


Dressing Oneself With Words: Key Points for Recovering Basic Activities of Daily Living in Patients With Severe Alzheimer's Disease

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Teruo Yokoi, PhD¹  and Ketu Ri, MA¹

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There are an estimated 50 million people with dementia in the world, and an estimated 10 million newly diagnosed cases of dementia every year (World Health Organization, 2020). Many people with dementia live at home and receive unpaid care from their family members or other people (Alzheimer's Disease International, 2010). The family caregivers are often under tremendous psychological, physical, and financial stress, and in poor health (Joling et al., 2015). This burden experienced by caregivers is a common trigger for the family to seek institutionalization of their care recipients with dementia (Luppa et al., 2008). In addition, the long-term care of patients with dementia imposes a great financial burden (Alzheimer's Disease International, 2015). Thus, dementia care is an important issue from the viewpoint of public health.

Dementia refers to progressive cognitive decline, accompanied by impairment of the activities of daily living (ADL). Activities of daily living impairments include impairment of the instrumental activities of daily living (IADL) and impairments of the basic activities of daily living (BADL). Instrumental activities of daily living impairments require assistance with money and medication management, housework, shopping, answering telephone calls, etc. Basic activities of daily living impairments require assistance with dressing, grooming, toileting, bathing, eating, transfer, etc. In general, the greater the degree of assistance required for BADL, the greater the burden of care experienced by the caregiver and the worse the caregiver's health (Shaw et al., 1997). In Alzheimer's disease, which is the most common cause of dementia, BADL impairments progress with the loss of language skills. Therefore, in this essay, we explained the key points for recovery of the BADL in patients with severe Alzheimer's disease who are losing their language skills.

Understanding of the key points for recovery of the BADL can reduce the burden of care faced by caregivers.

BADL Are Associated with Procedural Memory, which Is Mediated in Different Brain Structures from Those Mediating Cognitive Function

Diagnostic and Statistical Manual of Mental Disorders (DSM)-V (American Psychiatric Association, 2013) and International Classification of Diseases (ICD)-10 diagnostic criteria (World Health Organization, 1992) are mainly used to determine the presence or absence of dementia. In the DSM-V, the presence or absence of cognitive decline and IADL impairments are listed as the diagnostic criteria for dementia. The severity is determined as mild in patients who have difficulties with IADL, as moderate in patients who have difficulties with BADL, and as severe in patients who fully depend on others for BADL. In ICD-10, the presence or absence of cognitive decline and BADL decline are listed as the diagnostic criteria for dementia. Therefore, there is often a false belief that BADL impairments in patients with Alzheimer's disease are directly caused by cognitive decline. However, BADL are actually associated with procedural

¹Faculty of Social Welfare, University of Kochi, Kochi, Japan

Corresponding Author:

Teruo Yokoi, Faculty of Social Welfare, University of Kochi, 2751-1-Ike, Kochi-city, Kochi 781-8515, Japan.
 Email: yokoi_teruo@cc.u-kochi.ac.jp



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memory, which is mediated in different brain structures from those mediating cognitive function (Corkin, 2002).

Procedural Memory Is Recovered by Actions, Not Mediated by Words

Long-term memory is classified into declarative memory, which is retrieved in consciousness, mediated by words, and non-declarative memory, which involves actions without words (Squire, 1987). Declarative memory, divided into episodic memory and semantic memory, cannot be retrieved clearly without words. However, non-declarative memory, such as procedural memory (biking, swimming, etc.), can be retrieved by actions, without words. A person who has not ridden a bicycle or not swum, even for 10 years, can pick up a bicycle and ride it or swim at any time that they are placed in that situation.

BADL can Be Recovered Even in Patients with Severe Alzheimer's Disease Who Have Lost Their Language Skills

Basic activities of daily living are also associated with procedural memory, which does not involve concepts described in words, but refers to actions retrieved from habit/practice. Thus, BADL can be retrieved even in people who have lost their language skills and therefore cannot represent their concepts. For example, a severe Alzheimer's disease patient who has lost his/her language skills can start eating beans by dexterously picking them up when he/she is made to hold a pair of chopsticks in the hand. In the washroom, when a toothbrush with toothpaste is placed in the patient's hand, he/she starts brushing the teeth. In front of a mirror, when a comb is placed in the patient's hand, he/she starts combing his/her hair. In the bathroom, when a washcloth lathered with soap is placed in the patient's hand, he/she starts scrubbing the body. In other words, recovery of BADL becomes easier when the environment of the patient is prepared for action. Procedural memory is the memory of actions stored in chronological order (Cohen & Squire, 1980). Therefore, when preparation is made for a patient to start an action, he/she can start the action. Recent systematic reviews and meta-analyses have suggested that procedural memory, which is the memory of perceptual—motor skills that can be evaluated based on rotary pursuit tasks and other methods can be acquired even in patients with Alzheimer's disease (De Wit et al., 2021).

BADL Impairments that Require Assistance from an Early Stage of the Disease and No Assistance until the Later Stages of the Disease

The difficulties in the BADL depend on the task at hand. In patients with Alzheimer's disease, for example, the ability to

dress up is impaired from early on, but the ability to eat is maintained until the later stages (Giebel et al., 2015). Therefore, we will explain the relationship between language skills and BADL, by comparing the dressing ability, which requires assistance from the early stage and the ability to eat by oneself, for which no assistance is required until much later.

In patients with severe Alzheimer's disease, recovery of BADL is easy if the activities are tangible and perceptible, but difficult when they are based on concepts that are intangible and imperceptible. For example, let us imagine a simple situation where a man is required to wear briefs, pants, an inner shirt and a T-shirt placed in front of him. People with normal cognition can quite easily put on the briefs first, the pants over the briefs, the inner shirt first, and the T-shirt on top of it. Such dressing ability requires conceptual representations, such as the concepts of front and back surfaces, front and back sides, up and down, or right and left, which are intangible and imperceptible. A person in whom these concepts are lost cannot distinguish between front and back surfaces, front and back sides, up and down, or right and left, which in turn, disables the person from determining in which way and in what order he must wear the briefs, pants, inner shirt and T-shirt. Therefore, it should be no wonder that patients with severe Alzheimer's disease who have lost their language skills/conceptual representations wear briefs and pants from their head, with the front and back surfaces, front and back sides, up and down, and left and right often reversed, or wear their inner shirt or T-shirt from their foot. In fact, we dress ourselves based on conceptual representations described in words. On the other hand, eating involves, for example, eating rice, bread and side dishes, which are tangible and perceptible items, using chopsticks, a spoon, knife, fork, plate, and bowl, all of which are also tangible and perceptible. Therefore, patients with severe Alzheimer's disease require assistance with dressing from an earlier stage, but do not require assistance with eating until the later stages of the disease.

Key Points for BADL Recovery in Patients with Severe Alzheimer's Disease

To facilitate recovery of BADL in patients with severe Alzheimer's disease, a caregiver needs to prepare the patient's environment in advance for action at the scene of the BADL task. Assistance by the caregivers is required for actions based on concepts that are intangible and imperceptible.

Key Points for the Recovery of BPSD and BADL

Behavioral and psychological symptoms of dementia (BPSD), such as aggressive behaviors, agitation, delusions, and anxiety also impose a significant burden on the caregivers

(Black & Almeida, 2004). Caregivers' behaviors that could worsen the BPSD (described by the International Psychogeriatric Association) (International Psychogeriatric Association, 2010) include "placing demands on the patient that exceed his or her capabilities." However, if they were given a good understanding of the key points for BADL recovery, caregivers will no longer push patients beyond their abilities; with the consequent reduction in the BPSD, the caregivers' burden will also be reduced.

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ORCID iD

Teruo Yokoi  <https://orcid.org/0000-0002-9035-4253>

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