



### Short Commentary

## Hypothesis of Quantum Emotional Therapy for Behavioral and Psychological Symptoms of Dementia

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Dementia patients with behavioral and psychological symptoms of dementia (BPSD) could be changed to delightful emotions if they understand that they could stay safely with favorable situations [1]. We hypothesize that such undulations from BPSD to favorable emotions might be explained using quantum theory [2] because of the following reasons. First, quantum wave could pass through the maze of 1000 billion neurons and communicate to the objective neurons through the prompt route (quantum walk). Second, quantum wave shows duality of wave-particle; when quantum wave is observed by some detector like as the neocortex for cognitive recognition, quantum wave changes to particle and benefit of quantum walk is lost. In healthy persons if quantum wave originated from favorable stimulation was observed by the neocortex, the quantum wave might change to particle and loose quantum walk, which might cause damped emotions. On the other hand, in dementia patients with a damaged neocortex [3], observation by the neocortex might not be completely

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functioned and quantum wave originated from favorable stimulation might be kept, which might keep delightful emotions. Simultaneously negative emotions like BPSD would be easily happen in dementia patients because observation of quantum wave by the neocortex might not work compared to the neocortex of normal persons. Chiang et al. [4] observed that spontaneous brain rhythms could be transmitted from one side of a surgically severed hippocampal slice to the other when the two cut edges were simply placed in close proximity, which implicated ephaptic mechanisms but not with classical chemical or electrical synaptic transmission.

To increase favorable emotions is principally preferable to decrease negative emotions for treatment of BPSD [1]. Many features of BPSD are retained without a serious decline in memory. Then, how to keep favorable quantum wave without interference by the observation by variously retained cognitive functions of the neocortex (quantum emotional therapy) in dementia patients would be important. We studied emotional satisfaction index of dementia patients and found that there was a rank of the emotional satisfaction index [5]. Most dementia patients showed zero or negative emotional satisfaction index on regular rehabilitation activities, such as playing simple games, drawing and TV. One of the programs which causes the highest satisfaction index is the dramatic emotional therapy. The dramatic emotional therapy is consisted of narration and talks by a professional actor on a variety of themes of selected special stories during and after World War II stories from novels, and comic stories, which were presented like a theatre performance and followed by free discussion. During the dramatic emotional therapy many patients showed deep emotional state: We have observed choking with tears in some patients. Personal program to bring delightful emotions would be different according to individual interest, cognitive function, health condition, and others. Quantum emotional therapy without being disturbed by duality of quantum wave should be studied to unify complex factors to bring delightful emotions in patients with BPSD.

Antipsychotics have been prescribed for treatments of BPSD although antipsychotics are off-label drugs for BPSD. Antipsychotics decreased both negative and favorable natures of emotions, while nonantipsychotics satisfactory decrease negative emotions without decreasing favorable emotions [1]. Furthermore, antipsychotics have been suggested to decrease neocortical functions [6]. Antipsychotics might decrease quantum wave of the brain and quantum wave might not work anymore except classical neuronal works as synaptic transmission.

Behavioral and psychological symptoms of caregivers (BPSC) [7] might also be cared using quantum emotional therapy. When favorable emotions of caregivers were exposed during violence or refusal by patients with BPSD, observed favorable quantum wave by the neocortex of the caregivers might be changed to particle, which might cause damped emotions like abusiveness. A theatrical care performance, which means caregivers change characters from themselves to other ones and perform like as an actor/actress who is warmly accepted by the patients, would be one of the ways to refrain from charges and/or stress caused by dementia patients with BPSD.

Usually dementia patients are supposed to be a state as if loss of human being. Nevertheless, dementia patients could behave like a person of spiritual awakening person who were accepting pleasure without perplexity since dementia patients could keep quantum wave of favorable emotions. Then, dementia patients might be a master of life, while normal people hardly overcome distress due to neocortical observations. In near future, automatic intelligence would cover most treatments of all organ diseases [8] but not emotional functions. We hypothesize that quantum emotional therapy, so called “a wave of emotions” to explain sympathy in dementia patient, which automatic intelligence could not touch on, should be further investigated for care of BPSD.

The study was approved by the ethics committee of Yamagata Kousei Hospital.

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