Measuring Preoperative Anxiety in Patients With Breast Cancer Using the Visual Analog Scale

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Preoperative anxiety is a prevalent concern with deleterious effects in patient recovery and is not routinely assessed in the preoperative screening process. When it is assessed, it may prompt an increase in the use of anesthetic agents, heightened postoperative pain, and prolonged hospitalization. Preoperative women with breast cancer face anxiety as it relates to anesthesia, surgery, and recovery. The preoperative anxiety visual analog scale may identify and quantify anxiety in this population, provide advocacy and support, and improve the preoperative screening process.

Methods

This prospective pilot study used the preoperative VAS (Kindler et al., 2000) to quantify anxiety in women with breast cancer who were aged older than 18 years, as it related to anesthesia, surgery, and recovery. The tool has been compared to the State Trait Anxiety Inventory (STAI), with the VAS measuring fear of anesthesia correlating with the STAI (r = 0.55, p < 0.01) and the association of the VAS measuring fear of surgery and the STAI (r = 0.66, p < 0.01) (Kindler et al., 2000). The VAS has 10 questions and is based on a Likert-type scale ranging from 0 (indicating no preoperative anxiety) to 10 (indicating the highest level of preoperative anxiety). An average score of 4.5 or greater is significant for preoperative anxiety (Ebirim & Tobin, 2010).

Approval from Memorial Sloan Kettering Cancer Center and Monmouth University institutional review boards were obtained. The inclusion criteria were (a) women with breast cancer; (b) aged older than 18 years; (c) undergoing primary breast cancer surgery; (d) never diagnosed with anxiety or depression; (e) not taking prescribed anxiolytics or antidepressants; and (f) must be able to speak, read, and write English at the fifth-grade level.

One-hundred and fifty women undergoing breast cancer surgery were seen from February to March 2014 at the preoperative testing unit; 102 eligible women consented and completed the preoperative VAS tool. Data were analyzed using SPSS®, version 22. Descriptive statistics were used to analyze the distribution of scores according to ages. Sixty-two percent of women had invasive breast cancer (n = 63), and 63% had breast-conserving surgery (n = 64).

Results

Of the 102 women who completed the preoperative VAS tool (0–10 scale), 75% scored greater than 4.5, which was significant for anxiety. The youngest age group...
had the highest levels of anxiety. All age groups had VAS scores above 4.5, which was significant for preoperative anxiety. Women undergoing noninvasive surgery had a lower VAS score than those undergoing invasive surgery. Women scheduled for breast-conserving surgery had lower scores for anxiety compared to women scheduled for mastectomy; however, both groups scored greater than 4.5 on the VAS, which is significant for anxiety (see Table 1). Those findings are similar to other studies (Drageset et al., 2011; Mitchell, 2010; Pritchard, 2010; Wysocki, Mitus, Komorowski, & Karolewski, 2012) and support the need for preoperative anxiety screening in this population.

Supportive Care of Preoperative Anxiety

M.J.’s preoperative VAS score was 6.4, with the highest scores reported in fear of waiting for the surgery and results of the operation (8 and 10, respectively). She was receptive to an anxiolytic and was informed and reassured that she would be monitored during her recovery.

Suboptimal management of anxiety is a potential concern that may lead to compromised physiologic, emotional, and psychological well-being. The preoperative encounter may be an ideal time to identify factors, such as anxiety, affecting recovery (Wysocki et al., 2012). Women have a higher level of preoperative anxiety compared to men (Ebirim & Tobin, 2011; Koh, 2013; Wysocki et al., 2012), and preoperative screening is important to identify those at higher risk. Uncertainty, pain, and loss of control are common concerns during the preoperative phase (Drageset et al., 2011). Unaddressed, preoperative anxiety may prompt a physiologic stress response in the postoperative course that can include heightened anxiety and postoperative pain, deferred immune response, increased pulmonary risks, and increased thrombus formation (Bailey, 2010). Although current hospital practices rely on patients’ qualitative expression of preoperative anxiety, introducing an instrument, such as the VAS tool, may provide a more consistent and objective screener. Data may be used to drive practice improvements for clinical and healthcare system outcomes. This also supports systematic collection and analysis of data to measure change and use data-driven contributions to practice (Moran, Burson, & Conrad, 2014).

The oncology nurse is instrumental in facilitating a positive treatment course by identifying anxiety and communicating this to the healthcare team. The oncology nurse fosters patient engagement and advocacy using evidence-based tools such as the preoperative anxiety VAS, allowing for early mitigation and optimum delivery of cancer care and treatment outcomes. The VAS may normalize anxiety screening, improve the preoperative testing process, and suggest areas for future research.

References


### TABLE 1. Preoperative VAS Scores by Characteristic (N = 102)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>Preoperative VAS Score</th>
</tr>
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<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–34</td>
<td>9</td>
<td>6.3</td>
</tr>
<tr>
<td>35–59</td>
<td>62</td>
<td>5.3</td>
</tr>
<tr>
<td>60–85</td>
<td>31</td>
<td>4.8</td>
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<tr>
<td>Diagnosis</td>
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<td></td>
</tr>
<tr>
<td>Invasive</td>
<td>63</td>
<td>5.66</td>
</tr>
<tr>
<td>Noninvasive</td>
<td>39</td>
<td>4.65</td>
</tr>
<tr>
<td>Surgery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mastectomy</td>
<td>38</td>
<td>6.05</td>
</tr>
<tr>
<td>Lumpectomy</td>
<td>64</td>
<td>4.74</td>
</tr>
</tbody>
</table>

0 (no anxiety) to 10 (extreme anxiety)

VAS—visual analog scale

#### FIGURE 1. The Preoperative Anxiety Visual Analog Scale


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