

TINNITUS RESEARCH

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Demand for research in tinnitus tends to be directed toward cure rather than toward efforts to understand the nature of the problem. In a condition that suffers the complex interplay of sensory, central, and psychologic factors and where little is known, this seems the wrong way around. Therefore, the prospects of success become more a question of chance, and of trial and error, than of planned research.

The prevalence of tinnitus as a symptom, consisting of the perception of auditory sensations not resulting from external sources, has been variably estimated from 2.4% of the population¹ to 0.5%.² Either way, it is a large number, and considerable pressure is being exerted to encourage advances in the field. Over the past 10 years, various approaches have been investigated, tantalizing information has been obtained, and yet, from the point of view of the sufferer, no advance whatsoever has been made. Whereas, in the past, a high degree of fatalistic acceptance was the rule, this is not the case now; the public assumes the imminence of progress. In many ways this assumption is helpful, particularly when funds have to be raised, but it does not mean that a watchful eye has to be kept on the distribution and use of these resources. The path tinnitus research has followed can, broadly speaking, be grouped into different approaches, as discussed in the following paragraphs.

MEETINGS

Most work on tinnitus can be traced to the first International in New York City in 1979. Before then, a small amount of investigation was scattered among ENT and psychology departments and journals—a very poor relation indeed. What happened at that particular meeting was that people who would never have met otherwise were brought together—biochemists, electrophysiologists, surgeons and so forth. The contacts so established have seen so fruitful that it could be used as a model for other specialities. In other words, cross-fertilization is so powerful that other sciences should be invited to look at tinnitus.

TRIALS OF TREATMENT

There is nothing inherently suspicious about trial of treatment, and indeed, to both patient and clinician, these are attractive because they at least give the impression that something is being done, especially something new.

Probably, the use of markers has been the most successful. Much of the recent work concentrates on details of masking therapy, especially in terms of predicting prognosis to therapy, depending on patient characteristics and responses to simple tests. Although this contributes to our knowledge, the fundamental question of whether masking really works has not been addressed in detail since the late 1970s and the early 1980s.

Researchers on cochlear implants have found that patients' tinnitus could be suppressed by electrical stimulation. The use of electrical stimuli in patients who have little or no hearing loss, exposes such patients to uncertain risks with little evidence of success, however.

Pharmacologic intervention has always had a natural place in the trial of treatment. Local anesthetics, such as lignocaine, have had an important role in providing temporary relief, and trials of oral analogues, especially tocainide, followed until they were abandoned. The same procedure applied to anticonvulsants. Centrally-acting drugs have been shown to have a place, particularly in dealing with the affective reaction of patients with tinnitus. More recently, nimodipine, an L-calcium channel antagonist, was claimed to have impressive results in trial of treatment,³ was subjected to tests,⁴ only again to be found wanting.

Altogether, a review of trial of treatment reports produced little more than a series of flawed and inadequate studies. Sadly, the best-conducted trials often seem to be those that deny the value of different treatments.

EXPERIMENTAL STUDIES

Only in this field does good scientific work seem to be developing. Studies of the two types of cochlear hair cells, their afferent fibers, and their specific efferent control originating in the superior olivary complex are well-advanced. Particularly, the neurochemistry reviewed by Pujol⁵ may open the way to a new pharmacologic approach.

IMAGING

This is still in its infancy, but some of the newer positron emission tomography (PET) techniques may have a place in understanding better the nature of tinnitus, particularly when labeling of the transmitters is possible.

CONCLUSION

Trial of treatments need not be described, but when limited resources are available, it seems a pity to spend relatively large sums

supporting good studies to refute less acceptable ones. If a treatment works, it works. It is obvious, and playing around with statistics a little above or below the placebo level gets us nowhere. If one day a drug will abolish tinnitus, as infusion of willow bark now produced as aspirin controls pain, we will all know about it.

One would like to urge research in more original directions. Much of this research should be on the basic physiology and neurochemistry of the auditory system, and if it could be related to better imaging techniques, so much the better.

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