

Limited Link of Common Blood Parameters with Tinnitus.

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Abstract:

Background: Tinnitus severity is generally assessed by psychometric and audiological instruments. However, no objective measure exists to evaluate the subjective discomfort and suffering caused by this hearing phenomenon. The objective of this work was to determine the possible blood parameters for diagnostics and therapy.

Methods: We measured tinnitus distress by using the Tinnitus Questionnaire (TQ) and collected tinnitus-related audiological measures, namely the hearing threshold (HT), tinnitus loudness (TL), and sensation level (SL, i.e., the tinnitus loudness/hearing threshold at a tinnitus frequency). Blood samples were taken from 200 outpatients of the Tinnitus Centre of the Charité, and 46 routine blood count parameters were examined. The possible interactions were determined by (robust) linear models.

Results: Tinnitus distress and audiological measurements were largely uncorrelated but could partly be predicted by selected blood parameters. First, the erythrocyte counts predicted tinnitus distress to a small extent. Second, the levels of vitamin D3 explained about 6% of tinnitus loudness and, age-dependently, the hearing threshold variability. Last, the levels of uric acid explained about 5% of the sensation level variability.

Conclusions: Tinnitus is a multidimensional phenomenon. The marginal influences of blood markers suggest the possible roles of inflammation and oxidative stress produced by psychological or somatic burdens. Clinically, a vitamin D substitution (in older patients) might have a hearing-protective effect.

Article

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