"Translational Research at the Bedside - Testing Psychometrics Nausea and Vomiting Scales."

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Disclosures

- Funding was provided by the hospital foundation
- Permission was granted by Gary Morrow for use of his tool.
- The research team did not receive any payment for the study
- The study was approved by the Western Institutional Review Board®
Thinking differently…current paradigm

“There are not two sciences. There is science, and the application of science, and these two are linked as the fruit is to the tree.”

Louis Pasteur (Grady, 2010)
What we will discuss & learn?

• Operationally define translational research for the Nausea Vomiting project.
• State key points of translational research at the bedside.
• Describe enhancement of RN knowledge with involvement in research.
• Identify how “knowledge” of research is enhanced when RNs at the bedside participate in EBP and Research projects.
Operationalize: Translational Research

• “Translational research transforms scientific findings or discoveries from basic laboratory, clinical, or population studies into new clinical tools, processes, or applications.

  Thus, improving patient care and promote public health. The intent is: build the bridge from ‘bench to bedside.’” (Grady, 2010)
Translational Research/EBP

• Isn’t it one an the same?

• The history of this term is more prevalent in past decade...the terms popularized in 2002 AMA

• Found to be essential in moving science forward for better outcomes

(Fontanarosa, P., & De Angelis, 2002)
Where did the N/V scale originate?

• From the Staff Registered Nurses (RNs)
• They communicated frustration at the use of the pain scale which was also used for nausea and vomiting (N/V).
• Yes….that is what was done, it was even in the policies that way……!

• Novel idea to have a unique scales for these symptoms with descriptors!
Actual Story
RN’s have the ideas/questions

• Research idea at the bedside
• Nurses asking: *Is there a better tool for N/V?*
• Nurses reporting – we are not able to gauge N/V s/s using scales without descriptors
• ROL - Nurses describe to CNS and other RNs what they thought would be a better tool!
# Nausea 0-5

<table>
<thead>
<tr>
<th>Measure</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Anticipated</td>
</tr>
<tr>
<td>2</td>
<td>Mild</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>Great</td>
</tr>
<tr>
<td>5</td>
<td>Severe</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Measure</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No nausea</td>
</tr>
<tr>
<td>1</td>
<td>Nausea is <em>anticipated</em> and prophylaxis medications may be given.</td>
</tr>
<tr>
<td>2</td>
<td>Nausea reported. Able to tolerate food or medications by mouth.</td>
</tr>
<tr>
<td>3</td>
<td>Nausea persisting. Lacks appetite. Able to eat small meals occasionally.</td>
</tr>
<tr>
<td>4</td>
<td>Nausea ongoing. No appetite. Unable to tolerate food/medications by mouth.</td>
</tr>
<tr>
<td>5</td>
<td>Nausea with Dry Heaves reported</td>
</tr>
</tbody>
</table>
# Vomiting 0-5

<table>
<thead>
<tr>
<th>Measure</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0</strong> None</td>
<td>No vomiting</td>
</tr>
<tr>
<td><strong>1</strong> Anticipated</td>
<td>Vomiting is <em>anticipated</em> and prophylaxis medications may be given.</td>
</tr>
<tr>
<td><strong>2</strong> Mild</td>
<td>1-2 episodes in 12 hours, small amount of emesis.</td>
</tr>
<tr>
<td><strong>3</strong> Moderate</td>
<td>3-5 episodes in 12 hours. Vomiting persist.</td>
</tr>
<tr>
<td><strong>4</strong> Great</td>
<td>6 episodes in 12 hours.</td>
</tr>
<tr>
<td><strong>5</strong> Severe</td>
<td>&gt; 7 episodes in 12 hours, intractable, incessant, retching with emesis.</td>
</tr>
</tbody>
</table>
Morrow tool (MANE)

1. Are you experiencing Nausea right now? ? (If no, skip to 4.)
   _____ Yes or _____ No____

2. How long have you been experiencing Nausea?
   _____ Hour(s)

3. How would you describe your Nausea at its worst?
   (1) Very mild, ___ (2) Mild,     ___ (3) Moderate,  ____ (4) Severe, __ (5) Very severe, ___ (6) Intolerable.
Morrow tool (cont.)

4. Are you experiencing vomiting currently? ? (If no, skip to 7) 
   _____ Yes or _____ No____

5. How long is the Vomiting lasting?
   _____ Hour(s)

6. How would you describe your Vomiting at its worst?
   (1) Very mild, ___ (2) Mild,     ___ (3) Moderate, _____ (4) Severe, __
   (5) Very severe, ___ (6) Intolerable

7. Did you take medication for nausea and / or Vomiting?
   ___ Yes or _____ No
Patients at risk were placed in 3 groups selected in the study

– Group 1, Cancer patients
– Group 2, Admitted with diagnosis of N & V
– Group 3, Control Group – not expected to have the s/s.
Study Conceptual Model N/V scales

FRAMEWORK

Subjects ID by Bedside RN

Symptom N/V experienced & reported

Ask permission & assess w/scales

Two RNs record pt response

Analysis

Results
Instruments

• Three instruments were used:
  – Halpin (HNV) tool with descriptors,
  – Morrow (MANE) Tool (1984)
  – Demographic data sheet.
Psychometric properties of the MANE

• Had been tested in previous studies:
  – Carnrike, Brantley, Bruce, Faruqui, Gresham, Buss, and Cocke (1988), Morrow (1992), Rhodes & Mc Daniel (2001). The test–retest reliability has ranged from 0.61-0.78.
  – The construct validity has ranged from 0.72 – 0.96 (Rhodes and McDaniel, 2001).
Comparability of the groups

- Demographic and medical background data were cross tabulated with the groups’ numbers to assess the comparability of the three groups.
- Chi square tests were non-significant for ethnicity, gender, coronary artery disease, hypertension, diabetes, congestive heart failure, and other medical surgical diagnosis and risk for PONV.
- On admission, the groups differed in terms of nausea, As expected!
Concurrent Validity

• Calculated between Morrow’s drug efficacy rating and changes in Halpin ratings.

• These gains scores were then correlated with Morrow ratings of drug usefulness, where 1 meant “very useful” and 4 meant “doesn’t seem to help”.
  – The gains in Halpin Nausea ratings had a significant correlation ($r = -.281$, $p = .019$, $n = 69$) with Morrow ratings of drug effectiveness.
  – The Halpin Vomiting change scores varied in the expected direction, but the correlation was not significant ($r = -.201$, $p = .097$, $n = 69$).
Concurrent Validity

- The highly significant correlations were between the Halpin N/V scales and the respective Morrow scales that indicated whether or not the subject was presently experiencing nausea or vomiting.
- Correlation between the Halpin nausea scale and Morrow nausea scale and Morrow worst nausea ratings were significant at time 1 (r=.318, p=.038, n=43).
- Some of the other correlations were high but not significant because of the low number of cases.
Sensitivity HNS

A two-way analysis of variance with repeated measures on nausea scores indicates that there was a significant group effect ($F(2,160)=29.131, p=<.001$), meaning that the groups differed in their feelings of nausea,

- a significant time effect ($F(1,160)=14.465, p =<.001$) meaning that there were differences between time 1, 2, and 3,

- and a significant time by group interaction effect ($F(2,160)=7.306, p=.001$) meaning that feelings of nausea is jointly determined by both belonging to a specific group and the time period when nausea was measured.
Predictability of scales re: PONV

• One of the questions that we asked was, is there a relationship between gender and risk for postoperative nausea and vomiting (PONV)?

• A multiple regression was conducted to determine if the predictor variables of (PONV, history of smoking, motion sickness, nausea on admission) are related to the gender of the patients.

• Results showed that history of PONV and motion sickness were related to the gender of the patients (F=8.307, df=2, p=. p < .001).
Sensitivity HVS

• For the vomiting scale, the group factor was significant \( (F(2,160) = 5.933, p < .001) \), as was the time factor \( (F(1,160) = 6.509, p = .012) \), but the group by time interaction was not significant, \( (F(2,160) = 1.414, p = .246) \).

• As was the case with the nausea scale, belonging to a specific group was a determinant on the feelings of vomiting.
Figure 2: Group means for nausea ratings at three time intervals
Figure 3: Group means for vomiting ratings at three time intervals
Discussion

The findings of this study show that a simple 6-point rating scale with descriptors of feelings of nausea and vomiting:

– or with patients undergoing any cancer treatments,
– or any medical condition where patients experience the unpleasant feelings of nausea and/or vomiting,
– can be valid and a reliable tool to assess patient’s conditions in pre and post operative conditions.
Implications

• Further study on different age groups
• Although the HNV tool was reported casually as practical and is used in the study hospitals successfully further test are required.
  – A formal specific study to test the tool’s practicality and usefulness in clinical application.
References


Grady, P. (2010). Translational research and nursing science. *Nursing Outlook*; 58; 164-166. Elsevier Inc. doi:10.1016/j.outlook.2010.01.001

References


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