

DOES TRANSCRANIAL MAGNETIC STIMULATION (TMS) HAVE A PLACE IN THE TREATMENT OF PATIENTS WITH AD? NO

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TMS is a non-invasive procedure that has been demonstrated to have particular effects in depression - where it is felt that repeated courses have an additive effect. It is also possible to demonstrate effects on motor learning, vision, memory and attention in healthy individuals. These two factors are the basis for the premise that TMS may have a role in treating people with AD. Greg Elder at Newcastle has looked at 13 studies of TMS in AD, all of which report an improvement in at least one outcome measure (of many) in the study when using TMS. However there is no consistency of findings and a proper meta-analysis is not possible on the quantity of data reviewed. Many of the improvements are in neuropsychiatric symptoms, mirroring data in depression and PD. So it could be proposed that TMS has a specific effect on depression related phenomena generally. While this may be useful in treating some of those symptoms in people with AD, there is no evidence that TMS has an effect on the underlying disease process or the cognitive deterioration the disease is noted for. Part of the problem is that the field has so little data to decide on. It would appear high frequency TMS is better than low frequency, but this has practical implications, especially when there are doubts about sustainability of effect, what stage of AD to deliver treatment and quite what to expect as a result of treatment. At a time when research on interventions is moving to prodromal AD, it is disappointing that the earlier that TMS is given, the poorer the supportive data of efficacy. The challenges facing TMS in AD are multiple and cannot be overcome by extrapolation from other more effective usage of TMS, such as depression or psychosis in schizophrenia. Dementia poses more challenging alterations in brain morphology and medication regimes. Larger CSF filled spaces may amplify TMS, but without a specific target symptom to measure, it is difficult to understand effect. It is not even clear where best to physically deliver the stimulation. Therefore, with the current data available, TMS has no place in the treatment of AD. New trials will have to demonstrate how to select the right symptoms at the right time in the right patient and how to maximally reduce those symptoms. This will take some time, but without that data, random use of TMS may be unrewarding, expensive and potentially unethical.