

GUIDE TO SUPPORT FOR PERSONS WITH HIGHER BRAIN DYSFUNCTION I

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FOR PERSONS WITH DISABILITIES
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Guide to Support for Persons with Higher Brain Dysfunction I

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PREFACE

The purpose of this manual is to serve as a guide for professionals involved in the diagnosis and rehabilitation of higher brain dysfunction and for government official, patients and their families to understand and overcome the disabilities related to higher brain dysfunction. In particular, this manual focuses on people with restrictions in their daily and social lives, major causes of which are cognitive impairments, such as memory impairment, attention impairment, executive dysfunction and social behavioral disorders, from an administrative viewpoint.

Some people with traumatic brain injury or cerebrovascular diseases show abnormal behaviors, and they experience being unaware of their brain impairment, or they do not understand the impairment through clinical events. Not only are they bewildered, but also their families and colleagues are baffled by such events. In some cases, people with mild impairments are considered unable to work for such reasons as unpunctuality and inability to complete their responsibilities. Their impairments in communicative abilities and interpersonal skills will further develop into various impairments in social life. This manual describes basic methods for solving such problems and how to provide training. Since the results of training are closely connected with the consequence of rehabilitation, training plays a major role in the life course of people with higher brain dysfunction. The editor greatly appreciates the author of this manual, who was involved in the five-year model project for supporting persons with higher brain dysfunctions conducted by Ministry of Health, Labor and Welfare for five years between fiscal 2001 and 2005 as the project supervisor, and other parties involved in the project, for their tremendous efforts. In addition, I sincerely hope that this manual will contribute to the independent living and employment of people with higher brain dysfunction, and look forward to their achievements.

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Introduction

Category “b164” of the International Classification of Functioning, Disability and Health, developed by the World Health Organization (WHO), defines “higher-level cognitive functions.” For those people whose higher-level cognitive functions are damaged due to acquired disorders, such as traumatic brain injury and cerebrovascular damage, use of appropriate support services has not been clearly positioned over a long period in the health and welfare administration of Japan.

In Japan, persons with disabilities have been divided into three groups: those with physical disabilities, mental disabilities and intellectually disabilities, and different frameworks of welfare for the handicapped have been operated under different laws. In the late 1990s, people with impairments in higher-level cognitive functions due to disorders, such as traumatic brain injury, cerebrovascular disease and so on , and their families started to make complaints that they would not be covered by any of the frameworks.

To appropriately respond to these complaints, the Ministry of Health, Labor and Welfare of Japan launched a “five-year model project for supporting persons with higher brain dysfunctions ” in fiscal 2001 as a 5-year plan, clearly defined these impairments as organic mental disorders, and formulated operational diagnostic criteria to distinguish them from endogenous psychosis and neuro-generative disorders. In addition, the ministry developed a medical training program and support program for social rehabilitation that serve as standard programs in Japan. Furthermore, the ministry recommended measures to build support networks that take into account the geographical conditions and social resources by prefectures to meet varied local circumstances. The core of this recommendation is the local support base organization in each prefecture and support coordinators deployed at these bases.

The model project for supporting persons with higher brain dysfunctions was ended in fiscal 2005. The project was then succeeded by a higher brain dysfunction support promotion project as part of a local life support project, in accordance with the enactment of Service and Support for Persons with Disabilities Act, to become a general project conducted throughout Japan. In the midst of a growing momentum among local governments for implementing support measures for such impairments, this document was prepared as a manual that helps local governments to smoothly implement standard support services for people with higher brain dysfunctions.

Chapter 1.

Guidelines for Diagnostic Criteria of Higher Brain Dysfunction

It is considered necessary to provide persons having higher brain dysfunction with appropriate medical rehabilitation, training for daily living, support for employment and schooling in the light of characteristics of the disorder. Diagnostic criteria of higher brain dysfunction have been formulated from an administrative viewpoint in order to open the door to provide services.

The purpose of these guidelines is to help doctors correctly adopt the diagnostic criteria of higher brain dysfunction formulated in a higher brain dysfunction support model project when they write the diagnostic name or disorder name of higher brain dysfunction in medical certificates required for claiming medical remunerations or applying for physically disabled persons' certificate.

Section I, Descriptions of Major Symptoms, of the guidelines explains major cognitive impairments, which are included in the diagnostic criteria, and indicates neuropsychological testing used in diagnosis.

There are various causative disorders of higher brain dysfunction. Section II, MRI Findings after Traumatic Brain Injury, provides a detailed description of diagnostic imaging in the chronic phase of traumatic brain injury. In particular, in cases where diffuse axonal injury is the cause of higher brain dysfunction, it may become difficult to obtain findings only through diagnostic imaging as time elapses. The section indicates points of diagnosis in order to increase diagnostic accuracy including those cases. In addition, the section also mentions the relation between higher brain dysfunction and diagnostic imaging findings.

Section III, Higher Brain Dysfunction and ICD 10 (Mental and Behavioral Impairments of ICD 10: the International Statistical Classification of Diseases and Related Health Problems, 10th Revision [F00 - F99]), describes classifications that apply for convenience when asked to indicate ICD 10 classes to receive the medical certificate of mental disability. The section also organizes disorders that fall under the diagnostic criteria of higher brain dysfunction and those not falling under the criteria in accordance with the ICD 10 classifications in order to deepen understanding of the diagnostic criteria.

Diagnostic Criteria of Higher Brain Dysfunction

The term “higher brain dysfunction” indicates cognitive impairments in general caused by brain injury as an academic term, and includes memory problem, attention problem, executive dysfunction and social behavioral disorder as well as aphasia, apraxia and agnosia, which are so-called focal symptoms.

Meanwhile, as a result of carefully analyzing data on persons with brain damage that

have been accumulated in the higher brain dysfunction support model project, which was commenced in fiscal 2001, it has been found that there is a group of persons having difficulty adapting themselves to daily life and social life mainly due to cognitive impairments, such as memory problem, attention problem, executive dysfunction and social behavioral disorders. An urgent requirement is to study methods for diagnosis, rehabilitation and living support which have not been established, for these disorders. Given these circumstances, it is appropriate to administratively name those cognitive impairments that this group have as “higher brain dysfunction” and those having the dysfunction as “persons with higher brain dysfunction” from the viewpoint of promoting measures to support these persons. The following are the diagnostic criteria for this dysfunction.

Diagnostic Criteria

I. Major symptoms

1. The fact that the person is affected by an injury caused by an accident or disorder leading to an organic lesion of the brain should be confirmed.
2. The person has difficulties in daily life or social life, and the major cause of the difficulties is a cognitive impairment, such as a memory problem, attention problem, executive dysfunction or social behavioral disorder.

II. Examination findings

The presence of an organic lesion of the brain regarded as the cause of a cognitive impairment should be confirmed through MRI, CT or electroencephalography, or it is confirmed in a medical certificate that there has been an organic lesion of the brain.

III. Excluded items

1. Persons having symptoms that can be classified as physical impairments by the law of Japan among cognitive impairments due to organic lesions of the brain, but having none of the major symptoms above (I-2) are excluded.
2. Symptoms and examination findings that the person already had before being affected by an injury or disorder are excluded at the stage of diagnosis.
3. Persons whose congenital disorder or perinatal brain damage, developmental impairment or progressive disorder is the cause are excluded.

IV. Diagnosis

1. If a case meets all the above criteria, I to III, it is diagnosed as higher brain dysfunction.
2. Diagnosis of higher brain dysfunction must be performed after the acute stage of the brain injury is passed.
3. The doctor may refer to findings of neuropsychological tests.

If a case meets diagnostic criteria I and III while the presence of an organic lesion of the brain is not confirmed in examination findings indicated in II, the patient may still be diagnosed as a person with higher brain dysfunction through careful evaluation.

It is appropriate to review these diagnostic criteria referring the new evidences of the corresponding fields on a timely basis given development of medicine and healthcare in I Descriptions of Major Symptoms

I Descriptions of Major Symptoms

1. Memory problem

Anterograde and retrograde amnesia is observed. If the case does not show global intellectual dysfunction and attention problem, it is a typical amnesic syndrome.

① Anterograde amnesia: This is what is called a post-injury learning disability. The patient is unable to remember new information or a new episode after he/she is injured or develops a causative disorder, and memory of any event that occurs after the onset of amnesia is not retained. Measures to evaluate the memory problem include Wechsler memory scale, paired verbal association learning task (e.g., Miyake method), word list learning task (e.g., Rey auditory verbal learning test) and visual learning task (e.g., Rey-Osterrieth complex figure test, Benton visual retention test).

② Retrograde amnesia: Loss of memory before the patient is injured or develops a symptom. In particular, memory of episodes or experiences is strongly impaired. Evaluation is performed based on the reproduction of information on autobiographic memory. However, since the patient tends to confabulate, it is necessary to ask other relevant persons whether the patient can't remember the episodes or experiences before injury to conduct examination repeatedly. If the second response is the same as the first response, the doctor regards it as correct to assess the validity of the patient's responses.

Mild: Recent memory or complicated memory is partially retained. The patient shows impairment such may associate an item with a semantically irrelevant item in a highly difficult test.

Medium: Old memory and experimentally acquired knowledge are retained.

Recent new memory and memory of complicated events are lost.

Severe: Global amnesia, which includes anterograde and retrograde amnesia.

Most memory is lost.

In addition, confabulation and disorientation are observed. Confabulation is a phenomenon in which an event that the patient has not experienced is retrospected. In many cases, a confabulated scenario frequently changes. Embarrassment confabulations are confabulations that occur to infill a temporary loss of memory or the resultant embarrassment in spontaneous conversations. Embarrassment confabulations are induced through questions by the examiner, and their scenarios are based on fabricated events.

2. Attention problem

① Generalized attention impairment

Concentration difficulty/distraction: The patient has difficulty in concentrating on a certain stimulus, and is prone to diverting his/her attention to another stimulus. Useful evaluation measures include cancellation and detection test, Stroop test and mental control task.

Difficulty in retaining/maintaining attention: The patient of lighter attention problem has difficulty retaining attention for a long time. Task performance is lowered as time advances. When given a task, the patient is able to perform it in the beginning, but unable to sustain his/her concentration more than 15 minutes. Useful examination methods include continuous performance test and cancellation task.

② Unilateral spatial neglect

The patient shows unilateral neglect behaviors including overlooking a stimulus in the space opposite of the damaged part of the brain. This is not to be confused with homonymous hemianopsia. Neglect of the left space is often observed in patients with damage in the right hemisphere (parietal lobe damage in particular) of his/her brain. Measures evaluation tests to detect symptoms of unilateral spatial neglect include line bisection, line section cancellation and painting replication. Patients with left homonymous hemianopsia cannot see unilateral visual field of both eyes and cannot see an object present on one side unless they move their eyes. If the patient has only homonymous hemianopsia, he/she is able to see one side by turning his/her eyes toward the blind side, and does not show unilateral neglect.

Mild: Although the patient does not show consistent neglect in examination, neglect is observed in daily living behaviors as well as in brief presentation. When given concurrent stimulation on both sides, the patient overlooks the opposite side of the lesion, that is, shows extinction on one side.

Medium: Although the patient always shows neglect, he/she is able to see the neglect side if urged to pay attention to it.

Severe: The patient's body faces the lesion side, and he/she is unable to see the neglected side even if urged to pay attention to it.

3. Executive dysfunction

① Impairment in planning an action that meets the purpose: It is the impairment in setting a purpose for an action or planning an action. Since the patient has impairment in setting a purpose for an action or planning an action, the result of the action is left to chance, or the action is impulsively due to autonomic or preservative

manner of reaction to a stimulus. The patient starts an action before setting a goal. Because the patient is unable to set a clear goal, he/she may have difficulty starting an action, and it may lead to an action that is also regarded as lack of motivation or spontaneity. Since the patient has the ability to execute the action, he/she is able to continue the activity if given an instruction in a stepwise manner.

② Impairment in executing an action that meets the purpose: It is the impairment in controlling his/her action by monitoring it. Since the patient has impairment in the process of formulating a basic policy for managing an activity, sustaining attention and objectively observing himself/herself and the surroundings, the patient immediately acts without analyzing options and makes a similar choice even if the action fails. To appropriately get involved with the surroundings, the patient needs to correct his/her action by himself/herself. As this ability is affected, the patient takes a socially inappropriate action. Assessment methods for executive dysfunction include BADS (behavioral assessment of dysexecutive syndrome).

4. Social behavioral disorder

① Decreased willingness/spontaneity: The patient does few spontaneous activities, and leads an idle life such as staying in bed all day not because of motor impairment.

② Personality disorder : As irritation starts, it gradually escalates to an excessively emotional reaction or aggressive action. Once it occurs, the patient is unable to control this action. The patient will not accept his/her disorder and obstinately refuses to receive training. He/she suddenly becomes excited and blusters in a loud voice. The patient shows anti-social behavior, such as violence or sexual activity to nurses.

③ Difficulty in interpersonal relationships: Social skills are considered to be a function of subordinate to cognitive ability and linguistic ability. Degradation of social skills in patients with higher brain dysfunction includes sudden diversion of conversational topics, excessively intimate and disinhibiting remarks and approaches, recitation of remarks by the other party, literalistic thinking, difficulty in recognizing subjects of cynical/satirical/abstract instructions, and difficulty in generating various conversational topics. The examiner evaluates the frequency, quality and achievement of social interaction through interviews.

④ Dependent behaviors: The patient shows degradation and regression of personality functioning after the brain is damaged. In many cases, the patient also shows decreased spontaneity. As a result, the patient leads a dependent life.

⑤ Perseveration: In solving various daily living problems, the patient is unable to address new problems as a result of executive dysfunction although he/she can manage to solve problems as long as procedures are firmly established and he/she habitually behaves according to the procedures. In such cases, the patient with higher brain dysfunction develops impairment in recognition or in changing his/her behavior, and the past behavior reappears (is sustained) and the patient persists in such behaviors.

II MRI Findings after Traumatic Brain Injury

1. MRI findings that are often observed as characteristic organic lesions in the chronic phase

i) Change after cerebral contusion or intracranial hematoma

Findings of local or diffuse necrosis or infarction, findings of cerebral atrophy, etc. that show T1 low signal or T2 high signal

Note: often observed on the tip or base of the frontal lobe or the temporal lobe

ii) Findings after diffuse (widespread) brain injury (including diffuse axonal injury)

Findings of ventricular expansion or diffuse cerebral atrophy, callosal atrophy, brain-stem damage, brain-stem atrophy, etc.

Note: Injury and gliding contusion of the deep white matter, corpus callosum, basal nucleus or dorsal upper brain stem are regarded as characteristic findings of diffuse (widespread) axonal injury. If hemorrhagic lesion occurs in these sites in the acute phase, it may remain in the form of T1 low signal or T2 high signal in the chronic phase. However, it may apply only to edematous lesion (T1 equal signal, T2 high signal) in the acute phase. In such a case, no anomaly is observed or only atrophy of the same site may remain in the chronic phase.

iii) Others

Findings of subdural hygroma or external hydrocephalus on one side or both sides may be observed.

2. MRI findings regarded as related to higher brain dysfunction

i) Deep white matter injury findings

ii) Ventricular expansion

Especially, expansion of the inferior horn of the lateral ventricle or of the third ventricle

- iii) Callosal atrophy
- iv) Fornical atrophy, etc.

Note: Higher brain dysfunction may develop even if no pathological findings is observed in MRI.

(Appendix)

- ① Relationship between ventricular expansion or hippocampal atrophy and IQ has been reported.
 - Findings of deep white matter injury or ventricular expansion and decreased performance IQ (PIQ)
 - Increased volume of the inferior horn of the left lateral ventricle and decreased verbal IQ (VIQ)
 - Increased volume of the inferior horn of the right lateral ventricle and decreased PIQ
 - Decreased volume of the left hippocampus and decreased PIQ
- ② Findings that are characteristic to diffuse (widespread) axonal injuries such as brain-stem and callosal injuries observed in the acute phase suggest that the patient has higher brain dysfunction.
- ③ MRI findings regarded as related to higher brain dysfunction of infants
 - Findings of deep white matter or brain-stem injury
 - Findings of frontal lobe injury
 - Findings of cerebellar atrophy

III Higher Brain Dysfunction and ICD-10 (Mental and Behavioral Impairments of ICD 10: the International Statistical Classification of Diseases and Related Health Problems, 10th Revision [F00 - F99])

- The diagnostic criteria for higher brain dysfunction apply to persons having disorders that are included in F04, F06 and F07 as causative disorders.
- Although not all persons having the disorders included in these three items are eligible for support, those disorders included in other items are excluded.
Ex. Alzheimer's disease (F00), Parkinson's disease (F02)
- Cases whose causative disorders include traumatic brain injury, cerebrovascular damage, hypoxic encephalopathy, encephalitis and brain tumors, and whose main pathological conditions are memory problem, are classified in F04 and eligible.
- Cases whose causative disorders include traumatic brain injury, cerebrovascular

damage, hypoxic encephalopathy, encephalitis and brain tumors, and whose main pathological conditions are not amnesia, are classified in F06 and eligible. Cases only with attention problem or executive dysfunction are classified in F06.

- Posttraumatic stress disorder (PTSD) falls under F43 and is excluded.
- Functional amnesias represented by traumatic generalized amnesia fall under F40 and are excluded.

ICD 10: the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (1992)

Items included in the diagnostic criteria for HBD.

F04 Organic amnesic syndrome, not induced by alcohol and other psychoactive substances

F06 Other mental disorders due to brain damage and dysfunction and to physical disease

F07 Personality and behavioural disorder due to brain disease, damage and dysfunction

Items excluded from the criteria

F40 Phobic anxiety disorders

F43 Reaction to severe stress, and adjustment disorders

Chapter 2.

Standard Training Program for Persons with Higher Brain Dysfunction

Overview

1. Condition of higher brain dysfunction

Who are the persons with higher brain dysfunction (definition)?

Those who comply with the diagnostic criteria of higher brain dysfunction in Chapter 1.

What kinds of symptoms do persons with higher brain dysfunction have?

(Glossary: <http://www.rehab.go.jp/ri/brain/betten.html>)

Persons with higher brain dysfunction have symptoms such as the following:

- Memory problem
- Attention problem
- Executive dysfunction
- Unilateral spatial neglect
- Lack of disease consciousness

Focal symptoms

- Aphasia
- Apraxia
- Agnosia

Physical dysfunctions

- Hemiplegia
- Ataxia

Social behavioral disorders

- Anaclysis, regression
- Decreased desire control
- Decreased emotional control
- Poor interpersonal skills
- Perseveration
- Decreased willingness/spontaneity
- Depression
- Affective incontinence

How does higher brain dysfunction look?

Higher brain dysfunction is apparently often difficult to identify. This is like the fact that each of us has a different personality, and in many cases you do not see a person's internal characteristics unless you associate with the person. As a result of organic lesion of the brain, persons with higher brain dysfunction are sometimes reminded of the following points in social life through persons around them. These points serve as important clues to recognizing persons with higher brain dysfunction.

- Late for an appointment
- Gives up any job halfway
- Writes in random places/pages of a notebook for supplementing memory problem
- Is absent-minded
- Repeats the same question many times
- Takes food from children and eats it
- Generously spends money

- Insists that the superior, instead of himself/herself, is to blame for failure.

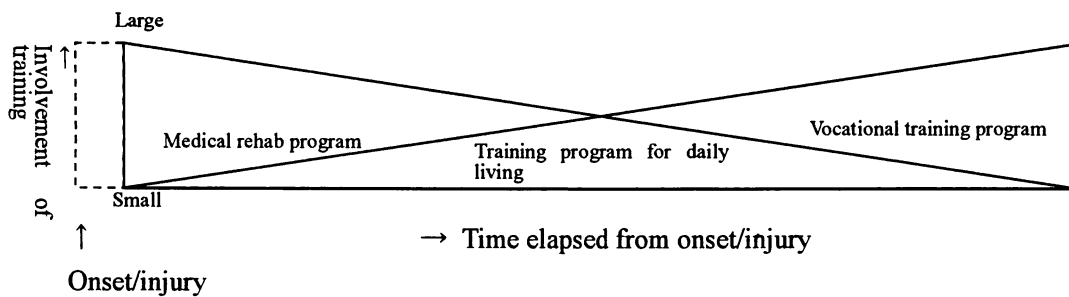
2. Training for higher brain dysfunction

What kinds of trainings are available?

There are the following three types of training according to the relative period from the onset/injury and the goal:

- Medical rehabilitation program
- Training program for daily living
- Vocational training program

Medical rehabilitation programs (hereafter abbreviated “medical rehab programs”) include psychological counseling, drug treatment and surgical treatment in addition to programs for coping with individual cognitive impairments (cognitive rehabilitation). In contrast, training for daily living and vocational training place a focus on acquisition of skills considered necessary for daily living or vocational skills, rather than on the cognitive impairment itself, even if the impairment is a serious problem.



Implementation system of training

Medical rehabilitation programs are conducted under instructions from doctors

Medical rehabilitation programs are conducted under instructions from doctors. In the higher brain dysfunction support model project, patients received training at hospitals or rehabilitation facilities for the physically disabled persons in most cases. In the remaining cases, local facilities and workshops were used. In training programs for daily living and occupational skill, non-doctor professionals may take the lead. However, since those programs are series of trainings, medical information and cooperation with doctors are important. In any case, it is important for all the staff members share the problem(s) of the user and stay focused on the objective when conducting training.

Professions involved in training

Doctor: psychiatrist, neurologist, neurosurgeon, psychiatrist, internist, etc.

Non-doctor: psychological personnel, occupational therapist, physical therapist,

speech therapist, nurse, rehabilitation sport specialist, medical social worker, etc. Instructors for daily living and vocational instructors conduct training for daily living and vocational skills.

Training time

Training time is adjusted according to the time from onset/injury and the circumstances (physical strength, concentration of the case).

Training period

- Medical rehabilitation programs are conducted for up to 6 months
- Training should preferably be conducted for one year in total by linking various services

A report on the model project indicates that of the patients with impairments who received training, 74% showed improvement in the impairment scale based on the data obtained in the model projects in 6 months and 97% showed the achievement in one year. Therefore, medical rehab programs focused on functional recovery should be conducted for up to 6 months from the start. Thereafter, continuous training added with training for daily living and vocational skills should be conducted as necessary. The preference is to conduct the whole training program for one year.

Transition of training

Concerning transition from a medical rehab program to training for daily living or vocational training, the rehab program should transition to training for daily living or vocational training if it is judged important for the patient to acquire skills considered necessary for daily living or vocational skills even if a cognitive impairment remains. Elements of training for daily living or vocational training should be added even during the medical rehab program, if necessary. In some cases, the client receives a medical rehab program again after receiving training for daily living. The flow of the whole training is not necessarily from a medical one to that for daily living and vocational skills.

Continuation and completion of the training

Whether to continue or complete the training should be determined through evaluation performed every month to every three months. After completion of the training, the doctor should proceed to the support stage as requested by the patient or his/her family while referring to alleviation of symptoms indicated for higher brain dysfunctions, physical functions, ADL, neuropsychological test, change in

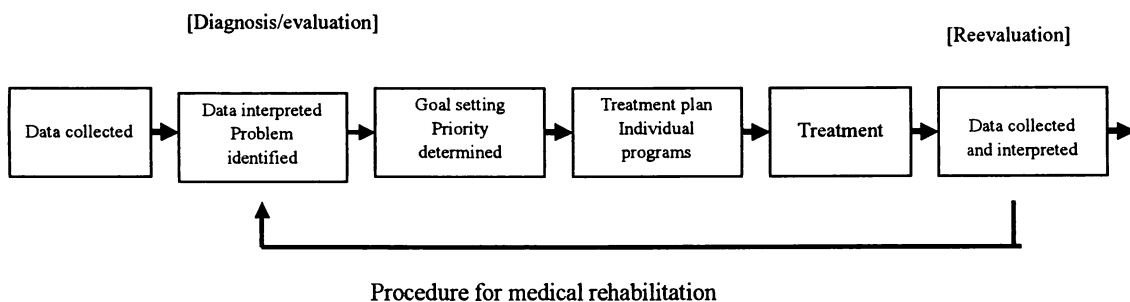
impairment scale, etc.

Specific content of training by profession

Training for persons with higher brain dysfunction involves various specialists. The training consists of highly specialized contents and those elements handled as common issues between different professions. For example, for attention problem of a patient with higher brain dysfunction, an occupational therapist, speech therapist, clinical psychotherapist (psychological staff) and nurse are involved from their respective standpoints.

Procedure for conducting training for persons with higher brain dysfunction

The procedure for the medical rehabilitation starts with the setting of a future goal while taking into account not only diagnosis and treatment of the disease but also the evaluation of impairment and functional limitation resulting from the disease as well as life history, socioeconomic environment and family background of the case, followed by formulation and implementation of a necessary plan and a specific program necessary to achieve the goal, evaluation of the progress after a certain period, modification of the goal and program as necessary, and then achievement of the goal.



What is evaluation of higher brain dysfunction?

We function within a certain range of behaviors, such as being on time, keeping commitments and not spending money wastefully, by learning through school and social life from childhood. However, if a person is late for an appointment, the reasons include forgetting a commitment, forgetting time, being absorbed in something, being distracted by something else and taking the wrong way, and as a result, there may be various possibilities behind such a failure. If the patient does not keep a commitment, you have to also consider the possibility that the patient used to fail to keep commitment regardless of the injury/onset of disease.

When considering what kind of problem lies in higher brain dysfunction, you should pay attention to the following points.

- Interview on life history, intelligence level and behavioral characteristics before injury/onset (whether the dysfunction results from organic lesion of the brain)
 1. Evaluation through behavioral observation
 - (a) With a fixed viewpoint
 - (b) What in the higher brain dysfunction is the problem? → which test to use?
 2. Evaluation using a neuropsychological test
 - (a) Mean value and dispersion
 - (b) Reaction unique to persons with higher brain dysfunction
 3. Evaluation using a task
 - (a) Make comprehensive evaluation
 - (b) Consider the scene/situation

In making an evaluation, it is important to collect information on life and working place from the family, colleagues and teachers. In addition, information from the nurse and specialists concerning the place of conducting the training is needed. Based on these pieces of information, you should estimate what kind of cognitive impairment characteristics the patient has and which impairment concern the cause of difficulty in daily living. For example, if the patient cannot keep commitments as indicated above, you need to assess whether the memory impairment is the core problem.

Subsequently, conduct a neuropsychological test that corresponds to a specific function. Since the cognitive function of human beings is multifaceted, it is necessary to comprehensively make assessment through multiple tests. In addition, when conducting a test, it is necessary to fully consider the place of conducting the test, environment such as noise and difficulty of the task.

Formulating a training plan

Set a goal based on the result of evaluation on higher brain dysfunction. In general, the need of the subject person is considered. However, in the case of higher brain dysfunction, the judgment or understanding of the patient is not always appropriate. It is important to set a realistic goal that meets the level of impairment through sufficient talks with the patient, family and school or working place. Examples of goals include reinstatement to work or school. However, given the recovery process of higher brain dysfunction, the goal may not be achieved during the medical rehab program period. Therefore, the preference is to set a goal that the patient can easily imagine and can be achieved in a short period in medical rehab settings.

When conducting the training, it is important to unite the intensions of all staff.

Specific goal setting is important

The goal should preferably a realistic one that the patient can easily imagine. In many cases, the patient is not aware of his/her higher brain dysfunction, and therefore it is often difficult to gain the patient's understanding of conducting the training. It is important to identify the problem with daily living, working place and school based on the evaluation and have the patient understand the problem. It is necessary to unite the intensions of relevant professions through a conference in advance. Set a real-life goal that suits the ability of the patient, such as being able to make out a schedule and act according to the schedule, being able to manage cash by using a cashbook, being able to organize a cooking menu and being able to prepare necessary materials and being able to operate a personal computer, through consultation with the patient and his/her family or the like.

Precautions on conducting the training

1. Selection of a task
 - Adopt a realistic task related to the patient's daily life or working place.
 - Select a task that meets the patient's interest as much as possible.
 - Adjust the level of difficulty of the task so that the patient can have a sense of accomplishment.
2. Procedure for the training
 - Proceed with the training in a stepwise manner.
 - Provide feedback on the training effect to the patient in an easy-to-understand manner so that his/her willingness to receive training is maintained.
3. Adjustment of the environment (establishment of an environment where the patient will not be confused is essential for efficiently conducting the training)
 - Coordinate physical environment of the patient room and the training room.
 - Structuring of the environment: presenting a clue, patterning behaviors, etc.
4. Generalization efforts (a measure to enable the patient to apply what he/she has acquired in the training to everyday life is necessary)
 - Exercise in various places and situations in the hospital.
 - Set the training environment so that it is similar to the home life or working environment.
 - Gain cooperation of the family so that training can be also conducted in the home.

Concept common to trainings

Improvement of cognitive impairment is expected strongly. However, given that patients do not recover completely, it is necessary to take the following strategies for

any symptom.

- ①Improvement of cognitive impairment (cognitive rehabilitation in a narrow sense)
- ②Acquisition of a compensatory means
- ③Raising awareness of impairment
- ④Environmental adjustment (including approach to the family)

Strategy ① is a training method for specific cognitive impairments of persons with higher brain dysfunction, such as attention problem and memory problem. If this training is not effective, adopt compensatory means ②, which uses the remaining functions. For example, if the patient with memory impairment has more visual memory than linguistic memory, have him/her draw a picture and use a clue indicated in the picture. In contrast, if the impaired person is able to recognize his/her own dysfunction, it is easier to use various compensatory means (③). You should also take measures

④ designed to shape the surrounding environment in order to minimize inconvenience resulting from the impairment. Examples of this method include explaining the impairment to the family to gain their understanding and asking their assistance at the right time before the impaired person becomes confused, and asking the family to organize important belongings of the impaired person or have him/her carry them so that he/she can easily find them.

When actually starting a standard training program

For professionals at hospitals or facilities that have not conducted training for persons with higher brain dysfunction, there may be a number of uncertainties concerning specifically how to operate the team. The following are points that require your attention more than in daily rehabilitation.

1 The types of professionals at your hospital or facility

- (a)Encourage as many types of professionals as possible to get involved. Although not all types of professionals need to be involved, you should form a team by sharing the evaluation/training operations (in particular, the medical rehab program requires a doctor's leadership).
- (b)All the involved professionals should evaluate each case.
- (c)Hold a conference to set a goal for each case.

There are several forms of team rehabilitation. Since you handle abstract matters with higher brain dysfunction in many cases, many in the field agree an interdisciplinary team approach is preferable in order to deepen understanding among the team.

(d)Conduct the training.

The conventionally practiced one-day training is insufficient. Utilize innovative ideas such as practicing training conducted at the training room in a ward,

reducing spare time by giving homework assignments and producing an easy-to-understand daily schedule.

It is necessary to increase the ability of the team through actual experience such as selection of realistic training exercises and addressing psychological problems that arise in the course of training.

(e) Assess the result.

It is necessary to repeat evaluation on a regular basis and review the validity of the training program and the system for conducting the training. It is also important to receive an evaluation from the case himself/herself or his/her family.

2. Cooperate with a facility that provides training for daily living or vocational skills.

Establish cooperation from an early stage of the training. Create conditions where the patient and his/her family can lead their life at ease. Facilities used for training include hospitals (general hospitals, rehabilitation hospitals), rehabilitation facilities for the physically disabled persons, sheltered workshop, local facilities and small-scale workshops.

To manage these processes, the effective measures that enable the professionals, the patient and his/her family to share the problems and the solutions is to utilize an evaluation sheet such as the one below, identify the basic information (e.g., age, medical history, social background) and the problems (e.g., dysfunction, functional limitation, psychological problems), set the training goal, check the specific content of the training, have professionals involved, and evaluate and analyze the training result.

I Medical Rehabilitation Program

1. Memory problem

a. Symptoms

Suspect memory problem in the following cases:

- Cannot keep or forgets a commitment
- Does not remember where he/she has stored something important
- Insists that someone stole something
- Makes up a false story
- Repeats the same question many times
- Unable to remember new things

If there are any of the problems above and if memory problem is suspected, examine what aspect of memory is impaired and which function is relatively good. For future training, it is important to examine issues such as how long the case can remember an event, what types of memory (e.g., meaning of words, the case's experience and operations) it is about and whether there is a difference between word-based memory and vision-based memory. The following is a list of these factors.

Time related to memory

- Immediate memory or working memory (e.g., memory that lasts until making a phone call at a number he/she has found)
- Long-term memory (memory system for storing information until it is needed)
- Memory disturbance (e.g., recalling a phone number he/she called a while ago)
- Recent memory (e.g., about an activity on last Friday)
- Remote memory (e.g., an event from school days)
- Prospective memory (memory on a plan he/she is about to implement)

Types of memory

- Facts (semantic memory) (knowledge that he/she has remembered without noticing; e.g., the capital of the United States is Washington D.C.)
- Personal experience (episodic memory such as events that occurred to him/her)
- Skills and procedures (e.g., driving a car, word processing and printing)

Forms of memory

- Linguistic memory (information in the form of language such as written and spoken words)
- Visual memory (memory stored in visual form such as people's faces, patterns and layouts)

Stages of memory

- Coding (importing information and registering it)

- Storage (placing information in memory and keeping it until it is needed)
- Search (retrieving stored information when it is needed)

Ways of extracting memory

- Reproduction (act of recalling based on memory retention)
- Recognition (e.g., re-acknowledging whether he/she has seen the thing/person)

Time when an event is memorized

- Retrograde memory (memory of an event that occurred before an accident/illness)
- Anterograde memory (memory of an event that occurred after an accident/illness)

Establish what kinds of memory impairment characteristics the case has through evaluation concerning memory.

b. Evaluation

Perform evaluation in the following tests:

- (Generalized memory test) WMS-R (Wechsler Memory Scale-Revised.)
- (Verbal memory test) Miyake Verbal Retention Test
- (Visual memory test) Benton Visual Retention Test, REY figure test
- (Everyday memory test) RBMT (Rivermead Behavioural Memory Test)

In conducting training, pay attention to the following points:

- Understand the severity of the memory impairment, the impaired area and the relatively sustained area.
- Test on presence of other cognitive impairment.
- Aim at unerring learning.

c. Training

The following methods are available:

Repetitive training

Environmental adjustment

Internal memory strategy

- Visual imaging method
- Face-name association method
- Peg system
- Linguistic strategy
- PQRS method (Preview, Question, Read, State, Test)
- Verbal mediation method
- Initial letter memory method

- Rhyming method
- Story-making method

External auxiliary means

Each of us has the means to externally store information and clues to accessing information that is internally stored. If you have memory impairment, you forget these means themselves and cannot utilize them. To raise the case's awareness of these means and encourage him/her to actively utilize them, include them in the training and have the case acquire them.

Other methods

- Region-specific knowledge learning

This method focuses on the acquisition of information on everyday functions and is used in personal name learning, new vocabulary acquisition, etc.

- Clue reducing method

In this method, after presenting the definition of a term, add one letter after another and continue it until the case correctly reacts to it. Subsequently, remove the clue text one letter after another, and repeat it until the case can correctly react to the task without a clue.

2. Attention problem

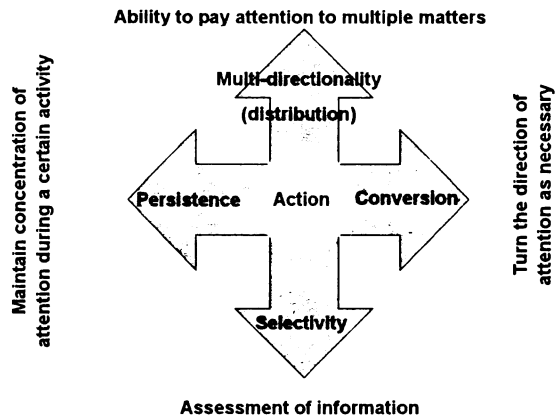
a. Symptoms

Presence of attention problem can be predicted from the following characteristics:

- Frequently sleeps in a chair or wheelchair
- Walks around on the ward and enters other rooms
- Interested in a person and sticks to the person
- Meddles in a task performed by a person next to him/her
- Tries to act without judging the surrounding conditions
- When an elevator door opens, immediately walks in
- Cannot continue a task for a long period
- Reacts to talk by a person and considers the talking as his/her own

These situations are not unique to attention problem and may include other elements of higher brain dysfunction. However, they will serve as clues to recognizing this impairment. Attention is the base for all cognitive functions, and it is included in all actions required for various persons to lead their social life and serves to integrate these actions. Attention is considered to consist of the following elements, and these elements need to be well balanced.

Maintenance of arousal Direction of attention Monitoring of action



b. Evaluation

Evaluation of the presence and degree of attention impairment is performed.

In performing evaluation/training of cases with attention impairment, you need to take into account their tasks and environments. In the meantime, if the evaluation or training advances, you can examine whether the speed of task processing is reduced or attention can be sustained by intentionally changing the environment.

c. Training

In an early stage from injury/onset, it is likely that the case also has disturbance of consciousness. It may not be appropriate to start training suddenly in some cases.

3. Executive dysfunction

a. Symptoms

Symptoms of executive dysfunction have the following findings.

- Late for an appointment
- Unable to finish a job as promised
- Gives up any job halfway
- Writes in random places/pages of a notebook for supplementing memory problem
- Unable to perform a task he/she used to be able to perform, if asked differently

Since executive dysfunction involves various factors as shown below, it is important to evaluate what kind of mechanism is the cause. In addition, the cause may be attention impairment or memory impairment. Carefully observe the case operation, and find a specific mechanism based on how a failure or mistake occurs.

- Self-recognition
- Goal setting
- Planning
- Spontaneity
- Self-monitoring

b. Evaluation

Neuropsychological tests: BADS, WCST, frontal assessment battery at bedside (FAB), TMT, Stroop test, WAIS-R, Verbal fluency test, Tower of Hanoi, SPTA, GATB, KOHS block-design test, notebook diagnostic strap knotting test, box building test, four-frame cartoon explanation, reading test (speed-reading)

Behavioral evaluation: specific tasks through paper crafts, handicrafts and woodworking

Behavioral observation in daily life and workplace

If the judgment is that a specific mechanism is involved, examine the following as training.

- Study a treatment (e.g., drug) that supplements that area.
- Break down the operation process into sub-processes as routines.
- Conduct training using a series of routines.
- If the case fails in a certain process, provide assistance for that part.

c. Training

- Direct training (the case exercises necessary behaviors/actions or combination of them)
- Self-teaching, problem-solving training (the case and the trainer think about a solution and planning together)
- Manual utilization (the case performs a task by himself/herself according to the steps)
- Simplification of the environment (show the schedule in a big framework and pattern the behaviors)
- Behavioral therapy (contrive ways of providing guidance and instructions)
- Feedback of the performance result
- Acquisition of a compensatory means

Provide training by using these methods in the following.

- Desk task (e.g., workbook)
- Work activity task (e.g., assembly kit)
- Task of activity of daily living (e.g., changing clothes training, housework)

- Work life task (e.g., document creation)
- Task of producing something in a group
- Social life task (e.g., schedule managing)

4. Social behavioral disorder

a. Symptoms

Symptoms include anaclisis/regression, decreased desire control, decreased emotional control, poor interpersonal skills, perseveration, decreased willingness/spontaneity, depression, affective incontinence and others (e.g., withdrawal, disinhibition, paranoia, wandering).

Such symptoms have the following characteristics:

- Gets excited, shouts or behaves violently
- Shouts whenever a thing does not go the way he/she wants
- Pursues a person and becomes a nuisance
- Forces a trainer to associate with him/her
- Commits a filthy or sloppy act
- Injures himself/herself
- Dissatisfied if he/she is not the central person

b. Evaluation

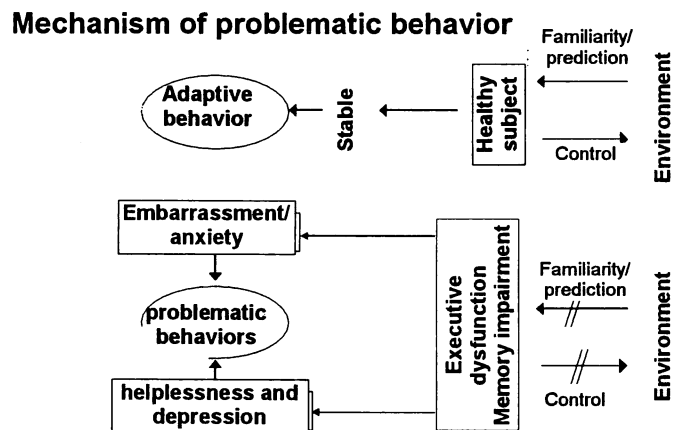
- Record and analyze findings of what led to the problematic social behavioral impairment in daily life/training scenes (contextual study).
- For anti-social behaviors and regressions, the adaptive behavior scale (ABS) and the social maturity scale are available.
- Examine whether there is any cause of inducement such as use of a sedative.

c. Response

- Environmental adjustment
 - ① Placing the client in a quiet environment
 - ② An environment where the client is not surrounded by too many people
 - ③ Placing the case in an environment where the client will not become tired
- Behavioral therapeutic response: Together with the client, think what the problem is and how to address it. If possible, have him/her write a pledge in advance.
 - ① Positive reinforcement: Use social-reinforcement means (praising/encouraging the client, grab his/her attention, etc.)
 - ② Interruption (time-out): Using the TOOTS (time-out on the spot) method, if the client commits an inappropriate behavior, ignore the behavior and leave the site for a while, or place the client outside the training room for a few minutes.

- ③ Response cost: Give a value to the client's behavior. If the client can control the behavior, the value is kept high and the client can replace the value with a certain article.
- ④ Treatment of avoidance behavior from saturation: Each time the client shouts, let him/her keep shouting for a few minute.
- ⑤ Positive punishment: This is regarded as unfavorable to use this method.

It has been reported that memory problem, executive dysfunction and other impairments observed in persons with higher brain dysfunction make it difficult for those persons to predict environmental change and prepare for it, and the resultant failure causes anxiety, confusion, helplessness and depression and could lead to problematic behaviors (see the figure below).



Sakazume, 1998

II Training Program for Daily Living

The purpose of training for daily living is to increase the case's abilities to perform daily living tasks and social activities in order to stabilize his/her everyday life and enable him/her to actively participate in society.

For persons with higher brain dysfunction, it is extremely important to enhance their understanding of their impairments and acquire compensatory means through training. In addition, it is important not only to provide direct training to the patient, but also to improve his/her environment including asking his/her family for their support.

1. Evaluation

The training may be conducted mainly at social rehabilitation facilities rather than medical rehabilitation facilities.

<If the training is conducted at a hospital>

Perform evaluation of ① impairments such as physical dysfunction, higher brain dysfunction and mental dysfunction, ② life-related impairments such as difficulty in daily living and ③ environmental factors such as family background, growth history, living environment and economic situation through neuropsychological test, behavioral observation or interviews. Based on the evaluation result, set a goal and prepare an environment for hospital life while taking into account various needs and conditions.

【Points to remember】

- Understand the attitudes of the patient and the family toward the impairment.
- If the patient is a child, it is necessary to take into account the growth stage.
- The patient may face a problem for the first time after being hospitalized. Utilize data on actual hospitalization and training scenes, and perform evaluation as necessary.
- Identify the differences between the need and the demand, and between subjective evaluation by the patient and objective evaluation by other people.

<If the training is conducted at a rehabilitation facility for the physically disabled persons>

As with the method for care management for the persons with disabilities, understand the living conditions and the circumstances surrounding the patient, identify the requests of the patient and the family and find out the specific living need from the chief complaint. If medical evaluation and neuropsychological evaluation are performed, the overall evaluation will be more effective.

【Points to remember】

- In many cases, the patient's recognition of the impairment is insufficient and there

is a gap between the chief complaint and the reality.

- Cognitive and behavioral impairments are difficult to recognize from the appearance of the patient. Since in some cases ordinary handling is available, it is necessary to interview both the patient and the family.
- In finding out the living need, use a support need assessment sheet and an existing standardized assessment sheet.
- Ask the patient about unclear and sensitive matters only after a trust relationship has been built.

2. Planning the training

Based on the information acquired through evaluation, make clear the future goal and the problem that has to be solved in order to achieve the goal. Identify the true problem for the patient after full understanding of not only the request of the patient and his/her family but also the actual living conditions. After thorough interviews with the patient and the family, confirm the specific problem, the required training (support) content, the support staff and the training period, and then, plan the training (support).

【Points to remember】

- In formulating the plan, if there is a big gap between the request of the patient or the family and the reality, set long-term and short-term goals and provide support. Then, provide feedback of the result to the patient and set a new goal, to thus make the goal more realistic.
- Set a short-term goal using content and wording that are specific so the patient can easily understand.
- If the cognitive impairment or behavioral impairment significantly affects the patient, aim to establish a daily rhythm and enhance life management ability.
- If the impairment does not greatly affect everyday activities, strive to enhance the patient's social skill through actual experience.
- If the patient is hospitalized, strive to enhance his/her activity during daytime.
- Prepare a subsequent program from the viewpoint of continuous services.

3. Conducting the training

<Content of the training/support>

① Establishing a daily rhythm

Many patients have difficulty in building their routine and leading a life in accordance with routine. They spend much time in bed or have an activity problem such as reversal of day and night due to memory problem and decreased spontaneity or willingness.

Encourage those patients to acquire regular lifestyles and enhance their activity

during the daytime through life in the facility.

Even if the patient has difficulty controlling his/her emotions and desires and is prone to having a problem with routine accomplishment and interpersonal matters, presenting a clear framework for living frequently leads to stabilization of their life. The recommendation is to talk to the patient and guide him/her to perform checking whenever necessary so that the patient can live in accordance with their routine.

【Points to remember】

- Present a daily schedule or weekly schedule in an easy-to-understand manner in order not to build anxiety or confusion in the patient.
- For daytime, prepare various exercises and activities in order to also increase the patient's activity.
- The patient may easily behave and life may be stabilized if you minimize the idle time between trainings and establish a continuous training schedule.
- Observe whether life at a hospital or facility generates great stress for the patient.
- If the patient is mentally ill at ease and the state of participation in the training widely fluctuates depending on the day, write in a "memo notebook" among the staff and hold a staff meeting on a regular basis (e.g., once a week) in order to share information and unify responses among the staff.

【Clues for the training】

- Since life at a facility requires the patient to conform to other persons in the facilities, a daily rhythm is naturally created in many cases. Even for patients visiting a facility, it is relatively easy to build a daily routine since the visit serves as one of the cores of his/her life. The preference is to adjust the frequency of the facility visit in a stepwise manner from once to five times a week, according to individual circumstances.

② Increasing the life management ability

Management of routine:

To help the patient behave independently in accordance with the routine, establish an environment that allows the patient to easily live by providing compensatory means such as utilization of a calendar and by posting noticeable marks and guide indications in the calendar.

Establish the use of compensatory means that suit the case such as a calendar and a notebook. Allow time for a "morning meeting" before starting the training, where the involved members check the schedule of the day. After the end of the training, allow time for a "gathering" in which the members reflect on the day in order to have them understand the necessity of recalling memory and use of compensatory means.

Management of drug administration:

Widen the range of self-management of drug administration, for example, from several times a day to once a day and once a week. Pass a check sheet to the patient and have him/her check each administration of drug. Utilize a calendar-type pocket case or drug container that allows the patient to separately store one dose of drug, thus to help him/her easily check drug administration.

Cash management:

Some patients spend as much money as they have. Discuss with the patient and the family how to manage cash so that the patient can use it systematically, and have the patient keep a cashbook with a fixed period and amount. Regularly check the cashbook and the balance in order to raise the patient's awareness of cash management and to help him/her become accustomed to doing so.

【Points to remember】

- In producing a calendar, take into account the following items in accordance with the patient's status.
 - ◇ Whether to prepare a weekly calendar or a daily calendar.
 - ◇ Whether a daily calendar should be written by the staff or by the patient.
 - ◇ Whether to have the patient put a checkmark in the calendar every time he/she completes a routine for the day in order to have him/her confirm what was done.

Select a calendar that fits with the patient's current ability. In using it, cooperate with the involved staff to urge the patient to check the calendar so that the checking habit is established.

- The calendar and the notebook must be noticeable and simple. If possible, storing information in one place is advisable.
- Develop ways to help the patient to easily use the calendar/notebook while walking, easily find it and not forget it somewhere such as hanging it from the neck.

③ Increasing the social skills

Conduct outing exercises such as shopping, moving in an urban area, using a public transportation system, cooking or life-experience practice using a detached house in order to help the patient prepare for life in the community and achieve his/her future goal. Perform evaluation in real-life settings, providing feedback for any problem to the patient, and repeat the training.

- Evaluate and train the patient in problems with impairment concerning physical function and higher brain dysfunction.

【Points to remember】

■ Outing exercise

- Since this exercise contains many elements that require situation assessment and

applied skill in the situation, persons with higher brain dysfunction are usually weak at this exercise. First, specify a goal and a course, and then conduct the exercise stepwise. If the goal concerns a hobby or cultural activity, it could broaden the patient's life.

- Even if the patient can act in accordance with the predefined course, he/she may become unable to react to another duty or change that occurs halfway.

Also understand such situations.

- If the settings that the patient will use in the future are determinate such as commuting to/from the workplace/facility, train the patient in the course and time slot that he/she will actually use in order to achieve practical realization.
- Even if the patient has difficulty in moving alone in a strange place or route, he/she may be able to act with almost no hesitation in a familiar place.

④ **Increasing interpersonal skills**

Group living in a facility serves as the opportunity for everyday life experience in a “pseudo-society,” and such group living provides many benefits through performance of routines and interpersonal exchange. However, group living is also susceptible to interpersonal problems. Group living will provide the opportunity to deepen the patient's understanding of his/her impairment if objective information is provided as feedback to him/her on the scene.

If any problem occurs in a training scene or group living, explain the situation at the site of the problem and instruct him/her to correct the behavior or perform a desirable behavior (real feedback).

In addition, conduct a group program (group work) in order to have the patient gain interpersonal skills, etc. Strive to increase interpersonal skills through processes such as opinion exchanges or role allocation among members, planning, execution and reflection against the task.

【Points to remember】

■ About the group

- Carefully select members so that a group is formed.
- If possible, provide the result of performance to the members within the time frame of one activity.
- Proceed with tasks to be continuously performed while confirming the group's goal, currently addressed content and what was done last time every time the task is performed.

⑤ **Self-recognition of the impairment**

To achieve self-recognition of the impairment, have the patient experience as many

realities as possible, and provide feedback of the result of the experience to him/her.

Possible means to perform this include the following:

- As described in the section “Interpersonal skills,” provide real feedback through exercises and life scenes.
- Create the opportunity for the patient to think about his/her problem through opinion exchange between group members.
- Listen to talks of impaired persons living in the community.
- Have the patient experience operations using an occupational training scene in a simulated workplace.
- Provision of information of available social resources and a facility tour
- Conduct practice at a local workshop, sheltered workshop or ordinary company.

At a hospital, it is necessary to first explain to the patient the result of evaluation of higher brain dysfunction such as images and a neuropsychological test in an easy-to-understand manner. It appears that images (PET and SPECT, in particular) are easy to understand for the patient.

【Points to remember】

- When selecting a facility for the social resources tour and a facility for the practice, take into account the case’s life base in the future.
- Concerning the result of the practice, the preference is that the staff at the facility communicates the result directly to the patient with attendance of his/her family.

⑥ Clarifying the required support

The content of the required support usually becomes clear in the process of self-recognition of the impairment or reality testing. However, in many cases, it is difficult to design a more effective and realistic life for the patient. In such a case, the support staff should adjust the environment and prepare a social participation scene and a support system.

If there is a wide gap between the patient’s recognition and the objective evaluation, attach importance to what is needed and proceed with examination as the first step before bridging the gap.

In some cases, even if the patient is reluctant and rejective to the content of the support or future direction, the patient adapts to the content/direction of the support relatively smoothly once the support is started. Actual experience is important also in this sense. In contrast, for some cases, the patient cannot adapt to the support as a result. In such cases, it is necessary to provide continuous support including working out of the problems and reconstruction of the support system.

【Clues to the support】

- In considering a support system, also take into account the use of informal social

resources such as friends, colleagues and volunteers. Conduct thoroughgoing orientation in advance. Utilization of these resources may serve as an instrument for the patient in acquiring interpersonal skills, gaining mental stability through good conversation partners and raising life motivation.

⑦ **Support for the family**

Even for the family, the fact that the family member became impaired is shocking, and it takes considerable time until they understand and accept the impairment. Therefore, it is necessary to provide support also for the family as with the patient in order to lighten their anxiety and the burden on them.

In addition, it is difficult for the patient to build and lead his/her life alone, and some form of support by others will be needed. To establish such a support system, the family's understanding of the impairment and their cooperation are essential.

Besides individual support for consultation and other requirements from the family, it is important to continuously provide information on the social resources, conduct study meetings and family get-togethers and introduce a patient group in the community.

【Points to remember】

- Support the family so that they are not isolated.
- Take into account the period from injury in providing support.
- Characteristics of families whose members have higher brain dysfunction include confusion and anxiety about the fact that behaviors significantly changed from injury; confusion about the mixture of almost unchanged matters after injury and those matters the person became unable to cope with; and the fact that many cases with cerebral trauma are relatively young people and therefore they feel huge uncertainty about the future and have great expectations for recovery. It is important to fully understand the feelings and positions of these individual families and provide careful support to them.

4. Outcome assessment

Evaluation (or assessment) is used to associate the acquired information with characteristics of an individual and predictively interpret the degree of achievement against the training goal. It is an essential process for formulating a rehabilitation program designed to help the patient increase his/her social life skills or adapt to social life by grasping the characteristics and problems of the person and examining intervention methods and possibilities of behavior modification.

Assessment concerning the social life-related difficulty in performing activities and participation is conducted in various aspects, such as sense of value of the individual,

diversity of impairment and interactive property with the environment. For training, the preference even for the facility is to set up a simulated training environment that assumes the place of the patient's activity and participation in society after he/she leaves the facility, while avoiding assessment of the ability level, and make adjustment with a realistic social environment before conducting training. Assessment is performed in three stages: early stage, mid-training stage and late training stage. Support staff expertise plays an important role in the judging and weighing for accurate interpretation of assessment.

In contrast, the major focus of measuring the effectiveness of training for daily living is on enhancement of the patient's ability required for everyday life and social activities and encouragement of him/her to adapt to social life based on the state of the impairment that still remains after medical rehabilitation. That is, by assessing how difficulties related to social life (social life skills) such as work skills, daily living skills and social activity skills improved after intervention of the training, you are able to measure a certain effect.

In addition, it is also useful to ask the user (including the family) to comment on the quality of the services when he/she leaves the facility. Items in their comments include good things and bad things of using the facility, achievement of the purpose for using the facility, effectiveness of the training menu and the staff's work.

Furthermore, you must also attach importance to evaluation of the process in addition to evaluation of the achievement. It is desirable to sum up the user's satisfaction and achievement as its fruit in improvement of the difficulties related to social life described above, satisfaction of the user, and the service provision system. The indicator of achievement is comprehensive goal achievement including accurate process assessment ranging from satisfaction of the user to consciousness of the service provider and expertise.

5. Others

Support for community transition:

Long-term, comprehensive support is required for persons with higher brain dysfunction.

In the transition to the community, after gaining the consent of the patient and the family, it is necessary to provide written information to the involved organizations about the impairment characteristics and behavioral characteristics of the patient and the support method so that the organizations will correctly understand the impairment and appropriately manage the situation. In addition, depending on the circumstances, the involved staff should hold a support staff meeting to adjust the direction and content of future support and ensure continuity of support.

III Vocational Training Program

1. What are vocational training and vocational rehabilitation?

Vocational training includes preparatory training and vocational skills training. Even for persons whose periods from injury/onset are short, work-focused training may be conducted at hospitals or facilities. This is called prevocational training, and it overlaps with the previously mentioned medical rehab program and training for daily living. In addition, the whole vocational training including part of employment assistance is called vocational rehabilitation in a broad sense although it digresses from the definition of training.

2. Purpose of vocational rehabilitation for persons with higher brain dysfunction

Many of the problems that persons with higher brain dysfunction have in workplaces are based on the gap between “appearance” and “work they can actually perform,” such as “although they have few functional impairments and seem to be able to do anything, they make a lot of mistakes once they are given a job.”

Therefore, it is considered effective to provide services with the following purposes.

1. Clarify the vocational problems such as duties that can be performed and adaptability.
2. Encourage the patient to recognize his/her disability from the aspect of work and acquire compensatory behaviors.
3. Then, select a job appropriate for the patient, and establish an environment in the workplace to achieve stable employment.

3. Stages of vocational training

- The road for persons with higher brain dysfunction to the workplace generally flows as follows: injury/onset → medical treatment in the acute phase → rehab medical treatment/training (recognition evaluation/training, prevocational training) → (training for daily living) → vocational training (work preparation training, vocational training) → employment assistance (transition support, settlement support).

The prevocational training is performed before work preparation and may be conducted from the acute phase. The subjects include cases that do not have a clear hope for future, cases whose hope is greatly different from the actual ability, cases whom functional training is given priority, and cases whom cognitive training is tested in work scenes. In the meantime, cases whose symptoms are mild or significantly recovered during admittance and preparation for employment is mostly made are also included. This training is the first step of vocational rehabilitation for patients who were impaired in an illness or accident, and mainly consists of basic evaluation and training for work life. The prevocational training covers a broad range of life stages, from the acute phase to the subacute phase and to the stable phase of medical rehabilitation.

- At the stage of work training, it is important to work on the training with a sense of purpose for utilization of a compensatory means so that the patient becomes able to pay attention to his/her higher brain dysfunction and understands the need of vocational training.
- At the stage of employment assistance, the preference is that the patient becomes able to understand his/her impairment and has the clear intention to work and the training conducted as necessary and the basic cognitive training are almost complete.

4. Actual state of vocational rehabilitation

Points of evaluation are: ① taking into account the hierarchical structure of work life and ② grasping and confirming personal information.

① Hierarchical structure of work life

Working has a hierarchical structure in which life lies as the base, on which the “working ability” to rightly commute every day is placed, on which the “adaptability” to human relationships, etc. at the workplace is built, and on which the “task executing ability” to perform a certain level of work is placed. When managing vocational rehabilitation, it is necessary to consider such a hierarchical structure in addition to the aspect of executive performance, to which you tend to pay most attention.

② Items to be checked in evaluation

◇ Personal information

- The subject has an employment need, necessity for vocational training, etc.
- Employment need: grasp the difference with demand, specific need, etc.
- General information: basic information such as career, home status and economic situation
- Impairment state, employment-related information: it is important to check the status in past employment if the patient used to work after injury, and check the status and measure the effectiveness in the process of training and support in monitoring.
- In some cases, the patient is not covered by the vocational rehabilitation as a result of evaluation.

◇ Items to be studied

- Select effective training/support methods (content and technique), appropriate training/support facility/organization

[Special affairs]

In conducting evaluation, pay attention to the following:

<Characteristics of the disability>

- What kind of task the patient can perform.
- What the level of the processing capacity is.
- Environmental factors

<Importance of disability recognition>

<Effective training/support>

- Simulate work life
- Face reality, provide appropriate advice

<Importance of home life>

<Having a long-term view>

<Utilization of a social welfare and medical insurance system>

Formulating a vocational rehabilitation plan

In formulating a vocational rehabilitation plan (training plan), determine the goal and period with consent of the patient and the family based on the evaluation.

Many of the chief complaints of persons with higher brain dysfunction are unrealistic. If you cannot gain understanding of the patient, do not flatly deny his/her chief complaint, but listen to it as a “long-term goal” and the person in-charge prepares a feasible “short-term goal” after gaining consent of the patient.

The vocational rehabilitation plan should be formulated in an easy-to-understand manner.

Prevocational training

The prevocational training is conducted prior to work preparation, and may be used as training from the acute phase. That is, it can be a type of training with vocational content conducted in a medical rehabilitation. For cases that were impaired in illnesses or accidents, the prevocational training is the first step of a vocational rehabilitation, and mainly consists of basic evaluation and training for work life. The prevocational training may cover a broad range of stages from the acute phase to the subacute phase and to the stable phase of the medical rehab programs.

In principle, you perform the same evaluation and training as the one used in the medical rehabilitation. The educational materials and skills are more related to vocational training.

Work preparation training

(1) Purpose of the work preparation training

The purpose of the work preparation training is to establish an environment with the concept of “simulated workplace” = “workplace,” and evaluate or develop the ability required for reinstatement of work or new employment.

As described in the preceding paragraph, the person in charge of the training formulates a training plan with patient consent based on the evaluation and prevocational evaluation to organize vocational need before conducting the work preparation training.

<Points to remember>

- ① Perform actual training exercise and organize existing problems (what you can do, cannot do).
- ② Confirm the patient's awareness (thinking) of the work ⇒ grasp the gap with impairment recognition.
- ③ Prepare an environment through ① and ② and have the patient acquire compensatory behavior.
- ④ Identify and improve the operation ability (acquisition of compensatory behavior).
- ⑤ Identify and improve the adaptability (acquisition of compensatory behavior).
- ⑥ Establish a work life style (especially for new employees, persons with no work experience).
- ⑦ Establish a specific direction of work.

(2) Problems related to task execution

Higher brain dysfunction frequently accompanies decreased judgment and executive function. Cognitive impairment creates jobs that can be executed and those difficult to execute. It is important for both the client and the staff to know exactly what level of quality and what kind of duty/task will “pass as work” in work preparation training.

【Points】

Study the following items.

- Analysis of the task setting
- Level of the task setting
- Actual experience and appropriate advice
- Acquisition of a coping method and consideration by the surrounding persons
- Importance of recording
- Importance of behavioral observation

<Points to remember>

- Grasping the ability of the person with higher brain dysfunction
- Necessary to control information
- Necessary to assess
- Trust relationship is premised

Problems likely to arise in persons with higher brain dysfunction and measures to cope with them

This section describes problems related to task execution of persons with higher brain dysfunction frequently observed at workplaces and measures to cope with them. The staff should grasp “tasks that the client can perform” and grasp what kind of environmental setting (e.g., coping measures, consideration by colleagues) will increase the working capacity

and stabilize the work life.

<Problems related to information processing>

- Attention mistakes do not decrease in checking task
 - Increase reliability through a measure such as using a scale to check the performance and putting a check mark on each line.
- Mistakes will increase if speed and accuracy are both required
 - Make the client aware that work requires both speed and accuracy, and then have the client repeat the operation to check how the performance improves.
- If there are multiple points of attention, the client cannot perform the task
 - Problems such as displacement due to attention only paid to punching in the filing operation and forgetting something when performing complex photocopying (large size printing, duplex printings, etc.) frequently occur. In such a case, it is preferable to have the patient learn the method for coping with the problem by making him/her aware that he/she became weak at paying attention to multiple things simultaneously, and have him/her write down each point to be checked in advance and check one by one when performing the operation.
- Low efficiency and poor idea/judging
 - Unable to place a part in a position where the client can easily reach it, unable to place the instruction sheet in a place where the client can easily see it, etc. Since the client is weak at “ideas” and “judging,” grasp to what degree he/she is able to do so, and encourage him/her to recognize his/her weakness, thus to study a method for coping with the problem. It is safe to avoid letting the client perform the operation unless there is a reliable coping method.
- Becomes confused if multiple instructions are given at the same time or instructions are given by multiple persons
 - For the former, encourage the client learn to tell the instructor: “give the instructions one by one” or “I will take a memo, so speak slowly.” For the latter, make him/her aware that he/she is not good at receiving instructions from multiple persons rather than from one person and it is necessary to ask the staff to give him/her instructions from one person, if no improvement is made.
- Unable to make priorities or arrangements
 - Make the client aware that he/she became weak at performing operations when sequences are not determined. Then, study a method that allows the client to easily check the sequence.

<Problems related to memory>

- Unable to utilize memos even if the client writes them
 - Using memos in work requires the ability to write a necessary note → see it when necessary → use it appropriately. The required ability is higher than that for a schedule book. As a measure to cope with the problem: 1) use a separate notebook

for schedule, and another for business notebook for training, and then 2) affix indexes for different training menus in the business notebook such as “Operations,” “Clerical” and “PC” to clarify where to write memos. With this method, assess the degree of practicality.

- Taking a thing as something else and doing the wrong thing
 - Always provide feedback “Halfway memory disturbs work” to the client, and have him/her thoroughly follow the rules “Carefully listen to instructions” and “Take memos.” In principle, instructions to persons with higher brain dysfunction should be “simple” and “specific.” However, if the instruction is insufficient, attach more importance to special care (detailed instruction). If there is still a problem, use measures such as handing a memo to the client and having the staff write in a notebook.
- Making a mistake without seeing the instruction sheet
 - Urge the client to recognize the memory problem by always feeding back “Dependence on memory disturbs work” and “Be sure to see the instruction sheet” to him/her, and then have him/her become accustomed to using instruction sheets. If the client does not see the instruction sheet, measures include placing an indication plate written with the operation sequence, and directly affixing the procedure on the machine.
- Operation sequence or content changes halfway
 - Give feedback to the client every time change occurs to deepen his/her understanding, and repeat that until the procedure is established. If the cause is complexity of the operation, consider using the instruction sheet or segmentalizing the process.
- Unsure about whether to resume work after a break such as lunch, or mixed up with done and in process
 - For the former, measures include: 1) have the client learn to see the memo before starting, 2) affix a Post-it memo written “Finished here” on the task if the memo-checking is not established, and 3) post a paper sheet indicating “From ledger production in afternoon,” etc. in a place where the client can see it easily such as on the desk if he/she forgets the task itself. For the latter, use an indication plate that shows “Done” or “In process” to let the client clearly know the present state. In either case, the practicality varies depending on whether special care is needed.

(3) Problems related to adaptability

Many client with higher brain dysfunction are unable to smoothly build interpersonal relationships due to social behavioral impairment (dependence, regression, decreased emotional/desire control, etc.) among other characteristics of this disorder. In addition, there are cases that have difficulty in continuing work as a result of inability to faithfully execute instructions from the supervisor or reporting to the supervisor due to his/her impairment such as memory problem, attention problem and executive dysfunction.

【Points】

- Make the client aware that environmental adaptability is important for work.
- Have the client understand the task through behavioral analysis by the surrounding persons.
- Provide direct remarks in order to have the client realistically grasp the problem.
- Address the task after sorting out how to improve the problem.

<Points to remember>

- Grasp the ability of the person with higher brain dysfunction
- Necessary to control information
- Necessary to assess
- Trust relationship is premised

Vocational training (skills training)

The category of vocational training includes vocational skills training. Persons with higher brain dysfunction naturally include those who desire to acquire certain skills or hope to become employed if they acquire skills. There are many persons with higher brain dysfunction who want to learn the personal computer (hereinafter “PC”) in order to find jobs. However, it is likely that acquisition of PC skills will have an adverse effect unless the characteristics of the impairment concerning the work ability of persons with higher brain dysfunction are known. In fact, in many instances the PC skills of persons with higher brain dysfunction are not acceptable although they are employed for PC-related jobs because they graduated from PC vocational schools.

【Points】

- Work ability of persons with higher brain dysfunction
- Since operation of Windows requires skills that persons with higher brain dysfunction are not good at depending on the type of operation, in many cases they are unable to fully utilize the operating system.
- Assessment of the level of PC operation
- Attaching importance to basic response to persons with higher brain dysfunction

For vocational training, if the skills required for persons with higher brain dysfunction are higher than their abilities, they frequently have difficulty utilizing or applying those skills even though they are able to use part of those skills or acquire them as their own skills. In particular, computer-related businesses mostly require skills that persons with higher brain dysfunction are weak at as described above. Therefore, task analysis of the implemented exercises is more important.

5. Employment assistance

What is employment assistance?

Employment forms of the persons with disabilities include “ordinary employment,” “working at home,” “protected employment” and “welfare-type employment.”

Employment assistance at hospitals

(a) If the case has a position in the workplace

Specific assistance efforts for reinstatement are as follows.

Vocational evaluation and organization of information

- Family status
- Place of residence
- Action of the case toward employment (observation)
- Physical impairment (confirm the state through documents and interview)
- Higher brain dysfunction (neuropsychological findings, screening test)
- Task endurance (task evaluation)
- Task executing ability (task evaluation)
- Mobility (physical aspect, higher brain aspect)

Confirming the intension of the case and assistant

- Will to work
- Counseling for reinstatement

Collection of workplace information

- Intension of the office concerning reinstatement
- Contact at the office for reinstatement adjustment, industrial physician
- Leave of absence, leave compensation (accident and sickness benefits, paid leave)
- Possibility of decruitment
- Possibility of job creation for the client
- Content of job at the workplace and duties of the client
- Working environment (physical, mental)
- Possibility of providing duties at the office for training
- Possibility of workplace training

Provision of information to the workplace

- Intension of the client and the family for reinstatement
- Explanation of the higher brain dysfunction of the client
- Necessity of understanding of the impairment, consideration and compensatory means
- Subsidiary systems
- Advice on improvement of the workplace
- Follow-up

Workplace training

- Training planning (period, time slot, place, training content, key person, commute route)
- Training contract, insurance
- Checking with the workplace training evaluation sheet
- Summary of the training and reporting of the result
- Conduct re-training as necessary

Reinstatement, settlement guidance and follow-up

- If any problem arises, allocate roles between the parties involved to resolve it.
- The follow-up period will be determined at each implementing organization.

(b) If the client intends to have a new job

Confirm the intension from the client and the family. Make a decision for employment after vocational evaluation and information organization. Register the client at a job-placement office. Also seek possibilities through such means as participation in group career counseling, recruitment magazines, newspaper flyers and the Internet.

The purpose of experimental training at the office is to evaluate the client and does not assume his/her employment. Subsequently, provide support for workplace training, reinstatement, settlement guidance and follow-up.

(c) If it is difficult to have an ordinary job

If it seems difficult to find an ordinary job in the present state, there is the option of aiming at ordinary employment via welfare-type employment.

Employment assistance at a welfare facility

Regional rehabilitation centers/facilities that have vocational training departments or sheltered workshop actively supporting career development also provide employment assistance given these. Employment assistance provided at welfare facilities is as follows:

Welfare facilities provide employment assistance for persons with higher brain dysfunction for new employment or reinstatement. However, their assistance tends to become unstable even if a slight environmental change occurs. Their assistance includes transition support related to new employment or reinstatement based on duties that the case can perform and settlement support as follow-up.

6. Outcome assessment

The purpose of evaluating outcome of vocational rehabilitation is to measure how the status improved or changed after intervention of training or support (including during the training or support period). It enables the service providers to formulate the next plan if the vocational rehab plan is to be modified or proceed to a next stage. In addition, outcome evaluation also serves to evaluate the appropriateness of training or support technique by the service provider in addition to measuring change in the case.

【Points of outcome assessment】

Employment of persons with higher brain dysfunction tends to raise problems resulting from the gap between “appearance” and the “actual ability.” The most important factor of vocational rehabilitation for persons with higher brain dysfunction in the training stage is the viewpoint of clarifying: ① the degree of vocational preparedness such as task executing ability and adaptability, and ② the degree of impairment recognition.