The Effect of Therapeutic Hypothermia on Neurocognitive Function in Survivors of Cardiac Arrest

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BACKGROUND

- The advent of Therapeutic Hypothermia (TH) has led to an increase in post-cardiac arrest (CA) survival, yet often neurologic recovery is variable.
- Few studies have quantitatively evaluated CA survivors treated with TH for long-term neurocognitive deficits compared to patients post-CA who did not receive TH.

OBJECTIVES

- We sought to assess the feasibility of using a computer-based neurocognitive battery in determining neurological outcomes for post-CA survivors. We hypothesized that survivors who underwent TH would exhibit better neurocognitive performance than those who had not undergone TH.

METHODS

- A validated internet-based neuropsychological battery, “WebCNP®,” was administered to post-CA survivors to evaluate neurologic function in cognitive domains including but not limited to Sensory Motor, Emotion Recognition, and Spatial Orientation.
- Certified WebCNP personnel administered a pre-study survey and the computerized test battery in the homes of post-CA survivors.

RESULTS

- Overall Post-CA Population
  - Accuracy scores were lower in the overall post-CA cohort than healthy controls on 13/13 accuracy tests
  - Slower response times were noted on 14/15 response time tests in the post-CA cohort than healthy controls

- TH-treated Subjects
  - Accuracy scores were higher on 9/13 tests among TH treated than non-TH treated subjects
  - Faster response times were noted on 13/15 response time tests among TH treated than non-TH treated subjects

CONCLUSIONS

- CA survivors exhibited deficits in specific domains of cognitive function compared to a previously validated healthy cohort.
- Non-TH subjects demonstrated slower response times and lower accuracy scores than TH-treated counterparts.

- This study demonstrates the potential value of quantitative evaluation of neurocognitive outcomes for future post-CA clinical studies.

REFERENCES