

Title:

Improving Neurological Outcomes in Post Cardiac Arrest Adults Using Therapeutic Hypothermia

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Session Title:

Rising Stars of Research and Scholarship Invited Student Poster Session 1

Keywords:

AHA Guideline, Post-Cardiac Arrest and Therapeutic Hypothermia

References:

Sung, G., Bosson, N., Kaji, A., Eckstein, M., Shavelle, D., French, W., Thomas, J., Koenig, W., & Niemann, J. (2015). Therapeutic hypothermia after resuscitation from a non-shockable rhythm improves outcome in a regionalized system of cardiac arrest care. *Neurocritical Care Society*, p. 90-96. doi: 10.1007/s12028-015-0184-z
Terman, S., Hume, B., Meurer, W., & Silbergleit, R. (2014). Impact of presenting rhythm on short and long term neurologic outcome in comatose survivors of cardiac arrest treated with therapeutic hypothermia. *Society of Critical Care Medicine*, 42(10), p. 2225-2234.
Tiainen, M., Poutiainen, E., Oksanen, T., Kaukonen, K., Pettila, V., Skrifvars, M., Varpula, T., & Castren, M. (2015). Functional outcome, cognition and quality of life after out of hospital cardiac arrest and therapeutic hypothermia: Data from a randomized controlled trial. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*. doi: 10.1186/s13049-014-0084-9

Abstract Summary:

Cardiac arrest remains one of the most unexpected, dramatic, & life-threatening events in medicine. Therapeutic hypothermia has become a standardized method of care for improving neurological results after cardiac arrest. This poster will explore the relationship between neurological outcome and therapeutic hypothermia treatment in post-cardiac arrest adult patients.

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will be able to define Therapeutic Hypothermia and be knowledgeable of the evidence based guideline proposed by the American Heart Association.	This presentation will emphasize the importance of education and training required to initiate therapeutic hypothermia treatment in post-cardiac arrest adult patients.
The learner will be able to explain the neurological benefits of therapeutic hypothermia treatment in post-cardiac arrest adult patients.	This presentation will bring awareness that therapeutic hypothermia treatment has different neurological outcomes in shockable and non-shockable rhythms. Further research is required to determine if there is neurological significance in post-cardiac arrest adult patients of non-shockable rhythms.

Abstract Text:

Cardiac arrest remains one of the most unexpected, dramatic, & life-threatening events in medicine with about 356,500 people experiencing out-of-hospital cardiac arrest in the United States during 2014 (American Heart Association, 2015). Cardiac arrest leads to loss of circulation, causing a decrease in

cerebral oxygen and therefore brain cell death, leading to the most common cause of death after a cardiac arrest. Those who survive often have poor neurological outcomes, resulting in the patient to suffer a lifetime of cognitive impairment and immobility. Over the past 10 years, researchers have found that hypothermia can decrease cerebral oxygen demand and block chemical cascade responsible for cerebral injury. This has led to the American Heart Association to add therapeutic hypothermia to its cardiopulmonary resuscitation guidelines. The goal of the therapeutic hypothermia guideline is to improve survival and neurologic function in post-cardiac arrest patients following return of spontaneous circulation. The purpose of this literature review is to determine whether or not therapeutic hypothermia treatment has neurological benefits in post-cardiac arrest patients with shockable and non-shockable rhythms. As research supports therapeutic hypothermia treatment in patients of shockable rhythms, it is unclear whether therapeutic hypothermia is effective in decreasing neurological damage in patients of non-shockable rhythms. To support the American Heart Association therapeutic hypothermia guideline, further research is necessary to understand the neurological benefits in patients of non-shockable rhythms. As cardiac arrest is the most leading cause of death in the United States, nurses must be competent in the implementation of therapeutic hypothermia. During therapeutic hypothermia treatment, nurses are responsible for preventing, identifying and treating adverse effects and complications in a timely matter. Education and training is essential in ensuring that competent nurses and medical staff initiate therapeutic hypothermia promptly and safely. Furthermore, nurses play a crucial role in providing family support and education during this overwhelming experience.