

Tinnitus (ORL) ECPG

Disclaimer

The present Egyptian CPG (ECPG) represents an adapted CPG with a clearly outlined methodology, and the related references to each guideline were cited. The contributors of these adapted ECPGs have made considerable efforts to ensure that the information upon which they are based is accurate and up to date. The publishers will be pleased to make good any omissions or rectify any mistakes brought to their attention at the earliest opportunity.

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Abbreviations

QoI	Quality of life
VS	Vestibular schwannoma
CPG	Clinical Practice Guideline
GRADE	Grading of Recommendations Assessment, Development and Evaluation
MRI	Magnetic Resonance Imaging
CT	Computed tomography
NR	Not Reported
RCT	Randomized controlled trial

Executive Summary

Tinnitus is described as ringing, buzzing, clicking, or pulsating noise perceived only by the patient (subjective) or the examiner and the patient's objective. It may be without aberrant cause (Primary) or due to a specific cause (Secondary) (*Strong Recommendation*).

Clinicians should perform a targeted history and physical examination at the initial evaluation of a patient with presumed primary tinnitus (*Strong Recommendation*).

Clinicians must distinguish patients with bothersome tinnitus from patients with no bothersome tinnitus (*Strong Recommendation*).

Clinicians should distinguish patients with bothersome tinnitus of recent onset from those with persistent symptoms (≥ 6 months) (*Strong Recommendation*).

Clinicians should obtain a prompt, comprehensive audiological examination in patients with tinnitus that is unilateral, persistent (\geq six months), or associated with hearing difficulties (*Strong Recommendation*).

Clinicians may obtain an initial comprehensive audiological examination in patients who present with tinnitus (regardless of laterality, duration, or perceived hearing status) (*Conditional recommendation*).

Clinicians should obtain imaging studies of the head and neck in patients with tinnitus, especially if they have one or more of the following: tinnitus that localises to 1 ear, pulsatile tinnitus, focal neurological abnormalities, or asymmetric hearing loss (*Strong Recommendation*).

Clinicians should educate patients with persistent, bothersome tinnitus about management strategies (*Strong Recommendation*).

Clinicians should recommend a hearing aid evaluation for patients with hearing loss and persistent, bothersome tinnitus (*Strong Recommendation*).

Clinicians may recommend sound therapy to patients with persistent, bothersome tinnitus (*Strong Recommendation*).

Clinicians should recommend cognitive behavioural therapy to patients with persistent, bothersome tinnitus (*Strong Recommendation*).

Clinicians can recommend antidepressants, anticonvulsants, or anxiolytics for a primary indication of treating persistent, bothersome tinnitus (Neramexane, Vestipitant alone or in combination with paroxetine, acamprosate, and dietary zinc supplements) (*Conditional recommendation*).

Clinicians can recommend Ginkgo biloba, melatonin, zinc, or other dietary supplements for treating patients with persistent, bothersome tinnitus (*Conditional recommendation*).

Clinicians should not prescribe for patients with persistent bothersome tinnitus (*Strong Recommendation*).

Intratympanic steroids should be used in acute tinnitus, cases with sudden SNHL and cases with SNHL not more than 30 dB, while Intratympanic lidocaine should be tried only for chronic tinnitus (*Conditional recommendation*).

Surgical treatment is offered for specific causes of tinnitus (e.g. glomus, vestibular schwannoma) (*Strong Recommendation*).

Introduction, purpose, scope and audience

Introduction

Tinnitus is the perception of sound without an external source. The estimated prevalence is 10% to 15% in adults.^{1,2} About 20% of adults who experience tinnitus will require clinical intervention.³ Not a disease in and of itself, tinnitus is actually a symptom that can be associated with multiple causes and aggravating co-factors. Tinnitus is relatively common, but in rare cases, it can be a symptom of serious diseases such as vascular tumours or vestibular schwannoma (VS). Tinnitus can be persistent, bothersome, and costly. The prevalence of tinnitus was estimated in the National Health Interview Survey conducted in the United States in 1994 by asking whether individuals experienced "ringing, roaring, or buzzing in the ears that lasted for at least three months." Such tinnitus was present in 1.6% of adults ages 18 to 44, 4.6% of adults ages 45 to 64, and 9.0% of adults 60 and older.⁴ In the Beaver Dam offspring study of more than 3000 adults between the ages of 21 and 84 years studied between 2005 and 2008, 10.6% reported tinnitus of at least moderate severity or causing difficulty falling asleep.⁵ Tinnitus can also have a large economic effect. For example, tinnitus was the most prevalent service-connected disability for U.S. military veterans receiving compensation at the end of fiscal year 2012, resulting in nearly 1 million veterans receiving disability awards.⁶ Tinnitus can occur on one or both sides of the head and can be perceived as coming from within or outside the head. Tinnitus most often occurs in the setting of concomitant sensorineural hearing loss (SNHL), particularly among patients with bothersome tinnitus and no obvious ear pathology. The quality of tinnitus can also vary, with ringing, buzzing, clicking, pulsations, and other noises described by tinnitus patients. In addition, the effects of tinnitus on health-related quality of life (QOL) vary widely, with most patients less severely affected but some experiencing anxiety, depression, and extreme life changes. Patients who have tinnitus accompanied by severe anxiety or depression require prompt identification and intervention, as suicide has been reported in tinnitus patients⁷ who have coexisting psychiatric illnesses. Most tinnitus is subjective, perceived only by the patient. In contrast, others can perceive objective tinnitus as rare and is not the focus of this guideline.

Scope: The scope of the guideline is the diagnosis and management of bothersome and persistent (lasting 6 months or longer), often with a negative effect on the patient's QOL.

Target audience: The target audience is any clinician, including non-physicians, involved in managing these patients. Patients with tinnitus will often be evaluated by various healthcare providers, including primary care clinicians, speciality physicians, and non-physician providers such as audiologists and mental health professionals. The target patient population is limited to adults (18 years and older) with primary tinnitus that is persistent and bothersome.

Methods

Methods of development

Stakeholder Involvement: Individuals who were involved in the development process. Included are the above-mentioned otology chief manager, otology executive manager, assembly board, grading board, and reviewing board.

Information about the target population's experiences was **not applicable** to this topic.

The adaptation cycle passed over the set-up phase, adaptation phase (Search and screen, assessment: currency, content, quality & /decision/selection) and finalization phase, including revision and external reviewing.

Search Method

Electronic database searched: PubMed, Medline, Egyptian Knowledge Bank, Medscape, WebMD, and Google Scholar.

Keywords

amplification, hearing aids, hearing loss, quality of life, sound therapy, tinnitus

The adaptation cycle passed over: set-up phase, adaptation phase (Search and screen, assessment: currency, content, quality & /decision/selection) and finalization phase that included revision and external reviewing.

Time period searched: from 2014 to 2020.

Results

Seven national otorhinolaryngologists reviewed the guidelines available. Guidelines from the American Academy of Otorhinolaryngology-Head and Neck Surgery gained the highest scores as regards currency, contents and quality. It was graded GRADE by sixteen experts and reviewed by four expert reviewers to improve quality, gather feedback on draft recommendations. The external review was done through a rating scale and open-ended questions.

Setting: Primary, secondary and tertiary care centers & hospitals and related specialties.

Interpretation of strong and conditional recommendations for an intervention

Audience	Strong recommendation	Conditional recommendation
Patients	Most individuals in this situation would want the recommended course of action; only a small proportion would not. Formal decision aides are not likely to be needed to help individuals make decisions consistent with their values and preferences.	Most individuals in this situation would want the suggested course of action, but many would not
Clinicians	Most individuals should receive the intervention. Adherence to the recommendation could be used as a quality criterion or performance indicator.	Different choices will be appropriate for individual patients, who will require assistance in arriving at a management decision consistent with his or her values and preferences. Decision aides may be useful in helping individuals make decisions consistent with their values and preferences.
Policymakers	The recommendation can be adopted as policy in most situations.	Policy-making will require substantial debate and involvement of various stakeholders.

WHO handbook for guideline development – 2nd ed.
Chapter 10, page 129

The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to Decision frameworks (GRADE Working Group 2013)

Grade	Definition
High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low	Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very Low	We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect

Recommendations,

The following statements and flowchart were adapted from the Guidelines from the American Academy of Otorhinolaryngology-Head and Neck Surgery which received the highest scores as regards the currency, contents, and quality.

Recommendations statements

Accepted statements	
Modified statements	
Added statements	

Clinical question	Key action statement	Strength of recommendation	Level of evidence	Study type ^{Reference}
Definition of Tinnitus	A condition described as ringing, buzzing, clicking or pulsating noise perceived only by the patient(subjective) or the examiner and the patient objective. it may be without an aberrant cause (Primary) or due to a specific cause (Secondary).	Strong Recommendation	Moderate	RCT ⁸
History and physical exam	Clinicians should perform a targeted history and physical examination at the initial evaluation of a patient with presumed primary tinnitus to identify conditions that if promptly identified and managed may relieve tinnitus.	Strong Recommendation	Moderate	RCT ⁹⁻¹¹
Bothersome tinnitus	Clinicians must distinguish patients with bothersome tinnitus from patients with no bothersome tinnitus.	Strong Recommendation	Moderate	RCT ^{12,13}
Persistent tinnitus	Clinicians should distinguish patients with bothersome tinnitus of recent onset from those with persistent symptoms (≥ 6 months) to prioritise intervention and facilitate discussions about natural history and follow-up care.	Strong Recommendation	Moderate	RCT ¹⁴
Prompt Audiologic Examination	Clinicians should obtain a prompt, comprehensive audiologic examination in patients with tinnitus that is unilateral, persistent (≥ 6 months), or associated with hearing difficulties.	Strong Recommendation	Moderate	RCT ¹⁵

Routine Audiologic Examination	Clinicians may obtain an initial comprehensive audiologic examination in patients who present with tinnitus (regardless of laterality, duration, or perceived hearing status).	Conditional recommendation	High	Well-organized RCT ¹⁶
Imaging studies	Clinicians should obtain imaging studies of the head and neck in patients with tinnitus especially if they have 1 or more of the following: tinnitus that localizes to 1 ear, pulsatile tinnitus, focal neurological abnormalities, or asymmetric hearing loss.(MRI temporal bone with contrast with special emphasis on IAC and CPA to exclude retrocochlear lesion, CT temporal bone to exclude dehiscent jugular vein, dehiscent carotid canal, glomus, or other causes and MRI with contrast and MRA to exclude vascular loop).	Strong Recommendation	High	Systematic review ¹⁷
Education and Counselling	Clinicians should educate patients with persistent, bothersome tinnitus about management strategies.	Strong Recommendation	High	Systematic review ¹⁸
Hearing aid evaluation	Clinicians should recommend a hearing aid evaluation for patients with hearing loss and persistent, bothersome tinnitus.	Strong Recommendation	High	Systematic review ¹⁹
Sound therapy	Clinicians may recommend sound therapy to patients with persistent, bothersome tinnitus.	Strong Recommendation	Low	Observational studies ^{20,21}

Cognitive behavioural therapy (CBT)	Clinicians should recommend cognitive behavioural therapy to patients with persistent, bothersome tinnitus.	Strong Recommendation	High	Systematic review ²²
Medical therapy	Clinicians can recommend antidepressants, anticonvulsants, or anxiolytics for a primary indication of treating persistent, bothersome tinnitus (Neramexane, Vestipitant alone or in combination with paroxetine, acamprosate, and dietary zinc supplements).	Conditional recommendation	Low	Observational study ²³
Dietary supplements	Clinicians can recommend Ginkgo biloba, melatonin, zinc, or other dietary supplements for treating patients with persistent, bothersome tinnitus.	Conditional recommendation	High	Well-organized RCT ²⁴
Acupuncture	No recommendation can be made regarding the effect of acupuncture in patients with persistent bothersome tinnitus.	Strong Recommendation	High	Systematic review ²⁵

Intratympanic injection	Clinicians should have enough experience with Intratympanic injection. Intratympanic injection should be done once weekly for 3-5 times.			
A- Intratympanic steroids	Intratympanic steroids should be used in acute tinnitus, cases with sudden SNHL and cases with SNHL not more than 30 dB.	Conditional recommendation	Moderate	RCT ²⁶⁻²⁸
B- Intratympanic lidocaine	Intratympanic lidocaine should be tried only for chronic tinnitus.			
C- combined Intratympanic steroids and lidocaine	The combination reduces the irritative effect of lidocaine.			
Surgical treatment of tinnitus	Surgical treatment is offered for specific causes of tinnitus (e.g. glomus, vestibular schwannoma).	Strong Recommendation	Moderate	RCT ²⁹

Research needs

There is a need to conduct randomized controlled trials (RCTs) to determine the efficacy of intratympanic injection and other medications.

Monitoring and evaluating the impact of the guideline

Monitoring/ Auditing Criteria: to assess guideline implementation or adherence to recommendations. This is accomplished if the quality of life of children with AOM is improved with no increase in rate of complications.

Clinicians should be able to:

- Acquire a full history from the patient
- Do audiogram examination
- Exclude other causes of tinnitus
- Is the tinnitus unilateral or bilateral
- Is the tinnitus bothering or not
- Discuss the possible management plans

Updating of the guideline

Updating Procedure:

Any recommendation of this guideline will be updated when new evidence that could potentially impact the current evidence base for this recommendation is identified. If no new reports or information are identified for a particular recommendation, the recommendation will be revalidated. The focus will be on recommendations supported by very-low- or low certainty evidence and where new recommendations or a change in the published recommendations may be needed.

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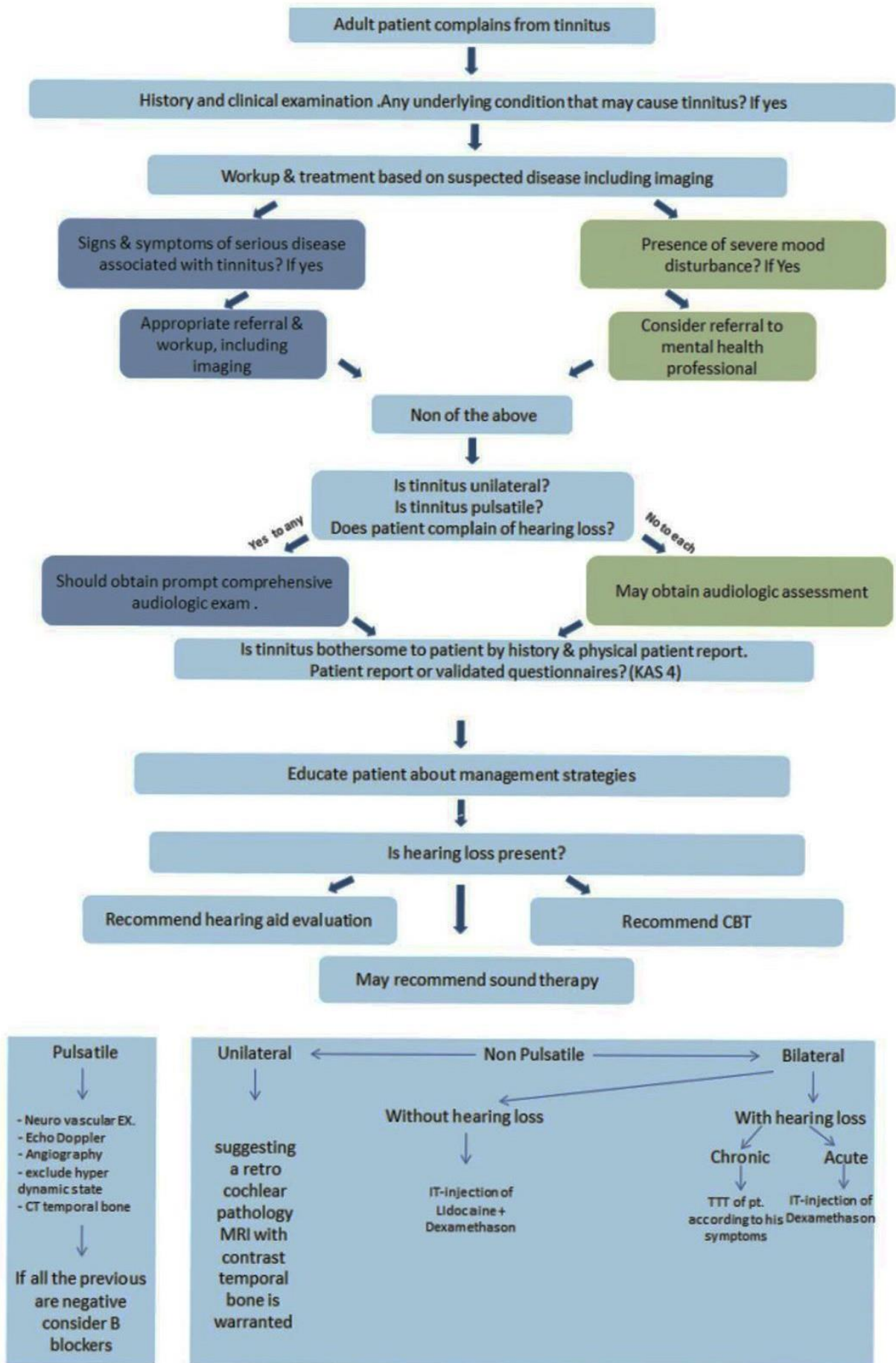
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Editorial Independence:

- This guideline was developed without any external funding.
- All the guideline development group members have declared that they do not have any competing interests.

Annex 1: A flow chart of the Tinnitus guideline.



Annex 2: Assessment of Currency Table

Number	Name	Responsible organization	Date of Publication	Expected Review Date	Date of original details in the references
1	Practice Guidance: Fitting of combination hearing aids for subjects with tinnitus	British Society of Audiology	2020	NR	recent references
2	NICE Guideline	National Institute for Health and Care Excellence	2020	NR	recent references
3	A multidisciplinary European guideline for tinnitus: diagnostics, assessment, and treatment	European	2019	NR	recent references
4	Clinical practice guideline: tinnitus	AAO-HNSF	2014	NR	Not recent references
5	Clinical practice guidelines for diagnosis and treatment of chronic tinnitus in Japan	Oto-Rhino-Laryngological Society of Japan	2019	NR	recent references

Annex 3: Assessment of Content Table

Score Items (each to be given score from (1-9))	British Society Of Audiology (2020)	NICE Guideline	European guideline	AAO-HNSF	Japanese guidelines
Credibility	9	9	9	9	9
Observability	8	7	8	9	7
Relevance	9	9	7	9	9
Relative advantage	8	5	8	9	8
Easy to Install	9	7	9	9	6
Compatibility	8	7	7	8	7
Testability	5	7	-	9	7
Total score	56	51	48	62	53

Annex 4: Assessment of Quality Table

Domain	British Society Of Audiology (2020)	NICE Guideline	European guideline	AAO-HNSF	Japanese guidelines
Transparency	A	A	A	A	A
Conflict of interest	A	A	A	A	A
Development group	A	A	A	A	A
Systematic review	A	A	A	A	A
Grading of evidence	A	A	A	A	A
Recommendation	A	A	A	A	A
External review	A	A	A	A	A
Updating	B	B	B	C	A

Annex 5: The risks and benefits of added and/or modified statements

Statement	Risk	Benefit
Imaging studies	No risk	We focused on the role of imaging studies to find the primary cause of tinnitus, which may improve the management outcomes.
Medical therapy	Side effects of the used medications.	This may improve the outcomes, especially in specific situations such as the associated depression of somatosensory manifestations.
Intratympanic injection	Tympanic membrane residual perforation	It may be helpful in severe and resistant cases.

