

## The nursing approach to coping with a vegetative state developing after cerebral infarction : Effect of the sleep-wakefulness cycle correction

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Received 25 February 2015; received in received from 7 March 2015; accepted 10 March 2015

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### Abstract

We report on a 53-year-old woman with myotonic muscular dystrophy who developed frontal cerebral infarction. The woman entered a vegetative state and deliriousness developed after a cerebral infarction. We examined whether nursing care at fixed times was effective in helping her regain life rhythm, particularly sleep-wakefulness cycle. Her sleep-wakefulness cycle was disturbed before the intervention. Dangerous behavior was found, and conversation was impossible. After the intervention, periods of sleep and wakefulness became regular. The consciousness state was improved. ICDSC was improved from five points to one point.

**Keywords**: nursing approach, vegetative state, cerebral infarction, sleep-wakefulness cycle

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### Introduction

The vegetative state develops after attacks such as cerebrovascular disorder or head trauma. The patients present with the following symptoms. The patients cannot move by themselves; Food and drink cannot be consumed by oneself; Incontinence is in condition to control excretion; Mutual understanding is not possible; Speech is possible, but meaningful things cannot be said; The follow is possible, but is not recognizable.

We experienced myotonic muscular dystrophy patients who had developed frontal cerebral infarction. Deliriousness with

the vegetative state due to the cerebral infarction developed. Kumada et al. describe as follows. The improvement of the sleep awakening rhythm is effective for relaxation of ADL and the consciousness disturbed. Therefore, we examined whether nursing care at fixed times influenced the sleep-wakefulness cycle.

### Case report

The patient was a 53-year-old female. She was suffered from myotonic muscular dystrophy. A cerebral infarction appeared in the frontal lobe six months ago. A vegetative state appeared in the acute phase. There was no motor disorder of the four extremities.

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Involuntary body movement was intense during the night and day. Even though the cerebral infarction acute phase passed, deliriousness persisted. Intervention of sleep awakening rhythm improvement. We wiped her face every morning at 6:30. We made her sit down at regular times subsequently. Physical therapists, an occupational therapist, and a speech-language-hearing therapist performed rehabilitation every morning at fixed times. We conducted mouth care at 14:00. We gave a hand and feet bath with aroma at 14:15. Her back was massaged at 20:45.

### **Evaluation methods**

Evaluation was carried out using the degree of delirium / consciousness disturbance. The ICDSC scale was used. We carried out evaluations for the duration of the study, beginning on the study starting date and every week thereafter, from June, 2014 to March, 2015.

### **Results**

The ICDSC was five points after intervention on 21st, four points after intervention on 28th, and two points after intervention on 76th. Sleep and arousal rhythm were disturbed before the intervention. Also, the patient often suffered from deliriousness during awakening. She made intense body movements, and her foot was hung to the bed fence and throw out. After the intervention, the waking time in the daytime lengthened. It became rare that she slept in the day. She could sleep from 21:00 to 5:00 the next day, 56 days after the intervention. The intense body movement observed before the intervention disappeared. Inhibition of the lower limbs was not needed in the night. Furthermore, the need for inhibition of the lower limbs decreased during the daytime, too. Memory impairment was still found. She remembered the cerebral infarction onset front well. She became talkative, and talked about the old days frequently. The

communication with the nurse improved. She was able to conduct mouth care by herself in bed 62 days after the intervention. Toothpaste and a gargle became possible by herself 67 days after the intervention.

### **Discussion**

There is a possibility that daytime physical activity improved due to the constant nursing care at the appointed hour every day. As a result, there is a possibility that the awakening and sleep rhythm were normalized. Patients suffering myotonic muscular dystrophy have the following characteristics. A tendency for daytime somnolence is found. Wakefulness in the morning is poor. Initiation of sleep is difficult, and time spent sleeping / lying in bed is long. Will and a problem performer decrease. There is a possibility that the function of the parasympathetic nerve is improved by the daily stimulation of the hand and foot bath. As a result, night high quality sleep seems to have been obtained.

By tating stimulation, mental relief and relaxation seem to have developed. The patient was able to fall asleep smoothly. In conclusion, acquisition of life rhythm and recovery of the sleep-wakefulness cycle were obtained by regular nursing interventions.