

Fundamental study on auditory bilateral stimulation

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Many stroke patients show depressive symptoms after a stroke, and the patients of about one third are known to suffer from depression after stroke. Additionally it has been pointed out that a few people have PTSD symptoms after a stroke. Depressive symptoms lead to a decrease in cognitive function, ADL and QOL. As a result, rehabilitation necessary after a stroke may not work, so it is necessary to deal with depressed state at an early stage.

EMDR is known to have effects on depression as well. However, if the physical function of the patient deteriorates due to stroke, it becomes difficult to eye movement. In EMDR, types of bilateral alternating stimulation includes tapping, sound, pulsar, butterfly hug, etc. in addition to eye movements. Some studies suggest that eye movement is the most effective in bilateral alternating stimulation. However, other bilateral alternating stimulation is also effective, and it is used adaptively to the symptoms of the client. The method of giving bilateral stimulation from the outside is suitable for patients after stroke because there is no physical restriction.

Therefore, in order to investigate how the auditory bilateral stimulation affects the brain, we conducted a basic functional MRI experiment using healthy adults as subjects. In a previous study, we performed functional MRI experiments using bilateral stimulation of sounds and showed that they may be involved in amygdala. In this study, we used music melody. This music was a monophonic melody that matched the melody's beat and the timing of alternating bilateral stimulation. The results showed that bilateral stimulation is also involved in the temporal lobe and the frontal lobe. Melody suggested the possibility to work on the whole brain than sounds. The effect of music at EMDR may be gentler than tones.