

Multiple Sclerosis (MS), Corpus Callosum (CC) & Clapping Bedside Test

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Introduction

Corpus Callosum is a large white matter tract often involved in demyelination of Multiple Sclerosis. It thins out with time in some patients (Fig.2). It connects quite a few areas of the two cerebral hemispheres (Figure 3). Motor area connections involve in synchronising the bilateral movements. In this study, clapping involving alternate Supination and Pronation of forearms (Figure 1) is used to test efficacy of motor connection of CC.

Methodology

Outpatient clinics , home visits, inpatient reviews
70 consecutive MS patients (Dx already given by Neurologists)
Observe supination/pronation of each hand separately
Comparing the speed and efficacy of clapping (supination/pronation)
Start date 01 09 2016

Exclusion Criterion

Power <3/5 MRC scale in Upper limbs
Impaired position sense (finger nose eye closed test, eyes close and open)
Pain (including Neuropathic sensation)
Visual impairment, CVA
Cognitive impairment, Intentional tremor
Musculo-skeletal conditions limiting hand movements
Involuntary movements involving hands

Findings

70 MS patients were seen from 1st of September 2017
31 patients met exclusion criteria
34 patients showed no noticeable difference
2 patients findings are questionable
3 patients showed definite slowing of speed & efficacy in clapping Demographics (Figure 4).
All three patients showed thinning of CC on MRIs of the brain

Discussion

There are three positive patients among the sample group
This showed dysynchrony between right and left side in these patients
The only structure that regulate synchrony in clapping is CC
MRI brain scans of the three patients supported the hypothesis

Conclusion

Unless there is alternative explanation available, it is logical to say that the slowing down in clapping is a bedside sign of MS affecting CC. The significance and application of this test is still to be evaluated. More researches need to follow up. The magnitude of slowing down can be used as an indicator of the reference day (a good or a bad day). It is difficult to test CC conduction speed electrophysiologically. The sample size is not large enough and larger studies need to follow to validate the finding.

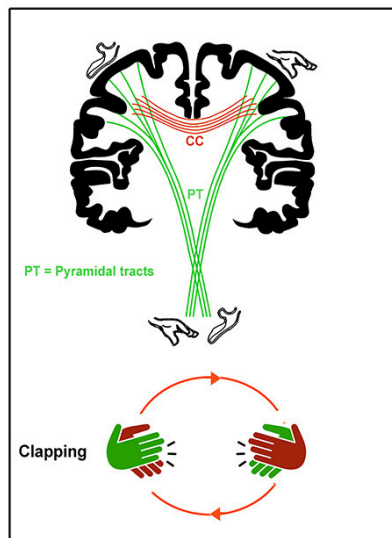


Figure 1 (CC & Clapping)

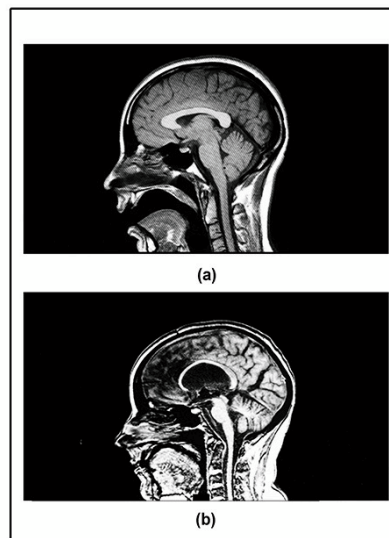


Figure 2 (CC Thinning)

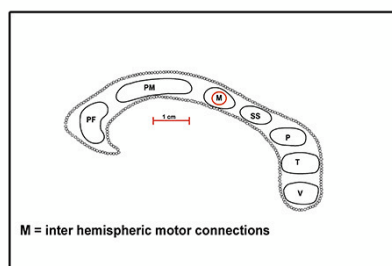


Figure 3 (CC Interhemispheric Connections)

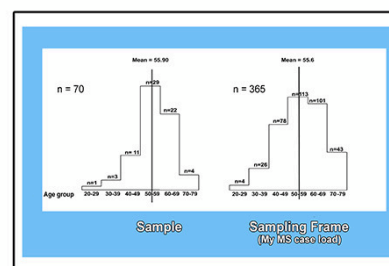


Figure 4 Demographics