Title: Phonetic labeling of dysphonia: a new perspective in perceptual voice analysis

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Abstract: Despite of an intensive research focused on perceptual analysis, results remain uncertain and variable. Our goal was to reconsider perceptual methodology by proposing new approach based a phonetic method. Each phoneme was labeled according to five criteria: roughness, creakiness, breathiness, unvoiced and aspirated, scored as present or absent. The percentage of occurrence of each criteria was calculated considering the total number of phonemes produced by the subject. This allowed us to establish a qualitative profile of each patient’s dysphonia. 80 subjects (20 normal and 60 dysphonic subjects) were recorded for the analysis of a ten syllable phrase with an average of 22 phonemes. The voices were also submitted to the classical GRBAS perceptive analysis method (scale from 0 to 3) by a jury of trained professionals. The labelling of the phonemes was performed by a trained speech therapist familiar with phonetic techniques. The results showed that our methodology was strongly correlated to the GRBAS scale and allowed a better characterization of dysphonia. This new method gives an interesting perspective in dysphonia analysis since it appears to be at time more strict and reliable, and provides a detailed map of the dysphonic events during speech.