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Tinnitus: A pain syndrome in search for good therapy

Tinnitus is defined as a phantom auditory perception, namely perception of sound without corresponding vibratory, mechanical activity in the cochlea. It is now evident that the pathology that causes most forms of tinnitus is in the central nervous system where some abnormal neural activity is generated and interpreted in a similar way as activity generated when sound reaches the ear. Hearing loss is believed to trigger the perception of tinnitus in the central auditory system. However, there is no specific hearing loss associated with the occurrence of tinnitus. Most forms of bilateral tinnitus are caused by abnormal neural activity in the central nervous system without damage of the ear. The concept of somatic tinnitus is derived from observations that tinnitus can be evoked or modified by somatic manoeuvres, and that tinnitus can develop acutely after somatic insults to the face, head or neck. Extensive morphological and physiological evidence suggests that somatosensory-auditory interactions in the nucleus cochlearis play a significant role in somatic tinnitus. The dorsal root ganglion of the spinal nerve at the cervical level and the trigeminal ganglion contain the primary somatosensory neurons that project to the nucleus cochlearis. Although neural plasticity is involved in the pathogenesis of tinnitus, there is also a group of patients with tinnitus who can be of vascular origin. Tinnitus patients with a hearing loss greater than 22 dB at 250 Hz were found to be good candidates for a reduction of tinnitus with sympathetic blockade. Sympathetic fibres innervating the cochlea play a role in control of cochlear blood flow with direct sympathetic-induced vasoconstriction. Blockade of the sympathetic fibres to the cochlea can lead to increased cochlear blood flow; this has been recommended as therapy for Meniere's disease, inner ear deafness, and tinnitus.

Biography

Henk M Koning is an Anesthesiologist who worked for more than 30 years in multidisciplinary pain relief. He has several national and international publications concerning anesthesiology, intensive care, trauma care and pain. In pain, his expertise is: low back pain, cervical pain, trigeminal neuralgia, painful feet, and tinnitus. He works in the Pain Clinic De Bilt, De Bilt, The Netherlands.

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