

The Effect Of Cognitive Therapy In Improving Cognitive Functions Using Neuropsychology And Diffusion Tensor Imaging Measurements Following Mild Traumatic Brain Injury: A Randomised Controlled Trial Preliminary Report

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Purpose:

This is a unicentre, blinded, randomized, 12-week parallel group study to compare a structured cognitive specific rehabilitation of attention with conventional cognitive therapy following mild traumatic brain injury.

Materials and Methods:

Participant recruitment was from University Malaya Medical Centre, Malaysia (Medical Research Ethics Committee UMMC MREC ID NO: 2016928-4293; ClinicalTrial.gov NCT03237676). Following randomisation, intervention group received individualised structured cognitive rehabilitation therapy (CogniPlus and metacognitive approach for 1 hour/week/3months) and control group received pre-existing patient-centred cognitive treatment.

Results:

153 patients were screened (March 2017 till March 2018) and 46 patients fulfilled study criteria (male:female ratio 2:1). At two weeks MOCA© scores were less than 26/30 (mean=23.23). Thirty four patients had persistent cognitive deficits at 2 weeks and further 12 patients at three months post injury. Attention deficit was most pronounced (T score 70.41, $p<0.00$) followed by Executive Function (T score 74.56, $p<0.00$) and Language (T score 79.44, $p=0.21$). At three months participants continued to have Attention (T score 74.42, $p<0.00$) and Language deficits (T score 73.75, $p<0.00$) but clinically improved executive function (T score 89, $p<0.00$). Memory and Spatial domains remained unaffected. Nine participants were randomised to the treatment arms. Intervention group improved in all neurocognitive and functional parameters but control group had persistent neurocognitive deficits despite improved functional scores at six months injury. 68% of participants had returned to work within 2 weeks. DTI analysis were based on tracts involved in attention.

Discussion:

Early cognitive rehabilitation may improve both cognitive and functional outcomes for mild brain injury.