

**Table 1** Subjects

Case	A	B	C	D	E	Mean (SD)
Age*	54	37	55	51	53	50.0 (7.4)
Education*	12	12	12	12	12	12.0 (0.0)
Abstin. Period**	35	20	40	14	28	27.4 (10.6)
FIQ	95	84	81	81	79	84.0 (6.4)

\*years, \*\*months, FIQ: full intelligence quotient.

who were in the Special Alcoholism Treatment Ward of a psychiatric hospital (Table 1). All showed disorientation, anterograde and retrograde amnesia, and confused confabulation. None had productive confabulation. No definite lesions were observed in MRI and CT. Cases with physical complications such as cirrhosis and diabetes and with a low full IQ (FIQ) assessed by WAIS-R were excluded from the study. Those receiving drugs such as antipsychotics and anxiolytics that may affect the cognitive functions were also excluded. The average years of education was 12.0 years, and the average FIQ (WAIS-R) was 84.0. The subjects had been hospitalized for at least 6 months and had abstained from alcohol for an average of 27.4 months.

## Methods

### Training

The cognitive rehabilitation program was conducted in groups weekly for 6 months. The aim was to train the patients to memorize the names of ward staff as domain-specific knowledge, by repetitive practices using 25 color photographs (20 staff from the Special Alcoholism Treatment Ward, and 5 staff from another ward). The name of the person was written on the back of each photograph. At each training session, the photographs were shown randomly one by one to the patients who were asked to recall the names. When a name could not be recalled, the patient read the name on the back of the photograph to enhance memory.

### Assessment

The training effect was assessed by a name recall test using color photographs at the beginning of every training session (1-week delayed reproduction) (Assessment 1). To see if transfer of acquired knowledge could be achieved, the staff members in the photographs met with the patients one week after the last training session and patients were asked to identify their names (Assessment 2). Maintenance of the knowledge was tested at one and two years after the training, by asking

patients to recall the names of the staff from photographs (Assessments 3 and 4).

In each recall test, an immediate correct answer was regarded as "capable to recall". A correct answer given after correction of an initial incorrect answer, or a correct answer induced by cues, was not regarded as a correct answer.

To examine whether the training effect was generalized to other learning tasks, the Rey Auditory Verbal Learning Test and Rey-Osterrieth Complex Figure Test were conducted as a verbal and a nonverbal task, respectively, before and after the rehabilitation. Before the beginning of the rehabilitation program, the autobiographical memory test<sup>50</sup> and personal semantic memory test<sup>50</sup> were conducted as remote memory tests, and the Keio version of the Wisconsin Card Sorting Test<sup>51</sup> was performed as a test to reflect frontal lobe functions (Assessment 5).

For statistical analysis, a paired t-test was used to compare scores of the name recall exercises. In the comparison of the name recall scores with other neuropsychological test results, the correlation coefficients were calculated and tested by Fisher's *r* to *Z* conversion method.

## Results

All the patients completed the 6-month rehabilitation program. The number of names recalled increased with time but had almost reached a plateau by the 6th month, and we tentatively concluded that further improvement could not be achieved by continuing this method alone.

### Assessment 1

The subjects had been in the hospital from 6 months to several years at the beginning of the rehabilitation program, and therefore had known on average 6.4 of 20 names of the staff members in the ward. After the 6-month program, the numbers of names recalled (average 11.6) had significantly increased for all the patients (Table 2).

### Assessment 2

Table 2 also shows the number of names recalled when seeing the actual persons. The results were comparable to those of the photographs. These findings suggested that the face-name association was not just a memory of the particular photographs, but was in a form that could be utilized in real life.