The typical presentation of a person with a non-traumatic subarachnoid hemorrhage (SAH) is an abrupt onset or a 'thunderclap headache' described as the "worst headache of their life." A headache remains the chief complaint even after admission. Non-traumatic SAH occurs from rupture of a blood vessel in the brain. Eighty-five percent of non-traumatic SAH is caused by rupture of a cerebral aneurysm while the remaining 15% of cases are caused by a peri-mesencephalic (PM) venous bleed, reversed cerebral vasocostrictive-syndrome (RCVS), posterior reversible encephalopathy syndrome (PRES), or other rare causes (Marder, Narla, Fink, & Tozer Fink, 2014). The severity of a headache from SAH can cause a variety of physiological and psychological effects on the patient leading to poor clinical outcomes. Treatment with opioids and NSAIDS can be problematic. There is a lack of literature regarding headache management strategies in this population. Current practice in the neurological critical care unit varies based on provider preference due to lack of evidence-based protocols. Development of a systematic clinical decision tool will assist providers in managing SAH headache. The purpose of this project will be to evaluate if a standardized approach to headache management can improve headache, decrease the number of rescue and opioid medications, and decrease variation in practice due to lack of evidence-based protocols. Studies of headache during the first seven days of this project will be evaluated if a standardized approach to headache management can improve headache, decrease the number of rescue and opioid medications, and decrease variation in practice.

Key words: Subarachnoid hemorrhage; Headache, Management of

**PICOT Question**

In awake, non-intubated adult patients experiencing headache post-SAH, how effective is using a standard approach to headache management compared to current practice in controlling headache during the first seven days post-SAH?

**Problem**

Headaches secondary to SAH are difficult to manage due to the inability to use commonly prescribed medications and variations in practice due to lack of evidence-based protocols. This variation in practice can lead to poor headache control, hypertension leading to re-bleeding, CO2 (carbon dioxide) retention, increased intracranial pressure (ICP), and a decrease in patient satisfaction. The use of narcotics can cause altered mental status, and non-steroidal anti-inflammatory drugs (NSAIDS) can inhibit platelet aggregation and be associated with further bleeding.

**Theoretical Framework**

Katharine Kolcaba’s comfort theory, introduced in the 1990’s, takes into account the holistic nature of human beings. It uses three concepts – relief, ease, and transcendence. This framework assists nursing in assessing comfort needs in any of four contexts – physical, psychospiritual, environmental, and sociocultural. (Krinsky et al., 2014).

**Taxonomic Structure of Comfort Needs Applied to the Subarachnoid Hemorrhage Patient**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Relief</th>
<th>Ease</th>
<th>Transcendence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Pain</td>
<td>Homeostasis</td>
<td>Need to tolerate the pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intensity above</td>
<td></td>
</tr>
<tr>
<td>Psychosocial</td>
<td>Anxiety</td>
<td>Need for support</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need for familiar environment</td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>Noise, bright light</td>
<td>Lack of privacy</td>
<td>Need for familiar environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge deficit; family not present</td>
<td></td>
</tr>
<tr>
<td>Sociocultural</td>
<td>Privacy concerns and culturally sensitive care</td>
<td>Knowledge deficit; family not present</td>
<td></td>
</tr>
</tbody>
</table>

**Ethical Considerations**

- Approval from the Human Subjects committee from Wilmington University was obtained.
- IRB approval from Christiana Care was obtained.
- Informed consent obtained from each participant.
- Participants reassured that care would continue even if they did not participate.
- Approval for use of the NRS was obtained from the publisher.

**Methods**

A retrospective medical record review of all SAH patients (N=86) admitted from January 2016 to December 2016 will be compared to the study group. Data collection measures will include: patient demographics, type of SAH, surgical intervention, GCS, Hunt & Hess, modified Fisher score, pain scores using the NRS, medications utilized for pain control, frequency of rescue, magnesium blood levels, vasopasm, and EVD. Data will be collected for 7 days from enrollment. Thirty-six patients met inclusion criteria from retrospective group. Study group will also include frequency of order set utilization to determine variation in care.

**Setting**

A large rural non-for-profit community hospital with a dedicated neurocritical care unit. The unit is managed by neuro-intensivists. A standardized order set for headache management in SAH patients was developed and implemented on June 5th, 2017. Pain assessment will be performed at least q8h - standard of nursing practice.

**References**


**Contact Information**

Dmower-wade@christianacare.org