CASE REPORT

Diet Manipulation to Resume Regular Food Consumption for an Adult With Traumatic Brain Injury

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Dysphagia is one of the more common feeding problems encountered in persons recovering from traumatic brain injury. Dysphagia is defined as “a swallowing disorder characterized by difficulty in oral preparation for the swallow or in moving material from the mouth to the stomach” (Staff, 1987, pp. 57–58). It may have a neurological or mechanical basis or a cognitive, emotional, or behavioral origin that manifests in the form of refusal to consume a regular diet (Langley, 1989; Logemann, 1983). The role of the occupational therapist in the treatment of persons with dysphagia may consist of diet manipulation, oral desensitization through sensory stimulation, muscle reeducation, cognitive-perceptual retraining, proper positioning, structuring of the feeding environment, prescription and fabrication of adapted feeding devices, or a combination of these procedures. After an extensive literature review, Asher (1986) concluded that diet manipulation (thickened liquids, soft foods, semisolids, regular diets) was one of the most common intervention techniques for dysphagia. It has also been proven to be effective in the treatment of persons with dysphagia (Cherney & Halper, 1989; Hutchins, 1989). The present paper describes a diet manipulation program for a person with traumatic brain injury who exhibited a swallowing disorder of unknown etiology. The program was based on the Marianjoy Rehabilitation Center’s (Wheaton, Illinois) dysphagia diet program, which involves a hierarchy of diet consistency from pureed and ground diet (most restrictive) to chopped and cut diet, to soft and regular diet (least restrictive) (Hutchins, 1988).

History

The patient was a 53-year-old married man who sustained a closed head injury when he fell off a curb while intoxicated. At hospital admission, there was no documented coma, although his level of responsiveness was diminished. A magnetic resonance imaging and a computerized tomography scan of the brain showed soft-tissue swelling in the left temporal lobe and a cerebrovascular accident in the right temporal lobe. An electroencephalogram showed multiple areas of increased electrical signals in the deep white matter bilaterally. These findings all could represent bilateral frontal lobe dysfunction. The psychiatric diagnosis was dementia, characterized by impaired short- and long-term memory and impairments in abstract thinking and judgment.

Twenty years earlier, the patient had sustained a traumatic left cerebellar subdural hematoma and underwent a craniotomy. Personality changes following that injury included increased impulsivity and aggression. Despite this, he was able to work as an elevator mechanic for years until he was judged disabled 2 years ago and retired. He also had a history of chronic alcoholism.
Evaluation

Speech and Language Evaluation

The patient's expressive communication consisted primarily of one-word utterances or automatic speech patterns such as "yes," "no," "cup of tea," and inappropriate responses. Oral receptive skills were considered decreased. Given one- or two-step directions, he required maximum cues for task completion. The severity of his organic brain injury and its focal components also suggested aphasia. The patient exhibited frustration when attempting to read. His hearing was functional.

Physical Evaluation

No focal weakness, cardiac risk, or seizure activity was found. Gross sensorimotor skills were intact. Fine motor skills were adequate for self-feeding with a spoon. All medication was discontinued at the time of admission to the rehabilitation center.

Eating History

Hospital reports indicated that formal swallowing, oral motor, cognitive, and perceptual assessments had been unsuccessful due to the patient's noncompliance with the evaluation procedures. Information from his wife indicated that the year prior to his injury, the patient had eaten only bacon and bread and drank alcohol, soda, and tea. During his 9-week hospitalization, the patient spit out all solid foods, including bacon, after masticating for a few cycles. He was therefore given a pureed diet and received a vitamin supplement.

Occupational Therapy Initial Feeding Evaluation

On admission to the rehabilitation center (a residential living facility), the patient's diet consisted of cereal and chocolate milk, beef broth, chicken noodle soup, and vegetable rice soup. A regular diet was no longer offered on a plate, and the patient ate this without spitting. Two weeks after admission, the psychiatrist was asked to rule out the risks of aspiration. The psychiatrist determined that the patient's oral motor functioning was intact and that his swallowing problem was a cognitive deficit rather than a motor deficit. The psychiatrist recommended offering the patient a regular diet with supervision. However, the patient refused to consume the regular diet offered for 5 consecutive days at lunch and dinner, even with prompts. He chose the pureed diet instead.

Occupational Therapy Cognitive-Perceptual Evaluation

The patient demonstrated difficulty in tasks requiring memory, visual discrimination, and categorization. Motor and verbal perseveration was observed in task performance. No unilateral neglect was observed. The patient did not follow simple commands and became confused when presented with verbal requests. He was oriented only to himself and family members. His attention span and concentration on a structured task was fewer than 10 min when provided with one-to-one attention. He was easily distracted. He became upset and agitated at a change in routine. He demonstrated rigid and concrete slow information processing skills and low frustration tolerance when tasks required him to shift cognitive sets. Decreased attention to tasks or task components was observed across all settings.

Intervention

The results of the occupational therapy cognitive and feeding evaluations suggested a diet manipulation program. The program implemented consisted of the gradual introduction of diets of different textures, from the most restrictive (pureed and ground foods) to the least restrictive (soft foods and regular diet). (As the patient was consuming a pureed diet in which liquid was taken through a straw, he was introduced to a ground diet.) The specific approach was to place a packet of instant oatmeal in a glass filled with hot chocolate milk, which, after cooling, was presented to the patient with a straw. Meanwhile, a spoon was placed on the table at his right side, and he was verbally cued that the spoon was on the table. From a distance, the patient was observed to pick up the spoon to scoop the oatmeal out of the bottom of the glass after he finished drinking the liquid. He was observed chewing and swallowing without difficulty.

From this successful initial intervention, a ground diet in a glass was offered for the three daily meals. The ground diet consisted of cereal and chocolate milk, beef broth, chicken noodle soup, and vegetable rice soup. A regular diet continued to be offered at the lunch and dinner meals, which the patient continued to refuse. Because the patient showed a steady acceptance of the ground diet in a glass, a chopped diet was introduced after 3 days. Even with the chopped diet, food continued to be offered in a glass. The chopped diet initially consisted of soups with soft vegetables and was increased to include small meat chunks, tuna fish, cut-up sausage, and beans. The regular diet was no longer offered once its contents were similar to the chopped diet. The chopped diet consisted of food cut up and placed in a plate. Three days following successful consumption of a chopped diet in a glass, a regular diet was cut up and offered on a plate, and the patient ate this without spit-
ting food out, choking, or experiencing swallowing difficulties. The regular diet consisted of muffins, pizza, eggs and sausage, toast, chicken and stuffing, fish, and potatoes. After another 3 days, the patient began to use a knife and fork with meals.

Outcome

In this 6-day diet manipulation program, the patient progressed from a pureed diet to a regular diet. He continued to consume a regular diet until he was discharged to another facility 45 days later. He had gained 4 lb. A follow-up contact 3 months after discharge confirmed that he was continuing the regular diet at the new setting.

Discussion

Within 6 days, the diet manipulation program was effective. A normalized feeding pattern was restored in this person with traumatic brain injury who had previously refused to consume a regular diet for a period of 3 months posttrauma, due to unknown etiology, but for strong cognitive, emotional, and behavioral reasons.

The rationale for the introduction of an upgraded food texture in the glass instead of in a bowl was based on the generalization model proposed by Toglia (1991). Toglia suggested that transfer of learning is facilitated when only one or two surface task characteristics are changed, which is called near transfer. In this case, the introduction of a ground and chopped diet in a glass resulted in the changing of only one surface characteristic of the task, that is, the texture of the food being served. Due to the patient’s difficulty in shifting cognitive sets, when the therapist changed both the food texture and the container, the patient was unable to cognitively accommodate this. This resulted in the maladaptive behavior of refusing to eat. Once a chopped diet in a glass was accepted, an intermediate transfer task was introduced in which food was cut up on the patient’s plate instead of placed in a glass. Once the patient successfully completed this cognitive set change, the meal was presented uncut with the availability of a knife and fork. The patient’s use of the utensils was a result of successful far transfer of cognitive skills (i.e., the task is physically different or the surface characteristics share only one surface similarity). This intervention structured the environment by introducing an upgraded food texture in the same cognitive context with which the patient was familiar. This combination of the patient’s familiar and acceptable cognitive modality with a graded increase in texture facilitated the patient’s acceptance of the feeding program.

Diet manipulation is an effective technique for persons in an acute care setting and for persons with traumatic brain injury in postacute rehabilitation settings. Too early an introduction of a regular diet may be threatening, especially to those with severe cognitive dysfunction who cannot express their anxiety, fear, and needs. One advantage of this approach is that it requires minimal cognitive effort on the part of the patient. Additionally, the noninvasive nature of the technique does not require the person to follow any commands or to learn new procedures. Adequate oral motor and swallowing functioning is required prior to beginning a diet manipulation protocol.

Resumption of a regular solid diet is important to health, as prolonged subsistence on pureed diets will increase the probability of constipation, dental problems, oral musculature atrophy, and nutritional deficits (Sobsey, 1983). The resumption of normal eating habits with appropriate nutrition and diet also offers the patient personal (i.e., emotional and social) satisfaction (Asher, 1986). The patient’s ability to generalize the acquired eating skills from the rehabilitation center to the long-term placement setting supports the use of Toglia’s (1991) cognitive strategies to improve feeding skills.

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References


