

Evidence for cortical dysfunction in spasmodic dysphonia: regional cerebral blood flow and quantitative electrophysiology.

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Abstract

Cortical function was evaluated in 26 subjects with spasmodic dysphonia. Quantitative topographic electrophysiologic mapping (QTE) was employed to provide quantitative analyses of EEG spectra and auditory and visual long-latency evoked potentials. Single-photon emission computed tomography (SPECT) of the cerebral transit of Xenon-133 was used to evaluate regional cerebral blood flow. Left hemispheric abnormalities in cortical function were found by both techniques in 10 subjects and by at least one technique in 18 subjects. Right hemispheric abnormalities were observed by both techniques in 8 subjects and by at least one technique in 18 subjects. Most patients with cortical dysfunction in one hemisphere had cortical dysfunction in the other, while only 4 subjects had unilateral lesions as found by one of the two techniques. Eight subjects were normal by all measurements. Underlying structural abnormalities were detected by magnetic resonance imaging in 5/24 subjects. However, functional abnormalities (SPECT or QTE) were not observed at sites of structural abnormalities. SPECT and QTE were significantly related in identification of left hemispheric dysfunction ($p = .037$) with a trend in the right hemisphere ($p = .070$), and a significant congruence of SPECT and QTE findings occurred in the left anterior cortical quadrant ($p = .011$). These findings indicate that dysfunction of cortical perfusion and/or cortical electrophysiology is associated with spasmodic dysphonia in the majority of subjects studied.