Mike is a forty-two-year-old man who sustained a (L) CVA six months ago. He now presents with (R) hemiparesis and is in outpatient occupational therapy to improve his (R) wrist extension and shoulder flexion. He has two young boys, and misses being able to pick them up and play catch with them. He also has not been able to work since his job requires a lot of typing. He recently heard about constraint induced movement therapy to improve upper extremity function and was wondering if he might benefit from it.

**Case Study**

**Ask: Research Question**

In stroke patients, what is the effect of constraint-induced movement therapy on upper extremity limb paresis compared to standard occupational therapy treatment?

**Acquire: Search Terms**

Patient/Client group: Stroke
Intervention: Constraint Induced Movement Therapy
Comparison: Occupational Therapy
Outcome(s): Paresis OR Upper-extremity physiopathology

**Acquire: Selected Articles**

Shi et al. (2011) Systematic review and meta-analysis that examined the effects of modified CIMT versus traditional rehabilitation (TR) in 13 Randomized Controlled Trials (RCT) involving 278 patients with upper-extremity dysfunction after stroke. Hayner et al. (2010) RCT that measured the effects of CIMT versus TR in patients with upper-extremity dysfunction after a stroke in 12 participants with upper extremity (UE) dysfunction after stroke. Myint et al. (2008) RCT performed in Hong Kong that measured effects of on UE function CIMT versus TR as a control in 43 patients with hemiparesis 2-16 weeks post-stroke. Earley et al. (2010) Case study that looked at one stroke patient that took part in a modified CIMT protocol with engagement in occupation.

**Appraise: Study Quality**

Shi et al. (2011): Preponderant: Systematic review itself of high quality, majority of studies included were RCTs, however individual RCTs had small sample sizes and poor methodological quality. Hayner et al. (2010): Suggestive: Appropriate study design, outcomes well described and accurate, small sample size, less restrictive inclusion criteria than other studies. Myint et al. (2008): Preponderant: Randomized, blind observer, no contamination, limited geographic region and participants, low internal validity due to lack of compliance. Earley et al. (2010): Suggestive: Single case study, strict inclusion criteria, participant was highly motivated.

**Appraise: Study Results**

Taken together, these studies show that CIMT can improve hemiparesis and UE function post-stroke. The systematic review by Shi et al. (2011) and RCT by Myint et al. (2008) found that CIMT significantly improved UE function when compared to TR, whereas results from Hayner et al. (2010) found that there were no significant differences between CIMT and TR in improving upper extremity function post-stroke. Additional studies with stronger methodological qualities should better examine the effects of CIMT versus TR.

**Apply: Conclusions for Practice**

In addressing the clinical scenario, most of the studies suggest that CIMT can be effective for improving UE function in stroke clients. Participants in the studies examined were similar to Mike, so CIMT may be beneficial if used in this scenario. However, for general practice, it is recommended that more conclusive studies showing significant advantages of CIMT over TR should be appraised before a choice is made to use CIMT.

**References**


**Unclear: Further research is needed to determine if occupational therapy based CIMT is more effective than traditional occupational therapy for improving paresis in stroke patients.**