

**Abstract for 8<sup>th</sup> World Congress on Brain Injury:**

***High speed films as a new tool for diagnosis of neurological disorders, especially when they include voice function***

***- a prospective cohort study of 55 patients with localized and universal dystonia***

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**INTRODUCTION / OBJECTIVES**

There is nowadays a better understanding of universal and local voice related dystonia. High speed films of the vocal cords have shown to be a valuable tool of treatment effect.

**MATERIAL & METHODS**

55 patients with localised and universal dystonia were prospectively referred to the clinic in a period of 8 months mostly, from our co-workers in physiotherapy. The patients were complaining of all round voice problems. The physiotherapists wanted a systematically, routinely given overall status of the patients immune systems and eventual treatment of upper airway mucosal problems.

The patients were in dystonia training groups already established. Surprisingly, the effect of mucosal treatment of the larynx was in several cases that the dystonia was reduced or even disappeared. Therefore, visual scores from 1-100 of the treatment effect of the immune system were graded by the patients after end of treatment. A control group of normal individuals was set up.

The routinely made high speed films included on average 2 seconds of film including 8000 frames, which was analysed in the following modes: 1) kymography, 2) electroglottograms (EGG), 3) acoustical analysis and specific presentation of the right and left vocal cords' movement in the front, middle and rear area of the open phases. A calculation was made of the open quotient by the software in the front, middle and rear part of the vocal cords (Wolf Inc). Statistics were made of differences before and after the given treatment (using the SAS statistics).

**RESULTS**

The dystonia related changes of voice were seen on the kymography and the EGG, especially when compared with the acoustical curves. We evaluated the "cycle look" of the variance of frequency, which was mostly from 5-20 cycles. In those cases where there was a treatment effect, the "cycle look" disappeared. The open quotients between the vocals cords normalized. Using Nominal Logistic Fit for improvement, a chi square calculation was significant for the treatment effect of the upper airway mucosa, measured with calculation of the opening phases between the vocal cords.

**CONCLUSION**

With the use of high speed films, many voice related neurological disorders can be more accurately diagnosed. High speed films should therefore be used much more in the field of neurology, at least as a

standard of diagnosis of neurological voice disorders. High speed films can also prove to be a useful tool in documenting the effect of treatment.

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