The Impact of Co-Existing Mental Health Disorders on Perceived Tinnitus Severity

Paper presented at the X International Tinnitus Seminar (Florianopolis, Brazil).

March, 2011

Steven L. Benton, Au.D. VA Medical Center, Decatur, GA

Introduction

The neurophysiological model of tinnitus states that "the auditory system provides the source of a signal, tinnitus, which through inappropriately created functional connections causes activation of the limbic and autonomic nervous systems, resulting in annoyance and distress." The limbic system regulates mood, emotion and motivation, and its dysfunction has been shown to result in various neuropsychiatric disorders, including psychosis, depression, obsessive-compulsiveness, anxiety and certain personality disorders, each of which has demonstrated a strong, positive relationship with tinnitus. Some have argued that tinnitus-related activity of the limbic and autonomic nervous system may be expected to lead to depression. Patients who require progressively more intensive tinnitus management services have demonstrated progressively greater prevalence of mental health disorders. Despite the apparent link between mental health disorders and tinnitus, we have been unable to identify studies wherein perceived tinnitus severity was compared between groups of tinnitus patients with and without coexisting mental health disorders.

Methods

Subjects were 115 consecutive veterans seen for primary complaint of tinnitus. Eighty-two subjects (71.3%) had coexisting mental health diagnoses (“YesMH” group); the remaining 33 subjects (29.7%) did not (“NoMH” group). All subjects had completed Level 1 (Triage) and Level 2 (Audiological Evaluation) of Progressive Tinnitus Management and had proceeded to Level 3 (Group Education). Prior to the start of the first Group Education session, subjects were asked to: (1) Estimate the percentage of waking hours that each was aware of, or heard, the tinnitus (Awareness Value) and the percentage of the time that the tinnitus was heard that it was disturbing (Disturbance Value), and (2) complete the Tinnitus Reaction Questionnaire (TRQ), a reliable, validated measure of subjective tinnitus-related distress which provides item, Factor and Total scores.

Subject Characteristics

The mean age of the YesMH group (50.58 years, SD 11.19) was significantly lower (p = 0.001) than that of the NoMH group (57.33 years, SD =9.33). The proportion of males to females was similar between the YesMH group (6.0% female) and the NoMH group (6.5% female). The number and types of mental health diagnoses for the YesMH group are shown below.

<table>
<thead>
<tr>
<th># MH Diagnoses</th>
<th>N</th>
<th>Percentage of YesMH Subjects</th>
<th>% of All Subjects</th>
<th>Diagnosis</th>
<th>Number / Percentage of YesMH Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37</td>
<td>45.1%</td>
<td>32.2%</td>
<td>PTSD</td>
<td>53 / 64.6%</td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>35.4%</td>
<td>25.2%</td>
<td>Depression</td>
<td>47 / 57.3%</td>
</tr>
<tr>
<td>3+</td>
<td>16</td>
<td>19.5%</td>
<td>13.9%</td>
<td>Anxiety Disorder</td>
<td>13 / 15.9%</td>
</tr>
<tr>
<td>ALL</td>
<td>82</td>
<td>100.0%</td>
<td>71.3%</td>
<td>Psychosis</td>
<td>6 / 7.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bipolar</td>
<td>4 / 4.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Schizophrenia</td>
<td>4 / 4.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other</td>
<td>4 / 4.9%</td>
</tr>
</tbody>
</table>
Results

Figure 1 shows that although both groups were aware of tinnitus a similar percentage of waking hours (Awareness, \( p = .24 \)), the YesMH group were significantly more frequently disturbed by tinnitus (Disturbance, \( p = .02 \)). TRQ item responses and scores were: Not at All (0), A Little of the Time (1), Some of the Time (2), A Good Deal of the Time (3) and Almost All of the Time (4); thus, higher TRQ item scores indicate more frequent disturbance from tinnitus and greater tinnitus-related distress. Figure 2 reveals that the YesMH group’s mean item scores were consistently higher than those of the NoMH group for all TRQ items except # 23 (sleep interference).

Results (continued)

YesMH  NoMH. Figures 3 and 4 reveal that the mean TRQ Total Score and all TRQ Factor Scores for the YesMH group were significantly higher than those for the NoMH group (\( p < .05 \)), providing further evidence that tinnitus subjects with coexisting mental health disorders experienced significantly greater tinnitus disturbance and tinnitus-related distress than those without coexisting mental health disorders. TRQ Factors were: General Distress (1), Work/Leisure Interference (2), Severe Distress (3) and Activity Avoidance (4).
Results (continued)

Figure 5 provides representative comparisons of the frequency of TRQ item responses by the YesMH and NoMH groups to individual TRQ items. YesMH subjects reported substantially greater tinnitus-related distress for specific items than NoMH subjects. More than three times as many YesMH subjects responded that their tinnitus had led them to think about suicide (41.9%) than did the NoMH group (12.1%).

Discussion

Progressive Tinnitus Management (PTM), the recommended tinnitus management strategy for US veterans,9 emphasizes an interdisciplinary-team approach to tinnitus management between audiologists and psychologists.12 These findings support the importance of including mental health professionals as members of the tinnitus management team, and they lend credence to assertions that failing to refer appropriate tinnitus patients for mental health screening may decrease the chances of successful tinnitus treatment outcome.12 Audiologists must acknowledge and understand of the impact of coexisting mental health disorders on perceived tinnitus severity, as well as the likely impact of such disorders on tinnitus management strategies and outcomes.
References


