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Introduction and Objectives

Facial nerve injury is a common complication of surgical intervention for posterior cranial fossa (PCF) and ponto-cerebellar angle (PCA) tumours and requires a multidisciplinary treatment approach. This study evaluated the effect of botulinum toxin type A injections into mimic muscles of the unaffected side during the acute phase of facial nerve injury after neurosurgery.

Methods

Patients with acute paresis of mimic muscles due to facial nerve injury during surgery in the PCF and PCA areas were included. Patients in group I (active treatment) received incobotulinumtoxinA (Xeomin) injections into the mimic muscles of the unaffected side 24-48 hours after facial nerve injury. Patients in group II (control group) received conventional rehabilitative treatment. Treatment efficacy was assessed using House-Brackmann and Sunnybrook Facial Grading Scales.

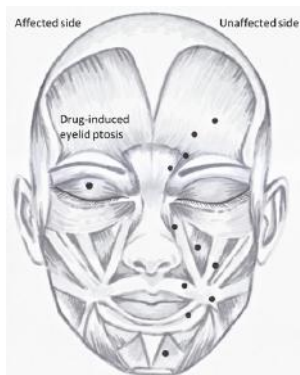


Figure 1. IncobotulinumtoxinA injection sites on the unaffected side and drug-induced eyelid ptosis on the affected side

Results

Of 86 patients evaluated, 57 (45.6% male) were included in group I and 29 (51.7% male) in group II. All patients had severe facial nerve dysfunction according to the House-Brackmann scale at baseline (mean [standard deviation] scores 3.18 [0.85] in group I and 3.24 [0.79] in group II).

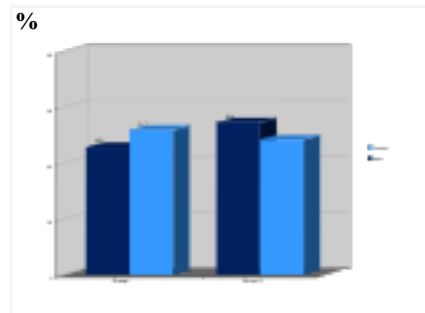


Figure 2. Patients included in research

Patients in group I experienced a significant improvement in facial nerve function 1 month after initiation of incobotulinumtoxinA treatment, while an improvement in group II was observed only after 3 months of rehabilitative treatment ($p < 0.05$) (fig.2). One year after surgery, synkinesis was observed in 32.7% of patients in group I and 68.2% in group II ($p < 0.05$).

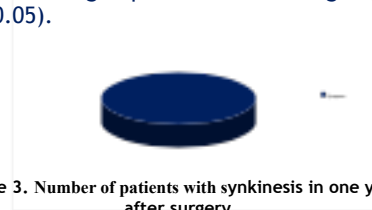


Figure 3. Number of patients with synkinesis in one year after surgery

Adverse events were observed in 6 (10.5%) patients in group I and regressed during 3-4 weeks with no need for special interventions: lip ptosis (3; 5.3%), negligible ptosis (3; 5.3%), difficulty speaking (4; 7.0%) and dry eye (4; 7.0%).

Conclusions

IncobotulinumtoxinA treatment in facial nerve injury was effective in the acute phase and long term. Appropriate dosing and education of patients to perform specific exercises to promote mimic muscle functional improvement should be an essential part of multimodal treatment.