Clinical Question: The concern you have about your nursing unit or area of practice:

Does the use of target temperature management increase the survival rate of patients with return of spontaneous circulation post cardiac arrest?

<table>
<thead>
<tr>
<th>P:</th>
<th>Patient must have had return of spontaneous circulation post cardiac arrest with cardiac etiology with target temperature management initiated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I:</td>
<td>Target temperature management between 32°C-34°C over 12-24 hours</td>
</tr>
<tr>
<td>C:</td>
<td>Compared to patients that do not receive target temperature management</td>
</tr>
<tr>
<td>O:</td>
<td>Survival rate increased or decreased?</td>
</tr>
<tr>
<td>(t)</td>
<td>I don’t know what T stands for….</td>
</tr>
</tbody>
</table>

*Due February 28th with signed approval by leader/manager PICO(t) topic*

Discussed with and Approved by Nurse Leader

Print________________________ Signature________________________

Date________

Additional notes:

Search terms: Target Temperature Management

Evidence: Summarize key findings and cite (APA format) – three sources


Conclusion/Recommendations:
Two of the three articles conclude there is no different in mortality rate with target temperature management initiation. One article with less test subjects shows an increase in survival rate by 23%.

Ideas/suggestions for next steps:
Follow ACLS protocol

Identify your collaborative partners if you were to follow this through to next steps:
Primary care physicians/hospitalist, neurologist, cardiologist, Nursing staff in the continuation of care.

*Due April 30th completed template (scan to brenda.monnot@ascension.org)*
Name Emily Sievert

PICO

Any Ministry Health Care policies related to PICO?
Yes hypothermia blanket

Which database used to find article?
Sacred heart/St. Mary's policies

Key search terms
Hypothermia

Name of article
Hypothermia Blanket (Full Body), H-11

Article reference

Type of study

Sample size (if applicable)

Key findings

Limitations

Recommendations

Implications for my practice
Target Temperature Management post Cardiac Arrest

Emily Sievert
MSN 820
Concordia University Wisconsin
Article Review

Article Name and Author(s): Target Temperature Management for Comatose Survivors of Cardiac Arrest, Michael Holzer M.D

Background

Identify the main aim or purpose of the study: To identify if target temperature management affects neurological outcome after patients with cardiac arrest.

If an explicit research question(s) was asked, state it here: Not specifically

If an explicit hypothesis was posed, state it here: None noted

Methods

How were subjects recruited? Describe the participants in the study (ages, diagnosis, severity of disability, and number of participants), and inclusion/exclusion criteria:
Patients must have had cardiac arrest with either ventricular fibrillation or pulseless ventricular tachycardia. The cause of arrest must be presumed to be heart related. Patients who arrested on even days did not receive target temperature management and patients on odd days did receive target temperature management. Australia had 77 test subjects and Europe had 275

State the level of evidence rating (I-V): Level II

Describe the independent variable(s)/intervention (type, frequency, duration, intensity); same for control (if one exists, it may be an alternative treatment):
Independent variable is target temperature management of 32°C-34°C over 12-24 hours with ice packs and cooling blankets. Control group has does not have any target temperature management measures in place.

Describe all dependent variables: Level of neurological recovery

Specify in what ways the authors failed to control for internal validity that may also cause the outcome measures to change (for example, lack of blinding, experimenter bias, measurement tools not reliable or valid, testing effect, extraneous variable not controlled such as time of day, spontaneous recovery or maturation)? Complete the Internal Validity Rating Form. How many “Yes” answers were there?
The level of neurological status is not defined and co-morbidities are not taken in account with survival rates. Validity rating form is 7 for moderate internal validity.

Results
Did the findings show that the intervention of interest was more effective than a control group? Specify findings for each dependent variable (the intervention may have been effective for some but not all outcome measures) by providing descriptive statistics (means and SD) if possible. If inferential statistics were performed, specify the analysis used and tell if there was a statistically significant difference (p < .05).

The patients with target temperature management had a p value of 0.01 and patients normothermic had a p value of 0.05. The confidence interval is 95%.

Setting aside the statistical significance (p values), make a statement about the magnitude or size of the treatment effect for each outcome. That is, do you believe the amount of improvement (assuming patients got better) was enough to be clinically important?

Patients without target temperature management only had 26% recovery of neurological status. Patients who received target temperature management had 49% recovery of neurological status. I would say this is a significant improvement with treatment.

How applicable are the results of the study to the clinical population of interest (external validity)? Evidence based practice has changed to provide target temperature management for all patients post cardiac arrest with return of spontaneous circulation. Patients have an increase in positive neurological function after arrest since results. The results are pertinent to healthcare providers and patients who have cardiac related morbidities.

After critically appraising only this article, what is your opinion of this intervention?

I believe that the intervention of target temperature management post cardiac arrest with return of spontaneous circulation is crucial to the future of cardiac management and patient outcomes.
Article Review

Article Name and Author(s):
Mortality and neurological outcome in the elderly after target temperature management for out-of-hospital cardiac arrest

Authors: Matilde Winther-Jensen Correspondence information about the author Matilde Winther-Jensen Email the author Matilde Winther-Jensen, Tommaso Pellis, Michael Kuiper, Matty Koopmans, Christian Hassager, Niklas Nielsen, Jørn Wetterslev, Tobias Cronberg, David Erlinge, Hans Friberg, Yvan Gasche, Janneke Horn, Jan Hovdenes, Pascal Stammel, Michael Wanscher, Matthew P. Wise, Anders Aneman, Jesper Kjaergaard

Background

Identify the main aim or purpose of the study: “To assess older age as a prognostic factor in patients resuscitated from out-of-hospital-cardiac arrest (OHCA) and the interaction between age and level of target temperature management.”

If an explicit research question(s) was asked, state it here: None specifically written

If an explicit hypothesis was posed, state it here: None specifically written

Methods

How were subjects recruited? Describe the participants in the study (ages, diagnosis, severity of disability, and number of participants), and inclusion/exclusion criteria: Patients were ages 66-80 who have been in cardiac arrest with return of spontaneous circulation with presumed cardiac etiology of arrest. There were 950 patients included in this study. Cerebral outcome assessed to find the age and target temperature management was not statistically significant for mortality or neurologic outcome. Increased age was linked to increased mortality in cardiac arrest but was not linked to target temperature management. Poor neurologic function was also related increased age but was not affected by target temperature management.

State the level of evidence rating (I-V): Level II

Describe the independent variable(s)/intervention (type, frequency, duration, intensity); same for control (if one exists, it may be an alternative treatment):
Independent variable of target temperature management between 33°C and 36°C for 24 hours. Control is patients without target temperature management.

Describe all dependent variables:
Level of neurologic outcome
Specify in what ways the authors failed to control for internal validity that may also cause the outcome measures to change (for example, lack of blinding, experimenter bias, measurement tools not reliable or valid, testing effect, extraneous variable not controlled such as time of day, spontaneous recovery or maturation)? Complete the Internal Validity Rating Form. How many “Yes” answers were there?

There is unclear testing of level of neurologic function and unclear results from the control in order to determine the change. Cardiac arrest has many different variables which play a factor in neurologic deficits and each one is different. The evidence in this case study was inconclusive of the benefits of target temperature management. The Internal Validity rate is 5 so it has moderate validity.

Results

Did the findings show that the intervention of interest was more effective than a control group? Specify findings for each dependent variable (the intervention may have been effective for some but not all outcome measures) by providing descriptive statistics (means and SD) if possible. If inferential statistics were performed, specify the analysis used and tell if there was a statistically significant difference (p < .05).

Standard deviation not listed. Increased aged showed increase in mortality are with p < 0.001. Patients greater the 80 years old has and increased rate of mortality with p < 0.001. There is not statistical significant showing that target temperature management was beneficial in this case.

Setting aside the statistical significance (p values), make a statement about the magnitude or size of the treatment effect for each outcome. That is, do you believe the amount of improvement (assuming patients got better) was enough to be clinically important?

There is not evidence in this case subject to suggest that target temperature management was beneficial and did not affect the outcome of the patient’s survival.

How applicable are the results of the study to the clinical population of interest (external validity)?

In this case study the results are inconclusive and do not provide evidence that target temperature management influenced mortality or neurologic outcome.

After critically appraising only this article, what is your opinion of this intervention?

If my opinion was based only off of this article I would believe that target temperature management has no positive or negative effects on a patient’s outcome after cardiac arrest with return of spontaneous circulation.