Acoustic and capacity analysis of voice academic teachers with diagnosed hyperfunctional dysphonia by using DiagnoScope Specialist software

Analiza akustyczna i wydolności głosu nauczycieli akademickich z rozpoznaną hyperfunctionalną dysfonią za pomocą oprogramowania DiagnoScope Specialist

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ABSTRACT
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Objectives: The aim of the study was to assess the acoustic and capacity analyses of voice in academic teachers with hyperfunctional dysphonia using DiagnoScope Specialist software.

Material and methods: The study covered 46 female academic teachers aged 34–48 years. The women were diagnosed with hyperfunctional dysphonia (with absence of organic pathologies). Having obtained the informed consent, a primary medical history was taken, videolaryngoscopic and stroboscopic examinations were performed and diagnostic voice acoustic and capacity analyses were carried out using DiagnoScope Specialist software.

Results: The acoustic analysis carried out of academic teachers with diagnosed hyperfunctional dysphonia showed enhancement in the following parameters: fundamental frequency (FO) by 1.2%; relative average perturbation (Jitter by 100.0% and RAP by 81.8%); relative amplitude perturbation quotient (APQ) by 2.9%; non-harmonic to harmonic ratio (U2H) by 16.0%; and noise to harmonic ratio (NHR) by 13.4%. A decrease of 2.5% from normal values was noted in relative amplitude perturbation (Shimmer). Formant frequencies also showed reduction (F1 by 10.7%, F2 by 5.1%, F3 by 2.2%, and F4 by 3.5%). The harmonic perturbation quotient (HPQ) was 0.8% lower and the residual harmonic perturbation quotient (RHPQ) 16.8% lower, with the residual to harmonic (R2H) decreasing by 35.1 per cent; the sub-harmonic to harmonic (S2H) by 2.4%; and the Yanagihara coefficient by 20.2%.

Conclusions: The capacity analysis with the DiagnoScope Specialist software showed figures significantly lower than normal values of the following parameters: phonation time, true phonation time, phonation break coefficients, vocal capacity coefficient and mean vocal capacity.

Key words: Voice acoustic, Capacity analyses, Hyperfunctional dysphonia
Słowa kluczowe: akustyczna głosu, analiza potencjału, hyperfunctionalna dysfonia