

IMPACT OF LARYNGOPHARYNGEAL REFLUX DISEASE ON SUBJECTIVE AND OBJECTIVE VOICE QUALITY ASSESSMENTS: A MULTI-CENTER PROSPECTIVE STUDY OF 80 PATIENTS.

J.R. LECHIEN^{1,2,3}, B. HARMEGNIES², K. HUET², M. KHALIFE⁴, A.F. FOURNEAU⁴, V. DELVAUX²,
M. PICCALUGA², C. FINCK^{2,5#}, S. SAUSSEZ^{1,3,4#}

Affiliations:

1. Laboratory of Anatomy and Cell Biology, Faculty of Medicine, UMONS Research Institute for Health Sciences and Technology, University of Mons (UMons), Mons, Belgium. Email: Jerome.Lechien@umons.ac.be; Sven.Saussez@umons.ac.be
2. Laboratory of Phonetics, Faculty of Psychology, Research Institute for Language sciences and Technology, University of Mons (UMons), Mons, Belgium. Email: Bernard.Harmegnies@umons.ac.be; Kathy.Huet@umons.ac.be; Veronique.Delvaux@umons.ac.be; Myriam.piccaluga@umons.ac.be
3. Department of Otorhinolaryngology and Head and Neck Surgery, CHU Saint-Pierre, ULB, Brussels, Belgium.
4. Department of Otorhinolaryngology and Head and Neck Surgery, RHMS Baudour, EpiCURA Hospital, Baudour, Belgium. Email: mohamad.Khalife@Epicura.be; anne-francoise.fourneau@epicura.be
5. Department of Otorhinolaryngology and Head and Neck Surgery, CHU de Liege, Liege, Belgium. Email: Camillefinck@icloud.com

Contributed equally to this work and should be regarded as *joint last authors*

Abstract

Objective: To investigate the usefulness of voice quality assessment as a treatment outcome in responder and non-responder patients with laryngopharyngeal reflux (LPR)-related symptoms.

Design: Prospective uncontrolled multi-center study.

Setting: University teaching hospital.

Material and methods: Eighty clinically diagnosed LPR patients with reflux finding score (RFS)>7 and reflux symptom index (RSI)>13 were treated with pantoprazole and diet recommendations for three months. RSI; RFS; Voice Handicap Index (VHI); blinded Grade, Roughness, Breathiness, Asthenia, Strain and Instability (GRBASI); aerodynamic and acoustic measurements were assessed at baseline and after treatment in all patients (n=80), including responder (n=59) and non-responder patients (n=21), following a complete response to the empirical treatment. Studies of correlation between the adherence to the diet regimen and the evolution of both signs and symptoms and between videolaryngostroboscopic signs, blinded GRBASI and acoustic measurements were conducted.

Results: Significant improvements in RSI, RFS, VHI, perceptual voice quality (dysphonia and roughness), aerodynamic measurements and some fundamental frequency and intensity perturbation cues (Shimmer, percent Shimmer, Phonatory F0 Range and Standard deviation of F0) were identified after treatment in the entire cohort. The improvement of most of these

outcomes was significant in responders but not in non-responders. The correlation analysis revealed significant relationships between the adherence to diet recommendations and the improvement of symptoms and substantial correlations between breathiness and fundamental frequency perturbation parameters.

Conclusion: Voice quality assessments can be used as indicators of the treatment effectiveness in patients with LPR-related symptoms. Voice quality improvement seems to be consistently associated with clinical improvement.