
Medicolegal Aspects of Tinnitus

Cecil W. Hart

Loyola University Medical School, Chicago, IL

TINNITUS

Types

Every acoustical system has an underlying level of noise. High-fidelity buffs refer to the signal-to-noise ratio. The human auditory (acoustic) system is no exception. Other normal physiological noises include the sound of the pulse in the inner ear, the opening of the eustachian tube, the noise of respiration, and the like. Pathological tinnitus, on the other hand, is noise associated with dysfunction of the auditory system.

Awareness and Perception

Most people are aware that they can hear their normal physiological tinnitus from time to time, under certain circumstances [1]. The same holds true for people with pathological tinnitus [1]. The greater the hearing loss, the more likely is the patient to be aware of the tinnitus. However, because it usually is a constant and not an immediately meaningful signal, the brain tends to ignore it.

Prolonged stimulation of the brain may result in a response decline. The brain is said to adapt to a constant stimulus and to habituate to repetitive stimuli. As tinnitus usually has a stable cause, the absolute intensity also is presumably reasonably stable. Thus, the term adapt would seem to be more appropriate in this context.

Sometimes, however, the brain is unable to adapt to the noise or may “unadapt” (decompensate) to a noise to which it had adapted previously. This may be due to the presence of organic brain disease or a result of psychiatric disease. The patient’s subjective perception of the loudness of the tinnitus is unrelated to any audiometric (psychoacoustic) or physical measures of sound intensity.

Complaint

Some people who are aware of their physiological or pathological tinnitus cannot or will not accept it. Rather, they complain about it. Depression is the principle distinguishing feature of tinnitus complainers [2]. Depression and insomnia are the two factors that most strongly predict increased discomfort from, and decreased tolerance of, tinnitus [3]. Kitihara [4] concluded that tinnitus is a stress-related disorder. Other individuals use the complaint of tinnitus as a means of obtaining a financial award.

Intrusiveness

Some individuals are aware of their pathological tinnitus for most or all of their waking hours. In most cases, those affected accept it and learn to live with it.

A number of questionnaires that, by their nature, are subjective address affected patients’ perception of how annoying the sensation is to them. These questionnaires have been reviewed by Erlandsson [5].

Measurement

As tinnitus is simply a symptom, no direct method of measuring it exists, any more than we can measure pain. Tinnitus, however, is well-known to be associated with hearing loss. The two can be thought of as two sides of the same coin. A reasonable position to take is that, because hearing loss can be measured, it is valid to use the measurement of the degree of hearing loss as an estimate of the absolute intensity of the tinnitus. The psychological reaction is the main determinant of the severity of the tinnitus and the suffering it causes [6].

Etiology

The various etiologies of pathological tinnitus are discussed in the standard texts. Physicians must be very familiar with them, as many patients with medicolegal issues have long-standing tinnitus. Sometimes, the stress of an injury will cause one’s adaptation to an antecedent tinnitus to decompensate, rendering the tinni-

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tus more noticeable after the injury. What is important is determining the possible presence of a record of any psychiatric disease or hearing loss (or both) prior to the alleged injury.

Treatment

The physician will be expected to discuss treatment. Some medical etiological factors may respond to medical or surgical intervention. Psychotherapy and cognitive therapy (manipulation of affected patients' thoughts, beliefs, attitudes, and imagery) may be appropriate. Biofeedback also may be helpful.

THE PHYSICIAN'S ROLE

The medical role of physicians is twofold. One function is to try to remove or ameliorate the cause of the tinnitus. If this is not possible, physicians must help affected patients to accept and live with their symptom.

The legal role of physicians also embodies two possibilities. Treating physicians need only to give factual evidence. Attempts on the part of the attorneys to elicit expert testimony should be resisted vigorously, unless they are prepared to pay for it. Expert medical witnesses' opinions regarding cause and effect, the diagnosis or diagnoses, and the like, all are based on "a reasonable degree of medical and scientific certainty." This translates approximately into veracity of a certain fact beyond a 50% probability.

THE LAW

The American Medical Association's *Guidelines for the Evaluation of Permanent Impairment* [7] employs specific definitions of *impairment*, *disability*, and *handicap*. Incidentally, the *Guides* do address both hearing and balance loss but do not address tinnitus.

An *impairment* is an alteration of affected individuals' health status. It is assessed by medical means and is a medical issue.

A *disability* is an alteration of affected individuals' capacity to meet personal, social, or occupational demands or statutory or regulatory requirements because of an impairment. The term *disability* refers to a condition in which affected individuals cannot accomplish an activity or a task.

Impaired individuals are *handicapped* if obstacles prevent them from accomplishing life's basic activities. Accordingly, such obstacles can be overcome only by compensating in some way for the effects of the impairment.

Of necessity, the evaluation of disability and possible handicap requires the evaluator to have knowledge of affected individuals' social environment.

When it comes to the demands placed on an individual by certain work situations, frequently such knowledge is beyond expert physicians' domain. Despite the frequent demands of physicians by aggressive attorneys, determination of handicap is best left to the courts.

Apportionment

The law in some states allows an attorney to ask a physician whether an accident resulted in an aggravation of a preexisting condition. The defendant may be liable for this portion only, which is thus considered, for financial purposes, as the sole injury.

Permanency

The courts are interested in determining whether any additional spontaneous improvement can be anticipated and, if so, how much. Has the patient already reached maximum capacity? What (additional) treatments are available? What is the success rate of each and how much further improvement might each reasonably be expected to produce? What is likely to be the ultimate permanent degree of impairment and disability in each scenario?

Validation

In view of the nebulous nature of the complaint, Glorig [8] compiled a list of criteria that may be applied to help in evaluating the validity of the complaint. An affected patient's complaint (or claim) that tinnitus was present and disabling must have been unsolicited. If the complaint was not present in the medical records prior to the claim, a reasonable assumption is that it arose as a consequence of the interview and medical history process. Also, the tinnitus must accompany a commensurate level of hearing loss.

Additionally, the affected patient's treatment history must include one or more attempts to alleviate the perceived disturbance by medication, prosthetic management, or psychiatric intervention. Tangible evidence must be available to support the idea of personality change or sleep disorders.

Further, patients cannot exhibit any contributory history of substance abuse. The complaint of tinnitus must be supported by statements from family or significant others.

Additional useful questions to ask include the following:

- What is the likelihood that the incident in question could have caused tinnitus?
- Did the patient volunteer the symptom to the doctors and nurses providing care at the time of the alleged causative incident?
- If the patient did not do so immediately, how long after the alleged causative incident was the presence of the symptom recorded in the medical records for the first time?
- Does the patient have any history of having tinnitus prior to the incident? Was any prior hearing loss evident?
- Was any loss of hearing or acute progression of a previous hearing loss coincident with the causative event?
- If the intensity of tinnitus has seemed to change over time, has a commensurate measurable change occurred in the level of hearing over the same time course?
- Is the complaint of tinnitus unilateral? If so, does any evidence point to coincident correlation with the onset, or the acute exacerbation, of hearing loss in the homolateral ear? If the tinnitus is bilateral but asymmetrical, is a history of hearing change evident in the ear with the worse tinnitus?
- What are the possibilities that the plaintiff has been encouraged by coworkers, family, or friends or has been coached by an attorney? (Many workers who work in noisy surroundings and have suffered noise damage first complain of the tinnitus when retirement is imminent—wanting to augment their retirement income.)

An attempt to match affected patients' perceived pitch of the tinnitus with a specific hearing frequency may be helpful. Noise-induced hearing loss damage characteristically occurs maximally around 4 kHz. Often, patients with tinnitus of this cause are able to match their tinnitus to a frequency of 3 kHz or above [9].

Regulation

The US government is involved in the prevention of hearing loss and, therefore, any possible associated tinnitus. The Occupational Safety and Health Administration (OSHA) passed the Occupational Safety and Health Act in 1970 "to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources." OSHA sets safety standards and enforces them by inspections and fines (Table 1).

Attorneys may argue that a one-time measurement

Table 1. Occupational Safety and Health Administration Noise Exposure Limits

Sound Level DBA	Permitted Exposure (hr/day)
Slow Response	
90	8
92	6
95	4
97	3
100	2
102	1.5
105	1
110	0.5
115	0.25

of work noise level did not exceed OSHA-recommended upper levels of safety. Therefore, the defendant is not liable for any of the hearing loss and tinnitus. What must be borne in mind is that work noise levels may vary greatly from time to time and that the plaintiff may not, for whatever reason, use the provided ear protectors all the time and, even when using them, may not use them effectively.

Compensation

Individuals may receive financial compensation under a variety of systems. Statutory compensation is dispensed under the provisions of two programs. The federal Social Security Act promulgates specific rules for determining disability generally and for such specific disabilities as blindness, renal failure, and the like. However, hearing loss and tinnitus are not addressed under the Act.

In the states, workers' compensation is a no-fault system that provides a rapid, fixed, and automatic payment for medical and rehabilitation expenses, and up to two-thirds of wage replacement, for a work-related injury. The insured person relinquishes the right to sue. With a reasonable degree of medical and scientific certainty, some act or phase of the employment must be established as a causative factor.

In 1985, Fox [10] polled the states to determine whether an award for tinnitus was made. In 1992, the ad hoc committee on workers' compensation of the American Speech-Language-Hearing Association [11] published the result of "A Survey of States Workers' Compensation Practices for Occupational Hearing Loss." The committee questioned whether the presence or absence of tinnitus was a factor in determining a compensation reward (Table 2). The inference from the statistics in Table 2 is that, when they have to think about it, state legislatures increasingly tend to deny workers' compensation awards for tinnitus.

Table 2. Survey of States' Workers' Compensation Practices for Occupational Hearing Loss: Tinnitus as a Factor in Determining Compensation Reward

Tinnitus Considered in Reward Determination	1985	1992
Yes	14	13
No	15	26
Possibly	12	2
No response	8	9

Tort—Civil Wrongs

Financial compensation may be made to a plaintiff for pain, suffering, inconvenience, and loss of amenity and punitive damages. In this context, the last item refers to disability, loss of income, social restrictions, loss of consortium, quality of life, and the like. An injured worker may prefer to sue rather than to receive automatic compensation under workers' compensation guidelines. A sympathetic jury may grant a larger award.

Under tort requirements, it must be established that the presence of a proximate cause between the act or omission of the defendant and the damage that the plaintiff has suffered. A proximate cause is one that, in natural or probable sequence, produced the injury.

A civil suit may be filed because of alleged *negligence* (failure to provide against reasonable foreseeable hazards) or *trespass* (any intentional interference with an individual without lawful justification) or both. It may be by *assault* (the threat or attempt to use force) or by *battery* (the actual application of force) or by both.

In considering the size of any financial compensation, the courts are concerned with treatment options, their likelihood of success, possible morbidity, and the financial costs likely to be incurred in each eventuality.

Contracts

Contracts between management and trade unions may include sections dealing with compensation for work-related hearing loss and tinnitus. Usually, these documents are not in the public domain.

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FURTHER READING

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