A prospective case-control clinical study of consecutive patients with laryngeal complaints compared with normal persons, and patients before and after treatment.

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Introduction

▪There is a lack of evidence considering the diagnosis as well as treatment of laryngo-pharyngeal reflux
▪A recent Cochrane review (Hopkins C, Yousaf U, Pedersen M; Acid reflux treatment for hoarseness; The Cochrane Library, 2006, Issue 2) did not find any eligable studies
▪The statistical agreement between experts is .59 considering videostoboscopies
▪New objective measures are necessary in order to optimize diagnosis and treatment

Materials and methods

▪All patients complaining of laryngeal disorder were included during a period of 4 months
▪Stored digitized videostroboscopies and analysis of text and intonation of an /ah/ for 4 seconds were made for all patients
▪Analyses of videostroboscopies were based on on the shape of the arytenoids and especially oedema (degree 1-5)
▪Voice analysis included jitter%, shimmer%. Standard deviations (SD) were calculated in relation to the intonated fundamental frequency during intonation of the sustained /ah/. A closed quotient% (Qx%) of the glottogram was made on all
▪<u>The primary statistical analyses</u> were related to how the evidence of the videostroboscopic pictures was better by the supplementary on line voice analysis.
▪<u>The secondary statistical analyses</u> were related to how the evidence of the videostroboscopic pictures with on line voice analysis could show differences between pathological and normal voices. Divisions of the arytenoids and vocal cords degree 1 versus the degree 2-5 were made.
▪<u>The third aspect</u> was the analysis of how treatment of laryngeal disorders that involved the arytenoids and the vocal cords affected the combined videostroboscopic picture and voice analysis.

Results

▪373 consecutive digitized videostroboscopies were analysed
▪A significant difference was found between groups for the closure time in the glottogram (Qx%) for sustained /ah/ p<0.05 (Wilcoxon)
▪A differentiation made between normal videostroboscopies A (grade 1) and abnormal ones (grade 2-5) showed a significant difference for the closure, Qx% of the sustained tone /ah/ p<0,0001 (Welch ANOVA)
▪ 77 patients were analysed before and after medical treatment during the same period. No significant change was found for the jitter % and shimmer% with paired t-test. For Qx% there was a better closure: 4,6% (43,8 to 48,4%) with a significance of p=0,0008 (paired t-test)

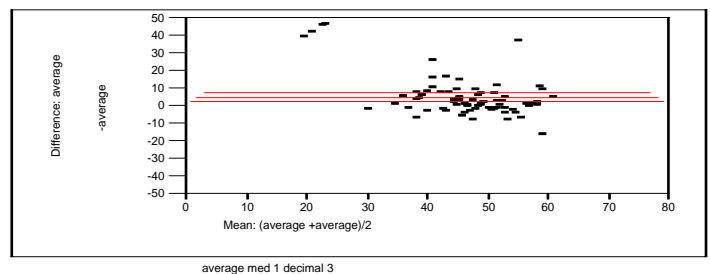## Graph 1: Correlation of standard text vs. tone /ah/ Qx%
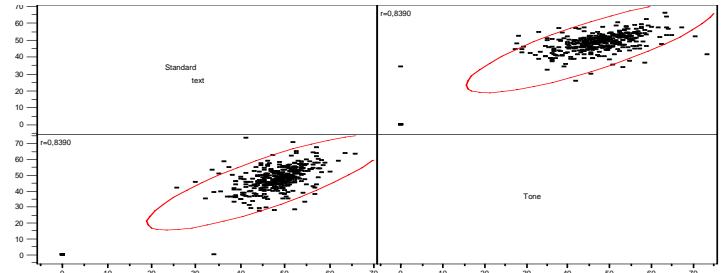
Graph 2: Sustained tone /ah/ compared between normals (arytenoid shape grade 1) and abnormals (arythenoid shape grade 2-5).
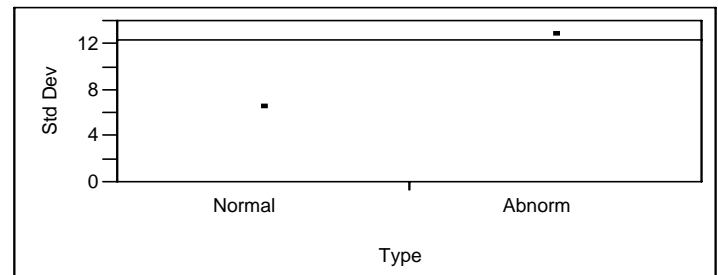
Graph 3: 77 patients with examinations before and after treatment, intonation of a sustained tone /ah/.

average med 1 decimal 3

Discussion

▪A combined evaluation of the videostroboscopies and the voice analysis gives a better evaluation of the voice even if the shapes do not change much
▪The relationship between normality and pathology could be further and much more effectively illucidated if the principles of evidence including quantitative measures necessary in pathology were better understood