

“Ros”, that of sniffing a rose is performed.

In a memory training program, teaching 8 words to posttraumatic amnesic patients was performed. Moffat²⁰ reported that the number of words recalled increased significantly when they were presented in the context of actions to be performed using them (e.g. rocking motion for the word “baby”). Even in patients with a disorder of the temporal order due to frontal injury, McAndrews and Milner²¹ reported that memorization of object names was markedly improved when the objects were actually used.

The theoretical background of the motor coding method as cognitive rehabilitation for amnesic patients is that the procedural memory is conserved in these subjects. However, there are some problems, both theoretically and practically, concerning its application to memory rehabilitation. First, not all amnesic patients can acquire these cognitive skills. The capacity of procedural memory learning may be related to the anatomical location of the injury rather than the pathology,²² and accordingly effectiveness of the training varies widely among patients. Second, the procedural memory tasks claimed by various researchers actually consisted of a variety of tasks. They included various relatively simple motor learning, visual-spatial learning and problem solving exercises.²³ This situation incurred confusion in interpretation of each study.

More fundamentally, the definition of procedural memory itself is far from established. This term has been reputed rather to represent the motor, sensory and cognitive skills that are capable of being learned or recalled by amnesic subjects.²⁴ In addition, from the viewpoint of daily life training, most tasks cannot be classified as either declarative or procedural memory tasks, since daily life is so complex and any tasks closely related to it involve both systems.

Despite these questions, it does remain a fact that amnesic patients can learn certain motor or problem-solving tasks. Undoubtedly, memory rehabilitation utilizing this fact would be a benefit to amnesic subjects and hence a fruitful research area in the future.

Cognitive Rehabilitation for Dementia: Reality Orientation

Reality orientation is the teaching of specific information related to the orientation and environment in which the patient resides. It was developed initially for long-term hospitalized patients with senile dementia, with aims to stimulate the patient and to aid the nurses' care for the patient.²⁵⁻²⁷ Recently, however, concern has been shifted to improvement of cognitive behavioral disorders and to correcting confused behavior in the elderly. Thus the method originally developed for hospitalized dementia patients has been widely applied

to other patients, such as brain trauma and day care patients.^{28,29}

According to Hanley,³⁰ reality orientation is composed of: (1) presentation of new information including daily communication and specific learning items, (2) correction of confused behavior, (3) promotion, rehearsal and reinforcement of proper behavior, and (4) presentation of methods (aids) to improve memory disorder.

In practice, patients are asked questions such as “Who are you?”, “Who is talking to you?” and “What is going on now?”, and then their false responses are corrected by therapists. Information regarding time and place is also given to the patient. The therapists are required to present the information to the patient in a clear and simple manner. The patient is advised to rehearse and to talk with his or her own family and other patients. It is crucial that the therapist knows the details of the patient's family and their past history, because the therapist must immediately evaluate the patient's remarks.

Reality orientation can be either informal, which is a 24-hour training, or formal, which is organized in groups or in classes. However, informal reality orientation alone has been reported to produce no short-term or long-term effect.³¹ This may occur because of a lack of staff interaction such as asking specific questions and correction. On the other hand, improvement in orientation is observed in well-structured formal reality orientation, irrespective of whether it is conducted in groups or individually. Several reports have indicated improvement in verbal orientation through the formal reality orientation and special treatment compared to the no-treatment group.^{30,32,33} Other relevant training, such as ward orientation training using suitable signs (road marks), has been also reported effective.³⁴⁻³⁶

To obtain better results, combination of reality orientation with other memory training strategies has been recommended. For example, Kurlychek³⁷ successfully trained patients with early Alzheimer type dementia using reality orientation combined with instruction using an alarm clock and a timetable. In Japan, Honda and Kashima³⁸ used reality orientation combined with attention process training in the rehabilitation for elderly dementia patients.

Generalization of this effect, however, is controversial. While behavioral changes after formal reality orientation have been reported by Holden and Sinebruchow,³⁹ generalization was not observed in the group training sessions conducted by Hart and Fleming,⁴⁰ Goldstein *et al.*,³² or in the individual training conducted by Woods.⁴¹

In studies comparing formal reality orientation to other therapies such as social and occupational therapies, three reports have consistently demonstrated