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NOISE INDUCED TINNITUS

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Abstract

In contrast to the work done in Noise Induced Hearing Loss there is a dearth of information relating to Noise Induced Tinnitus. Indeed due to the difficulty in assessing the origins of Tinnitus this lack of information is justifiable. This paper will set out to provide a review of Tinnitus in general. It will highlight the renewed contemporary interest in the treatment and the possible litigation which may follow if more accurate assessment of the disability is forthcoming.

Summary

This paper is aimed at alerting those involved in teaching of the hazards of Industrial Noise, to the possibility of an additional important, though largely ignored further hazard being present, that of noise induced tinnitus. Compared with the amount of information relating to noise induced hearing loss, there is, in the authors view, difficulty in obtaining current reliable information related to noise induced tinnitus, in particular as to its measurement. Tinnitus, a condition of which many are totally unaware, will be covered in general terms, followed by a more particularised description of the difficulties encountered in its attempted assessment, as to the degree of distress and disablement.

What is Tinnitus

Tinnitus, is the medical term used to describe what are sometimes referred to as 'head noises', which may in fact be experienced in either or both ears or somewhere in the head.

Unfortunately there are many other kinds of head noises which are often found to be very difficult to describe. They may be a combination of several different kinds of noises occurring together, and varying in composition with the mood of the individual, or they may be different for each ear, occurring together or separately. They may pulsate in time with the heart beat, a condition which many find to be very distressing, or they may take the form of church bells ringing, choirs singing, machinery running, gears grinding, brakes screeching, or even chalk squeaking on a blackboard. One woman described the noise as "like power cables zinging", though she attempted to clarify this by saying that it was like a steady sound with a "ping at the end". The sounds may be heard so loudly that they are always present, and cause very great distress day and night. (1)

Who gets Tinnitus

Incidence of short bursts of tinnitus is common in many people with normal

hearing, the sound usually occurring as a high pitched singing, only noticeable for a few seconds before it disappears, not to reappear again perhaps for several weeks or months (2). Most people pay no attention to these occasional noises, and it is not until they become loud and/or persistent that they may become disturbing. It may come as a surprise to learn that when normally hearing young adults were placed in soundproof conditions, they nearly all heard something. This gives cause to wonder whether tinnitus is in fact present all the time in everybody at a level so close to and even below auditory threshold that it is not noticed until some trauma occurs which elevates it slightly above threshold.

What are its Origins

This is probably the most difficult question to answer, as in very many cases the tinnitus appears quite suddenly, and without any warning. Thus it is an extremely difficult task to apportion cause with any degree of certainty. Some individuals can pinpoint the onset of tinnitus with great accuracy as to time i.e. one patient said "it started at 4 p.m. precisely October 10th 1975" but was unable to give any apparent reason for its appearance. There are a number of factors which occur so close to the onset of tinnitus, as to give rise to the belief that they in fact caused it to appear. These are:

1. intake of drugs
2. head injury
3. acoustic trauma (3)
4. exposure to noise (industrial)
5. exposure to noise
6. disease
7. physical or emotional trauma including surgery

It is believed that the fault lies in the nerve mechanism of the ear; the function of which is exceedingly complex. In simple terms it consists of two parts:

(i) The Cochlea which changes acts as a transducer

(ii) The nerve pathway from the Cochlea to the brain up which the electric impulses travel being ultimately interpreted as sound.

Why is it so Distressing

Normally we take bodily symptoms to be an indication of some fault, and we then take steps to remove the symptoms by remedying the trouble which is causing them. In the case of tinnitus, its sudden and dramatic onset, added to the lack of knowledge as to causation and cure induces a sense of fear in the individual. This fear is increased as professional opinion is sought which can offer little or no help. Many people then become fixated with this sound from which there seems to be no escape. Additionally these sounds can alter in character and loudness without warning, indeed listening to them produces stress and tension which can in turn exacerbate the tinnitus.

Remedies

There have been many and varied attempts to cure tinnitus over the years.

Almost all the drugs one can think of have been used but generally they have all failed, though there are occasional positive reports, without scientific proof. A suggestion that the use of placebos may be as effective as any other type of treatment is indicative of the current position regarding the search for a cure.

What will help to bring Relief from Tinnitus

Basically the best means of relief for tinnitus is an acquired ability to ignore it. This is often very difficult to accomplish in face of the persistent noise, however this still remains the best advice.
Relief can sometimes be obtained in certain cases using masking techniques. There there is minimal hearing loss, a masking sound is introduced into the ear at a level above, but close to threshold. This has the effect of either cancelling out the tinnitus, or covering it with a more acceptable sound which can itself be ignored more easily than the tinnitus. Work in the U.S.A. and here in England on the feasibility of masking techniques tends to show they are effective only in certain cases. (Vernon-Hazel)
For those who have a hearing loss, a hearing aid or hearing aids may well offer relief from tinnitus due either to the masking effect of ambient noises, or to the restoration of externally produced sounds to a level which adequately diverts the attention.

Compensation for Noise Induced Tinnitus

Noise induced tinnitus is excluded from the current Government Insurance scheme for noise induced hearing loss, and in "Occupational Deafness", in fact it is stated that "tinnitus is not a common feature of noise induced deafness, and when it does occur, the measure of disability is difficult to assess". In spite of this exclusion, at least one case is known where noise induced tinnitus resulted from an accident, which counted as an industrial injury and was compensated as such under the Social Security Act (1975). In common law where an employee sues his employer for noise induced hearing loss and/or tinnitus, in which he also has to prove the employer to have been negligent, it is generally assumed that a small amount of tinnitus goes hand in hand with noise induced hearing loss, and can be compensated as part of that hearing loss. In some cases the tinnitus is greater than this small proportion, as in McCafferty v Metropolitan Police, in which most of the actual damages were for noise induced tinnitus. There is absolutely nothing to prevent cases of this sort being brought, and usually they are settled out of court. It is understood that very substantial damages were paid out of court to one individual whose noise induced tinnitus had driven him literally half mad, as a result of which he had been in and out of several mental institutions and had additionally attempted suicide on more than one occasion.

Conclusions

Tinnitus is a widely occurring complaint which can be very distressing in some cases. There are many apparent reasons for its appearance, which is often quite sudden, one of which is exposure to loud noise. This is widely accepted in spite of there being no objective methods for determining cause with any

accuracy. In the same way there is no objective test to determine the degree to which an individual is disabled or distressed by tinnitus. In fact there is no objective test to indicate its presence at all. In addition there is no cure for tinnitus and methods which produce some relief are far from satisfactory in many cases. Whilst there is world wide contemporary interest in research into tinnitus measurement, and possible relief, it would seem that we are still some way from being in a position to control the problem. It would appear reasonable to attempt to prevent the onset of noise induced tinnitus by any means, firstly by knowing what hazards can produce or induce it, and secondly by protecting persons from those hazards. This is of particular significance not only to those employers who have hearing conservation programmes in operation, but much more so to those who do not. It is hoped that the awareness of the fact that noise can produce the problem of tinnitus in addition to that of noise induced hearing loss will encourage employers to look more closely at their methods of protecting employees from noise at work.

References

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