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Comprehensive rehabilitation training after iatrogenic facial nerve palsy

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Background

Iatrogenic facial nerve injury may occur after surgical procedures and leads to facial disfigurement and functional limitations. After a facial nerve injury, clinical prediction rules define three phases: complete denervation, first manifestation of reinnervation, functional recovery.

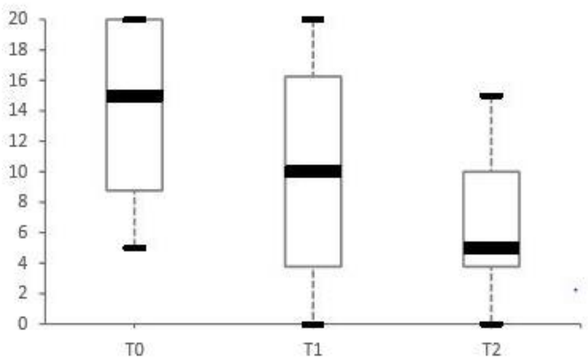
This study sets out **to determine whether a comprehensive rehabilitation training, adapted to the stages of recovery after facial iatrogenic nerve injurie, influences the functional outcome of patients**.
This training has the aim to facilitate the return of intended facial movement patterns and to eliminate unwanted patterns of facial movement (*synkinesias*).

Materials and methods

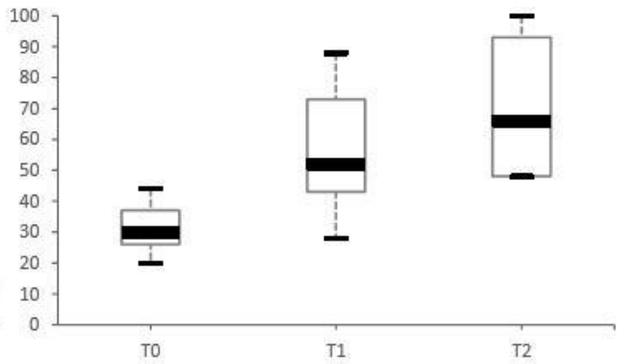
The **Sunnybrook Facial Grading System** (SFGS)[1] was used to assess the severity of facial palsy. This scale provides a clinical **score** from **0** to **100** which combines a static and dynamic assessment of facial muscles with the degree of synkinesias.
The **Facial Disability Index** (FDI)[2] is a disease-specific, self-report instrument for the assessment of disabilities of patients with facial nerve disorders. It's divided in two subscales: the physical function and the social/well-being function. Each subscale provides a **score** from **0** to **100**.
Ten patients (19-67 years; 4 females) suffering **an iatrogenic nerve palsy** (i.e. after parotidectomy, acoustic neuroma surgery, vascular surgery) occurred 18-24 months before, underwent 20 physiotherapy sessions.
Each session (45 minutes long), was led by a physiotherapist.
Each patient was evaluated at the beginning, in the middle and at the end of the rehabilitation program.

Results

After the rehabilitation program most **symmetry of face at rest** (SFGS, *Friedman test*, p=0.0003) and **during voluntary movements** (SFGS, *Friedman test*, p=0.0001) was observed.



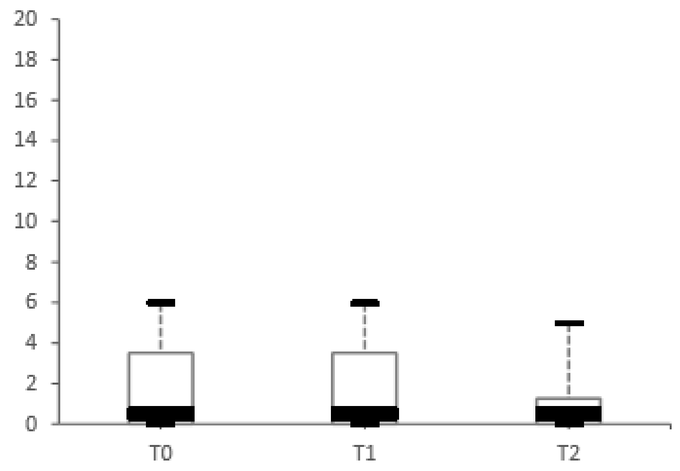
Tab. 1 - SFGS symmetry at rest.



Tab. 2 - SFGS symmetry during voluntary movements.

Fig. 1 - Symmetry at rest, pre and post rehabilitation program.

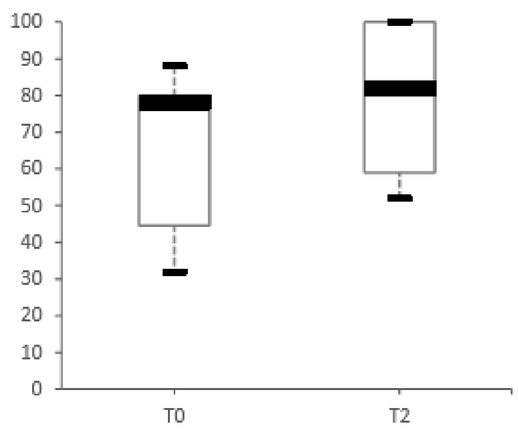
Fig. 2 - Symmetry during voluntary movements, pre and post rehabilitation program.



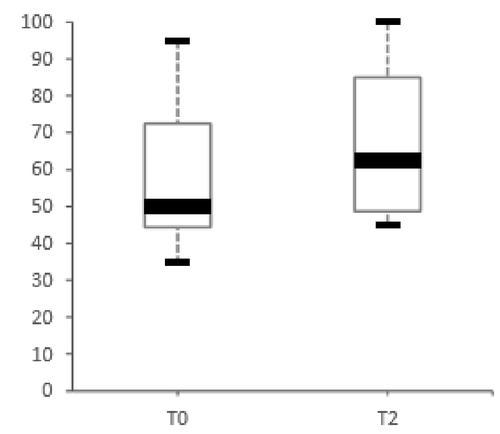
Presence and severity of **synkinesias** did not improve significantly (SFGS, *Friedman test*, p=0.5585).

Tab. 3 - SFGS synkinesias

After rehabilitation program patients feel an improvement of **social/well-being function** (FDI, *Wilcoxon test*, p=0.0006) but not an improvement of **physical function** (FDI, *Wilcoxon test*, p=0.058).



Tab.4 - FDI social function



Tab. 5 - FDI physical function

Discussion

Comprehensive rehabilitation training seems beneficial for people following iatrogenic facial nerve injury.

Fig. 3 - Comprehensive rehabilitation.

People regain facial symmetry at rest and during voluntary movement and feel a reduced degree of subjective distress. The synkinesias do not improve significantly, but the positive trend indicates that the training may have a prevention role in the developing of such phenomena.

Conclusion

Comprehensive training is a promising tool for the recovery of an iatrogenic facial nerve lesion.

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2. VanSwearingen JM et al. The Facial Disability Index: reliability and validity of a disability assessment instrument for disorders of the facial neuromuscular system. Physical therapy. 1996;76(12):1288-98.