MULTIDISCIPLINARY TINNITUS CARE FOR VETERANS AND MILITARY MEMBERS: NURSE PRACTITIONER ROLE IN INITIAL DIAGNOSIS AND LONG-TERM MANAGEMENT

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DISCLOSURES AND GOALS

Libba Reed McMillan, RN PhD has no financial relationships with commercial interests to disclose

Any unlabeled/unapproved uses of drugs or products referenced will be disclosed

Provide Nurse Practitioners information and clinical tools to:

- Understand principles of tinnitus and types
- Understand the role of tinnitus in exacerbating co-morbidities, such as sleep disturbances, poor concentration, anxiety, relationship stressors, and suicide
- Address gaps in care that are in the NP scope of practice
- Communicate resources needed to improve patient self-management (usually cognitive behavioral techniques)
- Navigate patients through the referral process to specialists
- Provide long-term management strategies

OBJECTIVES

- 1. Provide information for health care providers to assist and support their patients who complain of tinnitus;
- 2. Address the relevance of a holistic multidisciplinary team approach comprising nurses, nurse practitioners (NPs), physicians, physician assistants (PAs), mental health providers, and audiologists to provide tinnitus clinical care;
- 3. Provide specific tools and resources that can be implemented with minimal effort to address tinnitus complaints by patients.

5 QUESTION PRE-TEST

https://www.hearingconservation.org/assets/tinnitusSimulation.mp3

TINNITUS SIMULATOR

Imagine if you had this sound?

-What are you feeling?

Turn to your neighbor now and try and have a conversation!

-What are you feeling?

QUESTION 1

What is the most prevalent service-connected disability for military Veterans?

a. Hearing loss
b. PTSD
c. TBI
d. Tinnitus

ANSWER TO QUESTION 1

The most prevalent service-connected disability for military Veterans is:

d. Tinnitus

QUESTION 2

Which of the following types of tinnitus indicates the need for clinical services?

a. Intermittent
b. Occasional
c. Spontaneous
d. Temporary

ANSWER TO QUESTION 2

The following type of tinnitus indicates the need for clinical services:

a. Intermittent tinnitus

QUESTION 3

How much of a problem is tinnitus?

a. 80% of people with tinnitus are significantly bothered
b. If people are bothered by tinnitus, they are usually "severely" bothered.
c. 10-15% of adults have tinnitus and 20% of those have bothersome tinnitus.
d. Not generally a problem because hearing loss is usually the problem.

ANSWER TO QUESTION 3

How much of a problem is tinnitus?

C. 10-15% of adults have tinnitus and 20% of those have bothersome tinnitus.

QUESTION 4

Which form of tinnitus indicates the need for assessment by an otolaryngologist?

a. Spontaneous
b. Primary
c. Secondary
d. Constant

ANSWER TO QUESTION 4

The form of tinnitus indicating the need for assessment by an otolaryngologist is:

c. Secondary

QUESTION 5

According the systematic reviews, the method with the strongest evidence for tinnitus intervention effectiveness is:

a. Hearing aids or combination instruments
b. Cognitive-behavioral therapy
c. Tinnitus retraining therapy
d. Masking plus counseling

ANSWER TO QUESTION 5

According the systematic reviews, the method with the strongest evidence for tinnitus intervention effectiveness is:

b. Cognitive-behavioral therapy

CASE STUDY

Instructions:

In the next 10 minutes, please review the case study and jot down answers/ reflect on the following questions:

- Have you had a patient in your practice similar to Mac's profile?
- Where are the gaps in care and who is responsible to provide this care?
- Do you know the clinical practice guidelines related to tinnitus care?
- What resources do you currently use or would be helpful to you in your clinical practice for short term and long-term management?

LET'S DISCUSS!

In the next 20 minutes, let's discuss your perspectives!

DISCUSSION THEMES

- What were some "lost opportunities" by the health care team?
- When did these lost opportunities occur and by whom?
- Were treatment options and management discussed?
- Name some nursing advance-practice roles of the NP with ensuring tinnitus patients get excellent care?

SUMMARY OF CASE STUDY GAPS IN PRACTICE

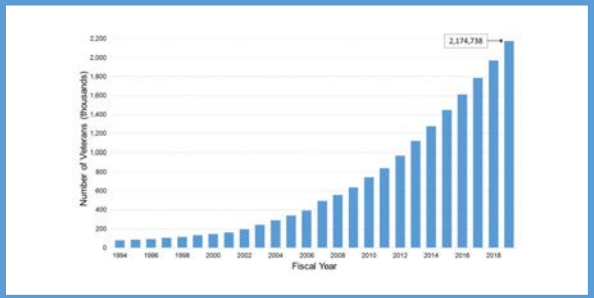
- Gaps in care from the very beginning in all layers of the health care team—initial point of contact culminating with the specialists
- Giving patient education handouts without explaining content
- Incomplete explanations on relationship of hearing loss, tinnitus, and sound tolerance—leaving patient to inaccurate conclusions
- No discussions of self-management techniques or other follow-up
- Military culture—this patient was used to being highly autonomous—yet needed understanding and hope in this case
- Lack of continuity of care—different town/ different networks

SUMMARY OF CASE STUDY GAPS IN PRACTICE CONTINUED

- Delays in progressing toward a management plan
- Lack of addressing quality of life issues
- Lack of encouraging use of the Veteran Administration resources
- Lack of thorough assessment—"How much of a problem is your tinnitus"?
- Lack of being a patient advocate
- Long-term management follow-up and ensuring the treatment plan is established and adhered to by the patient

TINNITUS AND U.S. MILITARY VETERANS

- Tinnitus is the most prevalent service-connected disability (2,174,738 Veterans in 2019)
- Veterans reported to have twice the prevalence of tinnitus as non-Veterans (Folmer et al 2011)
- Epidemiology study with Veterans and military Service members (n=775; mean age ~35 years)
  - -Veterans: 62% with chronic tinnitus
  - -Active-duty Service members: 38% with chronic tinnitus



OF THOSE WITH TINNITUS….

Impact	Service Members	Veterans
Job performance	27%	28%
Concentration	21%	32%
Sleep	59% (vs. 39% no-tinnitus)	43% (vs. 36% no-tinnitus)
Anxiety	52% (vs. 18% no-tinnitus)	57% (vs. 33% no-tinnitus)
Depression	22% (vs. 6% no-tinnitus)	35% (vs. 4% no-tinnitus)

IMPACT OF TINNITUS ON MILITARY SERVICE MEMBERS AND VETERANS

Data from 428 participants:

- 246 Veterans (mean age 33.5)
- 67% had constant or intermittent tinnitus
- 182 Service members (mean age 34.8)
- 45% had constant or intermittent tinnitus


MILITARY MEDICINE, 184, 3/4:604, 2019

Impact of Tinnitus on Military Service Members

James A. Henry*†; Susan E. Griest*†; Cody Blankenship*; Emily J. Thielman*; Sarah M. Theodoroff*†; Tanisha Hammill‡; Kathleen F. Carlson*§‖

WHAT RESEARCH IS BEING USED TO UNDERSTAND TINNITUS IN ACTIVE- DUTY MILITARY VETERANS?

- VA RR&D National Center for Rehabilitative Auditory Research
- Department of Defense Hearing Center of Excellence

THEMES FROM VETERAN QUOTES—DO WE REALLY UNDERSTAND THEIR PERSPECTIVES?

Prewitt A, Harker G, Gilbert TA, Hooker E, O'Neil ME, Reavis KM, Henry JA, Carlson KF. Mental Health Symptoms among Veteran VA Users by Tinnitus Severity: A Population-based Survey. *Military Medicine*, 2020;186(Suppl 1):167-175.

THEME 1: Lack of awareness or knowledge of tinnitus as a health issue

THEME 1 COMMENTS

- "I had to have hearing tests every so often and it was kind of a running joke on my ship that if you did worse than your last one, they just changed the numbers so that you passed it and you could keep working. And nobody ever asked me about tinnitus. So, I didn't really have any words to describe it. It's hard to explain to someone -- like I hear things that nobody else hears."
- "I did not [seek help for tinnitus] because I thought everyone had it. I thought it was a normal thing. I didn't even know what tinnitus was until I started going through the VA process and learned that it was not normal for that to happen."

QUOTES CONTINUED PREWITT ET AL (2020)

THEME 2: Missed opportunities for prevention of tinnitus

THEME 2 COMMENTS

- "So, if I knew that it's a serious thing that affects your life 12 years ago or here is something you can be exposed to, 12 years ago, I would have lived my life differently. I would have been more conscious like OK – ear protection, check, loud noises stay away, check. Except I just thought I was invincible. I just thought I'll be fine. I think education is number one. There is a lack of education about tinnitus. It should be one of those things in the military– oh here is your risk to danger, getting shot at whatever, blowing up. By the way here is something else you should be worried about, tinnitus."
- "…we did hearing tests and I told them that I had the ringing and that was really pretty much the end of it. It's like well it's still good enough not to disqualify you from anything so got to go back to doing what I was doing."

QUOTES CONTINUED PREWITT ET AL (2020)

THEME 3: Concerned about effects on one's military career if reported tinnitus

THEME 3 COMMENTS

- "I would say it's just one of those things where, as a soldier, if you want to continually pursue that lifestyle and be a, I guess, what I would say a decent career path for you as a soldier, I mean, you don't want to be passed up for promotion or awards so when you have a problem so far as like hearing or vision or anything like that you're skeptical of even saying anything about it because you're in that moment and you don't want to lose any of your credibility and what you worked so hard to accomplish."
- "I was definitely concerned that I wouldn't be allowed to deploy. I was worried that [the tinnitus] would be a disqualifying condition. It would prevent me from being able to even reenlist."

QUOTES CONTINUED PREWITT ET AL (2020)

THEME 4: Sought help for tinnitus but told nothing can be done

THEME 4 COMMENTS

- "Tinnitus, they keep telling me that tinnitus is things that, too much coffee, you ate hot foods, you ate such as like spicy foods. I'd be like, no, this is brought on by aircraft noise, being around aircraft, loud noises. Even though I wear hearing protection, it's brought on by that. Like, we have no, it doesn't affect your hearing at all, it's no big deal, take some Vitamin L, some Motrin and you'll be OK."
- "Yeah, they sent me out to an ear, nose and throat person out in town. I forgot that was when I was still in. Anyways, they described what had happened and how it develops and all that and he gave me Xanax [chuckles] and said there's nothing we can do to fix it and he prescribed me Xanax because it was driving me crazy and said good luck kind of thing [chuckles]. They told me though there's no cure. There's these things that can help or try to help but there's no way to get rid of it."

PRIMARY VERSUS SECONDARY TINNITUS

- Primary tinnitus is idiopathic and may or may not be associated with sensorineural hearing loss.
- Secondary tinnitus is generated mechanically within the head or neck from muscular, skeletal, respiratory, or vascular structures, or from the temporomandibular joint.
- Secondary tinnitus causes an actual sound to be produced and perceived by the auditory mechanism.

SYMPTOMS AND CLINICAL IMPLICATIONS

- The AAO-HNSF recommends that all patients with presumed primary tinnitus undergo a physical examination, which should be directed to identify secondary tinnitus, with potentially treatable or explainable causes, as well as to find signs of serious disease associated with tinnitus.
- This is a best-practice recommendation, although many clinics do not have the option of referring every patient complaining of tinnitus to an ear specialist physician.
- If such a referral is not feasible, then it is incumbent upon the clinician to be aware of symptoms that suggest the possibility of secondary tinnitus and to at least refer patients who manifest such symptoms.

IMPORTANCE OF THE INITIAL NURSE PRACTITIONER EVALUATION

Case History:

- Necessary to document any symptoms or conditions that indicate special services or referral
- Should target:

-unilateral, pulsatile, or new-onset tinnitus
-hearing difficulties
-sudden onset of hearing loss along with tinnitus
-Noise exposure
-Ototoxic medications
-Balance disorders

IMPORTANCE OF THE INITIAL NURSE PRACTITIONER EVALUATION CONTINUED

Thorough assessment of symptoms related to:

- Anxiety
- Depression
- Cognitive impairment
- Sleep disturbances
- Suicide risk
- Relationship issues or stressors

IMPORTANCE OF THE INITIAL NURSE PRACTITIONER EVALUATION CONTINUED

Duration of tinnitus

- Recent onset (less than 6 months/ acute)
- Persistent (greater than 6 months/ chronic)—most likely a permanent condition
- Determination of primary versus secondary tinnitus—most patients have primary tinnitus. Primary tinnitus is idiopathic and may or may not be associated with sensorineural hearing loss (SNHL)

TABLE 2
HENRY, J., MCMILLAN, L., & MANNING, C. (2019). MULTIDISCIPLINARY TINNITUS CARE, THE JOURNAL FOR NURSE PRACTITIONERS, 15, 671-675

Table 2
Clinical Recommendations for Primary Tinnitus According to Temporal Characteristics of Tinnitus[a]

Primary Tinnitus	Frequency of Occurrence	Symptoms/Duration	Clinical Implications
Spontaneous (transient ear noise)	Random	Sudden tone in 1 ear, usually accompanied by sense of ear fullness and hearing loss All symptoms resolve within 2-3 minutes	Normal physiological event experienced by almost everyone **Recommend**: No referral indicated. Reassure patient this is normal and not a sign of pathology.
Temporary	Follows tinnitus-inducing event—usually noise exposure but also some medications and chemicals	May accompany temporary change in hearing—can be a warning sign that temporary hearing loss has occurred Can last 1 or more days	Indicates possible damage to inner ear **Recommend**: Educate about hearing conservation (eg, use hearing protection, reduce exposure to hazardous noise, get periodic hearing test) and monitor symptoms
Occasional	Less than weekly	Lasts at least 5 minutes	Referral not indicated unless there are otologic complaints **Recommend**: Educate about hearing conservation and monitor symptoms
Intermittent	At least daily or weekly	Lasts at least 5 minutes	**Recommend**: (1) Refer for clinical audiologic examination and brief tinnitus assessment; (2) Counsel re: hearing conservation
Constant	Always audible in quiet	Continuous sound	**Recommend**: Same as for intermittent tinnitus

CRITICAL ROLE OF TIMELY REFERRALS

- Physical exam—identify potentially treatable secondary tinnitus and any other serious diseases
- Referral to an ENT if secondary tinnitus is suspected or if symptoms are unilateral
- Urgent referral (same-day) to ENT is recommended if sudden SNHL is within 30 days
- Other referrals may be necessary

TINNITUS REFERRAL GUIDELINES HELPFUL TO THE NP ROLE

- Henry, J., Zaugg, T., Myers, P., Kendall, C., & Michaelides, E. (2010). A triage guide for tinnitus. *The Journal of Family Practice*, 59 (7), 389-393.
- Henry, J., McMillan, L., & Manning, C. (2019). Multidisciplinary tinnitus care. *The Journal for Nurse Practitioners,* 15 (9), 671-675.

DIFFERENT APPROACHES TO TINNITUS INTERVENTIONS
PSYCHOLOGICAL, SOUND-BASED AND COMPLEMENTARY ALTERNATIVE

Psychological therapies:

- Cognitive behavioral therapy (CBT)
- Strongest literature support
- Helps patients reconceptualize their problem as manageable
- Encourages practice, and use of coping strategies to enhance perceptions of self-control and self- efficacy

MINDFULNESS-BASED STRESS REDUCTION

- Purposeful practice of paying attention to the present moment without judgement
- Invites the patient to tune into the sensations, thoughts, and experiences rather than away from them
- Excellent results where the patient experiences benefits from the disruptive symptoms with continued practice. Improvements in bothersome symptoms

ACCEPTANCE AND COMMITMENT THERAPY (ACT)

- Directly moving toward a problem and increasing cognitive flexibility for coping rather than attempting avoidance
- Mindfulness-based stress reduction is part of ACT
- Studies show efficacy

SOUND-BASED THERAPIES
ELIMINATING OR REDUCING THE SENSATION—NOT EFFECTS OF TINNITUS

- No cure currently exists
- Some companies have claimed their sound-therapy device results in a permeant reduction in the perception of tinnitus—again, not clinically proven
- Sound-based therapies do reduce effects of tinnitus—they may temporarily eliminate/reduce the tinnitus sensation, but not permanently (i.e., when not exposed to sound)
- Regardless, sound therapy is a mainstay used by audiologists

SOUND MASKING

- Developed in the 1970's
- Transitioned from complete masking to partial masking—referred to as "sound-based tinnitus relief"
- Three types of sound therapy—soothing, interesting, and background
- Soothing type may include waterfalls, music, speech, nature sounds
- Many apps and devices offer this approach
- Interesting sound can include soothing speech and/ or distraction
- Background sound is neither soothing nor interesting—boring?

COMPLEMENTARY ALTERNATIVE METHODS

- Stress reduction
- Aromatherapy
- Visualization
- Self-care—exercise, yoga, stretching
- Sound therapy apps—couture to each individual's preferences

HEARING AIDS

- Approximately 90% of people with tinnitus have some degree of hearing loss
- Controlled trials show hearing aids can reduce the functional effects of tinnitus
- Hearing aids can also be used in producing background, interesting and soothing sounds

PROGRESSIVE TINNITUS MANAGEMENT (PTM)

- Stepped-care program includes sound therapy at different levels

--Level 2 Audiologic Evaluation: hearing aids and combination instruments

--Level 3 Skills Education: Audiologist/ health care provider teaches sound-therapy skills

--Patients are taught these concepts and then guided to develop action plans for using sound to self-manage their most bothersome tinnitus situations

PATIENT EDUCATION

- Available management strategies
- Association between hearing loss and tinnitus
- Effects of lifestyle factors on tinnitus management
- Hearing protection from noise
- Follow-up with patient as to the audiologist referral status and report
- Questions related to use of hearing aids
- Offer information on noise-generators or sound apps

TINNITUS-SPECIFIC SERVICES

- CBT as the most evidence-based method of tinnitus intervention
- Mental health referrals
- Counseling options with behavioral health or audiologists

SOUND TOLERANCE DISORDERS: OVERARCHING CONDITIONS

- Decreased sound tolerance
- Hypersensitivity to sound
- Reduced loudness tolerance
- Loudness tolerance disorder

DECREASED SOUND TOLERANCE

- Hyperacusis: decreased loudness tolerance
- Misophonia: decreased tolerance of specific sounds
- Noise sensitivity: general reactivity to sound (can be associated with TBI, PTSD, and autism spectrum disorders)
- Phonophobia: fear of sound

CONCLUSION

- Tinnitus clinical management should be multidisciplinary in approach.
- It is critical that members of the team understand the causes, impact of the condition on patients and family members, health care options, and resources available to assist patients living with tinnitus.
- Nurse practitioners, PAs, or primary care physicians are potentially the entry point for patients, highlighting the need for knowledge, skills, and attitudes aligned with getting patients the resources needed and potential multiple referrals to specialists.

CONCLUSION (CONTINUED)

- Once the specialists make a diagnosis, however, advanced-practice professionals are also useful in long-term management (such as CBT) of the condition with patients and family members.
- All members of the team are pivotal in providing the necessary encouragement and support, instilling realistic hope, and being a patient advocate to provide the help that is deserved and needed by patients and family members.

QUESTIONS?

RESOURCES

- American Tinnitus Association (ATA)
- Hearing Health Foundation (HHF)
- Ida Institute
- https://www.ncrar.research.va.gov/ClinicianResources/IndexPTM.asp

CONTACT INFORMATION

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