

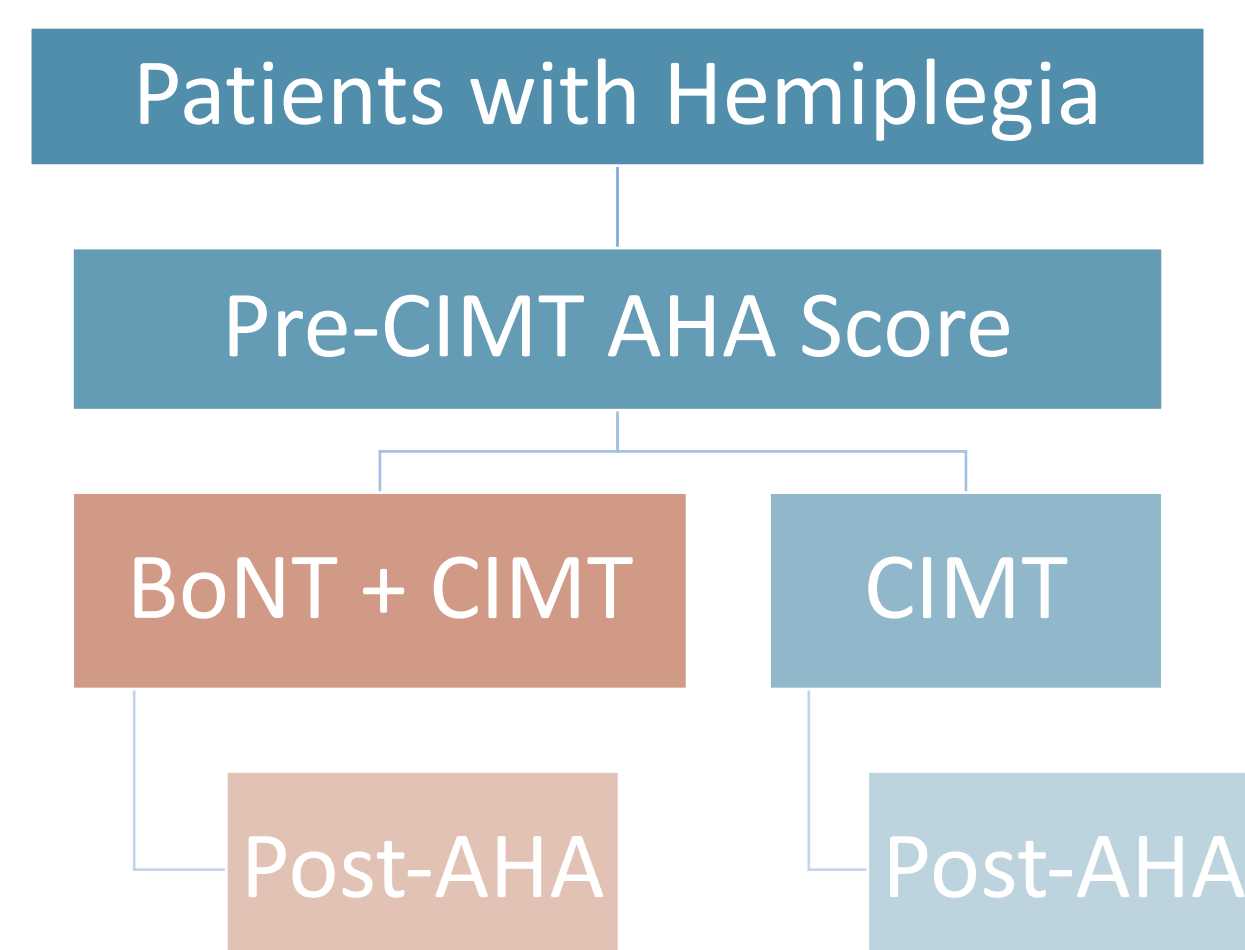


Objectives:

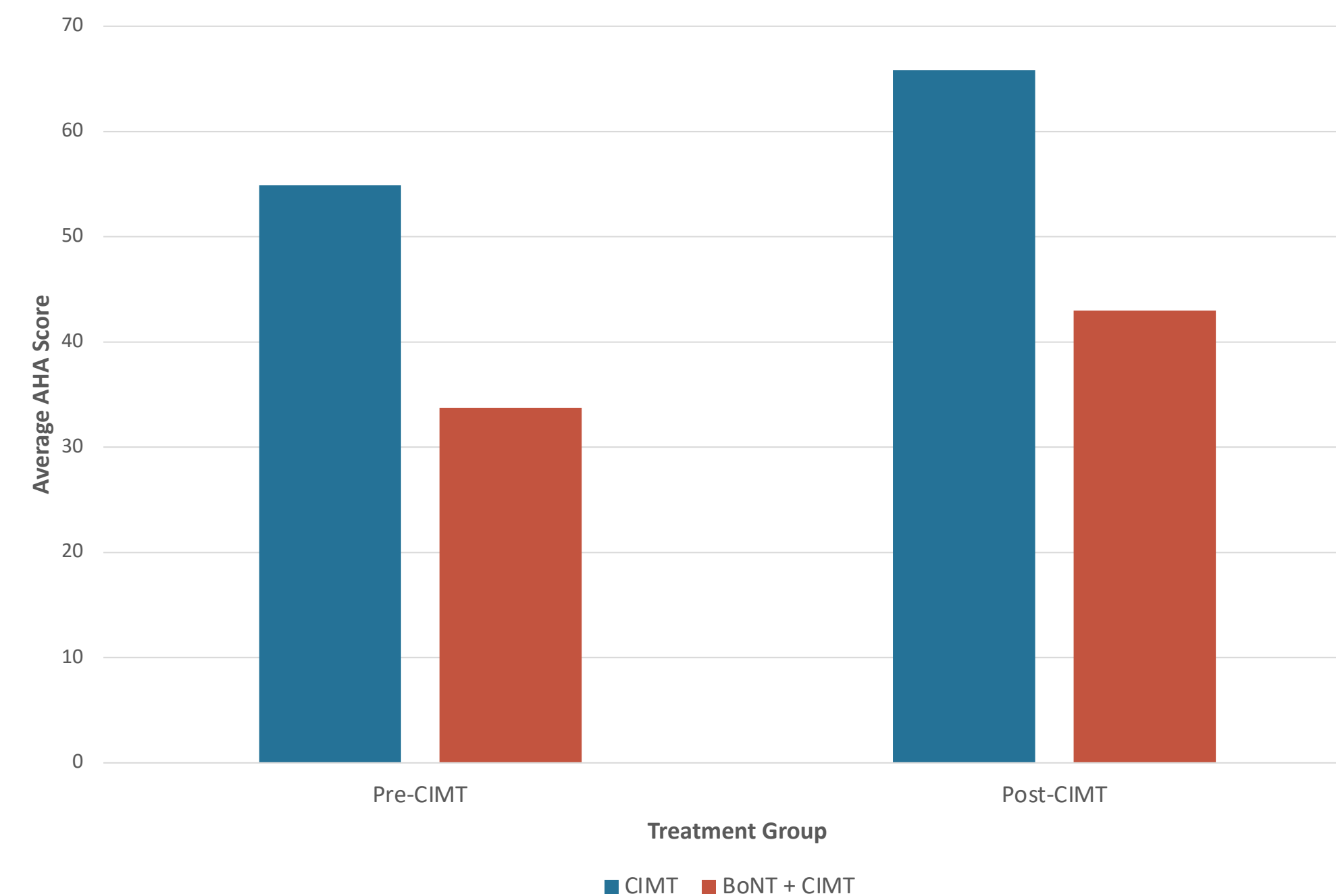
Children with hemiplegia often neglect their impaired side. Constraint-induced movement therapy (CIMT) helps improve the use of their impaired side. This research was conducted to assess whether receiving botulinum toxin injections (BoNT) prior to CIMT would increase the effectiveness of CIMT.

Design:

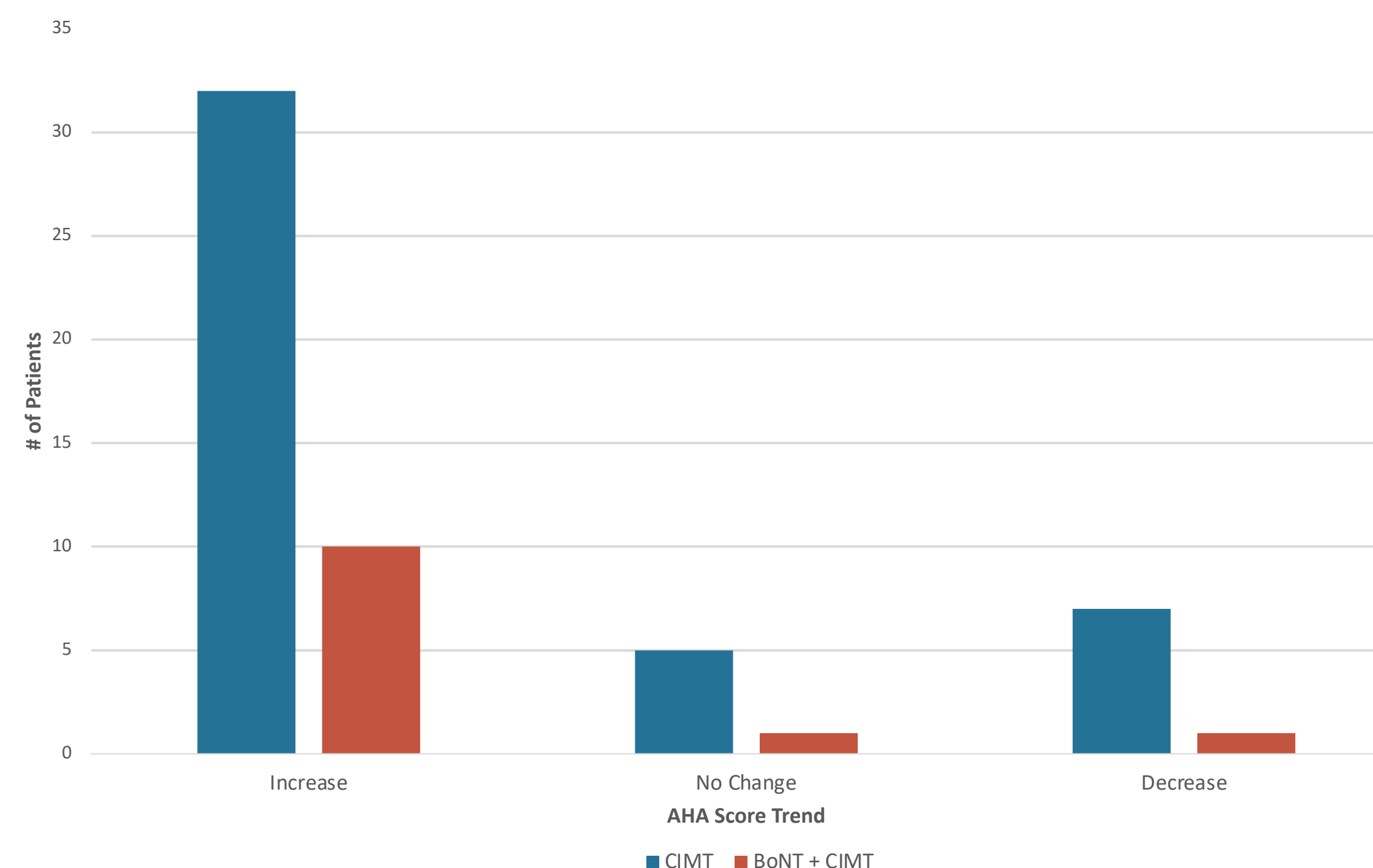
Retrospective chart review of patients with hemiplegia from 2008 to 2020 and completed CIMT were included. Our outcome measures were a difference in the Assisting Hand Assessment (AHA) scores pre and post CIMT. Data was analyzed using a paired T-test to assess for improvement in the BoNT+CIMT and CIMT-only groups and an unpaired T-test with an $\alpha=0.05$ to compare the changes in AHA scores between the two groups



Average AHA Scores Pre and Post Intervention



Change in AHA Score Pre and Post Intervention



Results:

52 patients (32 males, 20 females) had CIMT and AHA scores. Eight patients (12 treatment episodes) received botulinum toxin injections prior to initiating CIMT. After completing CIMT, both groups had statistically significant improvements in their AHA scores (, BoNT+CIMT: $t=2.58$, $p=0.03$, CIMT only: $t=5.30$, $p<0.00001$). However, 1/12 in the BoNT+CIMT group had a decrease in the AHA score compared to 7/44 in the CIMT-only group. One had no change in the BoNT+CIMT group compared to 5/44 in the CIMT-only group. The 8 participants (12 episodes) in the BoNT + CIMT group ($M = 10.86$, $SD = 13.55$) did not demonstrate a statistically significant difference in AHA score outcomes, ($t = 0.399$, $p = .699$) compared to the 44 patients in the CIMT-only group ($M = 9.17$, $SD = 12.36$).

Conclusions:

This study did not demonstrate statistical significance in the effectiveness of using BoNT prior to CIMT. Notably, in our study, 2/12 (17%) of the treatment episodes for those in the BoNT + CIMT group and 12/44 (27%) of those in the CIMT-only group saw either no change or a decrease in their AHA scores. Our study had a small sample size and further research with a larger sample of patients should be considered.

