

Tinnitus control by dopamine agonist pramipexole in presbycusis patients monitored by PET scanning. A randomized, placebo controlled, double-blind study.

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The influence of dopaminergic agonist pramipexole is intended to examine upon presbycusis patients' tinnitus. Dopaminergic neurotransmission is known in the lateral olivocochlear efferent synapses on the afferent cochlear nerve endings and also in the auditory pathway related brain areas reported to be involved in the central processing of tinnitus, e.g. limbic system, prefrontal area. Aging is reported to reduce the density of the dopaminergic receptors in the brain. Consequently, dopaminergic agonists should be beneficial in triggering the residual inhibitory dopaminergic network as to suppress tinnitus related disadvantageous brain activity. Peripheral (efferent-afferent synapses) attack of dopamine agonist may prevent excitotoxic degeneration of the inner hair cell synaptizing afferent cochlear nerve endings due to excessive glutamate release or reactive oxygen and nitric oxide species.

The number of patients is 30. In a randomized, placebo-controlled, double-blind study 15-15 patients receive active and placebo medication. The patients undergo before the treatment, right after the treatment, 1 month and 3 month after the treatment several subjective and objective tests. Subjective tests are pure tone audiometry and tinnitometry, objective test is electrocochleography (ECoG). ECoG records the afferent nerve activity and its response to aging and dopaminergic agonist treatment as a measure of the peripheral influence of the treatment. The patients will respond a tinnitus questionnaire describing the characteristics and intensity of the tinnitus before and after dopaminergic agonist treatment. This will be correlated with the objective measures and the audiometric results.

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