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Transcranial direct current stimulation (tDCS) in acute stroke patients

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I have read with great interest the article from Dr. Rossi et al about the lack of benefit of anodal transcranial direct current stimulation (tDCS) in acute stroke patients. [1]

More intense rehabilitation results in better functional recovery after strokes. [2] The effectiveness of rehabilitative treatment might be enhanced through *simultaneous* application of brain stimulation, possibly through improved learning ability.[3] However, non-standardized occupational therapy is variable in its duration, frequency and even in the focus on recovery of the more affected arm versus teaching compensatory techniques. Timing and intensity of the rehabilitative therapy in relation to tDCS is crucial considering the limited length of stimulation effect and possible metaplastic effects interfering with the effect of the treatment at different time points after the stimulation ends.[4,5] If these parameters were not standardized and balanced between sham and anodal tDCS, it may have been difficult for this otherwise well done challenging study to show benefit.

Furthermore, although enrollment time after stroke was admirably uniform, other rehabilitative treatments, medical interventions, (e.g anti-epileptic or stimulant medications) lesion location and size and genetically heterogeneous individual responsiveness to stimulation may alter the effectiveness of tDCS that can confound results in small parallel groups.

Lastly, due to its wider area of cortical stimulation, tDCS may have unexpected clinical benefits in other domains[6]. If the aim was to investigate the broader utility of tDCS to accelerate stroke recovery as the title claims, instead of focusing on motor recovery, then reporting additional behavioral measures would have been helpful. The NIH stroke scale may not be sensitive enough to demonstrate all clinically important changes in these domains.

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