subject group showed one third of the control group 5 years after intervention. Based on the past reports, the identity of the subject patient and the mutual supporting have been discussed as the factors of great importance to overcome cancer.

In the SAT-DVD program, unlike other conventional psychological interventions including cognitive behavioral therapies, the method without depending on the information based on the

memory of past experiences is used for promoting the patients to recognize their “innate self”. To give a full account, if a behavioral change is resolved with the past self-image intact, it is nothing but an extension of the present way of living. Therefore, it is impossible to change one’s character demonstrated by behavioral trait. Human cognition and behavior are fixed by the self-image obtained from the information based on the memory of past experiences. We come to understand how we should better lead the life with the figure of innate self only when we recognize the difference between “the actual self” and the visualized image of “the innate self” in which we were protected unconditionally and lived at will. That we adopted an imaging work for reconstructing the inner self based on a certain hypothetical way seemed to be an important factor for the obtained result. If we give a thought to descriptive data including opinions together with changes in the psychological indexes, the followings seem to have been influential; ①the subjects realized their innate self, and ②they set the concrete and clear-cut behavioral plan which looked satisfactory and enjoyable for them and they themselves were able to realize that they were actually carrying out the plan. Among the measured behavioral traits, however, no significant change of score was observed in the behavioral trait of problem solving type. To enhance the ability of problem solving, additional approaches seemed necessary including showing the subjects a competent role model. Also, it was considered as one of the major causes that other latent psychological problems might remain unsolved and disturb enhancement of problem solving ability.

The qigong therapy was confirmed effective for relaxation by the decrease of salivary

corticosteroid, but at the same time it showed changes neither in scale of depression nor in psychological traits. With the qigong therapy alone it seemed impossible to help the patients to realize, much less to change, the self-image script (the scenario by which behavioral traits were created) that caused stress disorders including cancer. If the qigong practice is used together with other programs including the reconstruction of the self-image script, however, it may possibly become an effective stress management therapy.

The SAT-DVD self-learning system has possibilities to provide many cancer survivors with care for stress compensating for the weakness of other individual intervention therapies in which the subject is limited to a small number of people.

The Limits of the Study and Future Tasks

We tried conducting the SAT-DVD watching program with the support by an intervention assistant as one part of the basic study for developing the SAT self-learning system utilizing DVD, but cancer survivors might not necessarily be familiar with PC operation. Therefore, the effects of the program conducted with the assistant's support in research of this time may be different from those of the program to be individually practiced by a patient alone. It is required henceforth to closely examine the effects of the program under the circumstances where a cancer survivor, operating PC alone, practices this program to be distributed through Web network. Furthermore, only short-term effectiveness before, immediately after and 1 week after the program intervention

was examined in this study. It has been untouched and remains therefore as a future task to examine if the improvements of immunity response and depression are sustainable in the long run. s the research design this time, we adopted the methods conforming to the single-group time-series design and the crossover design. However, there was a limit to the study that influence of carryover effects cannot be eliminated since two different kinds of intervention were conducted to all the subjects in the same order.

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