

Case Report

Positive Behavioral Support to a Patient with Traumatic Brain Injury and His Family from the Acute Stage

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ABSTRACT

The impairments caused by traumatic brain injury (TBI) are sometimes too difficult to understand for patients and their families. Especially in the acute stage, there is often much discrepancy in the awareness of the impairments among patients, their families and medical and rehabilitation staff. Such misunderstanding obstructs introduction of chronic-stage rehabilitation. Positive behavioral support (PBS) provided to TBI patients and their families could improve their quality of life in the chronic stage. However, there has been no report concerning acute-stage PBS (APBS). The patient was a 22-year old male with acute-stage TBI who was admitted with coma. After recovery from coma, he had significant cognitive problems that included, for example, neurofatigue, disinhibition and attention disturbance. At first, there was much discrepancy in the understanding of his impairments among the patient, his family and staff. We provided both patient and family APBS from the beginning of the rehabilitation process. After APBS by our rehabilitation team, the discrepancy in understanding among the patient, family and staff was reduced. This case suggests that APBS could help patients achieve self-awareness and gain trust from family, which could then allow for the appropriate introduction of chronic-stage rehabilitation. (Jikeikai Med J 2006 ; 53 : 141-5)

Key words : traumatic brain injury, acute brain injury, rehabilitation, milieu therapy, psychosocial education

INTRODUCTION

The problems related to physical and cognitive function caused by traumatic brain injury (TBI) are sometimes too difficult to understand for patients and their families^{1,2}. In the acute stage, patients and families are usually very confused by the sudden tragic accident. This causes inappropriate support for TBI patients from their families and medical staff, with the result that positive behavioral support (PBS) is needed^{3,4}. With these facts in mind, we provided acute-stage positive behavioral support (APBS) to a

TBI patient and his family, focusing on how to understand and cope with his neuropsychological dysfunction.

CASE

A 22-year-old man was admitted to this hospital because of coma immediately after a boxing match. The patient had been well till he was injured.

The neurological examination showed that his brain injury was severe: 5 points on the Glasgow Coma Scale (GCS)⁵ and level II on the Rancho Los

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Fig. 1. Image : CT Scan obtained immediately after admission shows a hyperdense lesion in patient's left subdural area with mass effect and diffuse brain swelling.

Amigos Levels of Cognitive and Functioning Scale (LCFS)⁶. Examination also revealed flaccid motor dysfunction on the left side. Computed tomography showed a left acute subdural hematoma with mass effect and diffuse cerebral swelling (Fig. 1). Craniotomy and decompressive surgery were emergently performed, and barbiturate therapy was administered for the next 3 days.

On the fifth hospital day, we began the patient's rehabilitation through physical training. During the first three weeks, his consciousness progressively improved to 14 points on the GCS and to level VI on the LCFS. He became able to speak fluently with correct Japanese. During the next three weeks, his consciousness improved to level VII on the LCFS and also motor function on the left side had progressively improved. Functional Independence Measure and Functional Assessment Measure (FIM/FAM)⁷ showed that activities of daily living (ADL) involving both motor function and social cognition improved progressively (Table 1). But in spite of this remarkable recovery, from the time the patient awoke from the coma, confusion and anxiety in the family and patient began through lack of understanding of his neuropsychological impairments. Results of neuropsychological examinations were as follows: Mini-Mental State Examination, total score 25/30 (Orientation, 7/10, Attention and Calculation 4/5, and recall 2/3); Digit span test (correct number), forward 4 and backward 2; Word fluency (number cited), animals 4 and fruit 4; Trail Making Test, A 123 sec and B 164 sec; and Frontal Assessment Battery, total score 16/18, (Word fluency : 1/3). These results revealed frontal-

lobe dysfunction, for example, neurofatigue, disinhibition and attention disturbance.

Strategy for positive behavioral support (PBS) (Table 2)

First, we recognized 3 neuropsychological impairments and explained to the patient and his family what were the concrete problems in his daily hospital life. (Table 2-(1), (2)). Second, we interviewed both patient and family on how they coped with these problems (Table 2-(3)). Third, we provided both patient and family with strategies of PBS to acquire coping skills with his neuropsychological impairment beginning in the acute stage (Table 2-(4)).

After introduction of strategy for acute-stage positive behavioral support (APBS)

After introduction of APBS, sufficient rest, a stress-free environment, and a comfortable milieu were provided wherein no one disturbed the patient in his daily life. In addition, the Global Assessment of Functioning (GAF) was rated by the patient, his parents and staff. Results showed that discrepancy in the GAF score among the three that had been evident before our APBS was reduced after APBS (Table 3). On the 57th hospital day, we were able to successfully introduce him to another hospital specializing in chronic-stage rehabilitation.

DISCUSSION

In the acute stage, family members sometimes perceive the burden of a patient's impairments from TBI. However, rehabilitation programs focusing on family members of TBI patients are not often provided in many districts⁸. We previously demonstrated that a comprehensive and holistic rehabilitation program of chronic-stage TBI focusing on PBS for patients and their families could improve QOL of both patient and family⁹. In this case, we experienced remarkable improvement in ADL and reduction in discrepancies in the evaluation among the patient, his family and staff. Results showed that trust among the three and the patient's self-awareness improved.

We supposed that this desirable outcome was the result of the appropriate milieu that APBS pro-

Table 1. Neurophysiological state and activities of daily living of the patient

LCFS=Rancho Los Amigos Levels of Cognitive and Functioning Scale						
hospital day		5	20	35	50	
LCFS		2	6	6	7	
FIM/FAM=Functional Independence Measure and Functional Assessment Measure						
hospital day		5	20	35	50	
FIM/FAM						
Motor	feeding	1	2	6	7	
	grooming	1	3	5	7	
	bathing	1	2	3	4	
	dressing upper body	1	3	5	7	
	dressing lower body	1	3	5	7	
	Toileting	1	1	4	7	
	Swallowing	1	5	6	7	
	bladder management	1	3	4	7	
	bowel management	1	3	4	7	
	bed, chair, wheelchair, transfer	1	1	4	7	
	toilet transfer	1	1	4	7	
	tub or shower transfer	1	1	4	7	
	car transfer	1	1	1	1	
	walking/wheelchair	1	1	5	7	
	stairs	1	1	5	6	
	community access	1	1	1	1	
	total score		16	32	66	97
	communication	comprehension	1	3	5	6
expression		1	2	5	6	
reading		1	6	6	6	
writing		1	5	6	6	
speech intelligibility		1	7	7	7	
total score		5	23	29	31	
social cognition	emotional status	1	6	6	6	
	problem solving	1	3	4	5	
	memory	1	2	3	5	
	adjustment to limitation	1	2	4	6	
	orientation	1	1	3	6	
	attention	1	2	3	5	
	safety judgement	1	1	4	6	
	employability	1	1	2	4	
social integration	1	2	4	6		
total score		9	20	33	49	
total score		30	75	130	177	

vided^{10,11}, for example, sufficient rest, a stress-free environment, and coaching of the patient so that he did not make many mistakes. For acute-stage TBI patients, these milieus are considered as most effec-

tive to treat neurofatigue, disinhibition, and attention disturbance. To achieve successful rehabilitation, careful support should be provided for these impairments. However, coordinating such support is diffi-

Table 2. Our strategy of positive behavioral support for patient to acquire coping skills with his neuropsychological impairments

(1) Neuropsychological dysfunction	(2) Problems in daily hospital life.	(3) How did he/his family cope with problems before APBS?	(4) Our advice to him and his family.
Neurofatigue	He often got very tired easily and needed to take much rest.	He took rest frequently until he recovered. His family often continued talking to him with anxiety even when he wanted to rest.	Rest as much as patient desired.
Disinhibition	He often displayed irritation.	He often refused support that he didn't want. His family felt he was selfish and sometimes didn't accept his requests.	Support wishes within common sense.
Attention and memory disturbance	He often made careless mistakes in daily living and forgot daily episodes, staff names, etc.	He often didn't care much about mistakes. His family often questioned him very closely about mistakes.	Don't ask about mistakes. Acknowledge successful behavior. Don't disturb him.

Table 3. Change in GAF scores before and after applying our strategy for APBS

	Self-rating GAF	Family-rating GAF (average)	Staff-rating GAF (average)
Before APBS	100	60	38.3
After APBS	100	70	57

GAF=Global Assessment of Functioning
APBS=acute-stage positive behavioral support

cult without educating patients' families. For example, neurofatigue and disinhibition might look like clouding of consciousness, lack of motivation, and selfishness to families. These misunderstandings of the impairment would cause families to provide inappropriate support to TBI patients during acute-stage hospitalization. Therefore, our strategy for PBS focused on family education beginning in the acute stage.

In explaining our strategy for PBS, we must be careful not to worsen confusion in families caused by the sudden tragic accident. Therefore, we simplified our advice using such phrases as 'getting enough rest', 'supporting the wishes of the patient', and 'eliminating disturbances'. As a result, the patient and his family became able to cope with his problems and provide an appropriate milieu to overcome various kinds of neuropsychological dysfunctions. This case suggests that APBS to patients and their families is effective to improve functional outcome and QOL.

CONCLUSION

In this case, we provided our strategy for PBS to the TBI patient and his family beginning in the acute stage. As a result, he and his family acquired skills to cope with his neuropsychological impairments. In addition, the discrepancy in understanding of these impairments among the patient himself, his family and medical staff was reduced. This case suggests that PBS from the acute stage could help a patient gain self-awareness and trust from his family and would help to successfully introduce him to chronic-stage rehabilitation.

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