Surgical Treatment of the Periocular Complex and Improvement of Quality of Life in Patients With Facial Paralysis

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Objective: A devastating sequela of facial paralysis is the inability to close the eye. The resulting loss of corneal protection can potentially lead to severe consequences. Eyelid weight placement, lower eyelid suspension, and brow ptosis correction are frequently performed to protect the eye. We sought to measure and report the change in quality of life (QOL) after surgical treatment of the periocular complex, using the validated Facial Clinimetric Evaluation (FaCE) QOL instrument.

Methods: From March 2009 to May 2010, 49 patients presenting to the Facial Nerve Center with paralytic lagophthalmos requiring intervention were treated with static periocular reanimation. Thirty-seven of the patients completed preoperative and postoperative FaCE surveys.

Results: Overall QOL, measured by the FaCE instrument, significantly improved following static periocular treatment. Mean FaCE scores increased from 44.1 to 52.7 (P < .001). Patients also reported a significant decrease in the amount of time their eye felt dry, irritated, or scratchy (P < .001). The amount of artificial tears and/or ointment also significantly decreased (P = .03). There were 2 cases of localized cellulitis with 1 eyelid weight extrusion.

Conclusions: We report the first series of postoperative QOL changes following static periocular treatment for paralytic lagophthalmos. Patients report a notable improvement in periocular comfort and overall QOL.

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A DEVASTATING SEQUELA OF facial paralysis is the inability to close the eye. The resulting loss of corneal protection can lead to exposure keratitis, corneal ulceration, and potentially permanent vision loss. Treatment strategies include lateral tarsorrhaphy, eyelid weight placement, and palpebral spring implantation. Many have reported the subjective improvement in various measurements of palpebral width, but to date, the change in quality of life (QOL) has not been investigated. The treatment of facial paralysis has traditionally been disorganized, disjointed, and void of well-developed algorithmic approaches. In recent years there has been a movement to develop QOL instruments with respect to specific health issues, including sleep disordered breathing, acute and chronic sinusitis, and vocal cord paralysis. Specific head and neck QOL measures are of increasing importance in clinical decision making. The Facial Clinimetric Evaluation (FaCE) scale was developed in an attempt to better quantify QOL issues in patients with facial paralysis. This patient-based system measures impairment and disability in facial paralysis and represents a valuable adjunct to the traditional, physician-graded scales for evaluating QOL issues in patients affected by facial paralysis. The survey contains 15 questions, to be answered on a 1 to 5 scale (Figure 1). The results are weighted, and the final score is given on a 0 to 100 scale, with higher scores correlating with a higher reported QOL in relation to the patients' facial paralysis.

We recently reported the first large series of patients treated with platinum eyelid weight placement for paralytic lagophthalmos. We concluded that based on the decreased severity of capsule formation and extrusion complications, the platinum weight should be considered as an alternative to traditional gold weights.

With the validation of the FaCE instrument, there has been some standardization in determining QOL with respect to facial paralysis. The objective of the current study was to apply the FaCE instrument in examining QOL in a subgroup of patients who underwent periocular manipulation; specifically, the placement of a thin profile platinum eyelid weight, with or without lower eyelid tightening and/or brow ptosis correction, to treat paralytic lagophthalmos.

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Thirty-seven patients with paralytic lagophthalmos from facial paralysis were included in the final analysis. The mean age was 47 years (range, 14-79 years). Causes of the facial paralysis were varied, but included infection and/or inflammation (10 patients), benign facial nerve tumors (5 patients), head and neck tumors (7 patients), acoustic neuroma (4), intracranial process (5), trauma (3), and iatrogenic (3). Ten patients underwent a lower eyelid tightening procedure in conjunction with lower eyelid weight placement. Eight patients underwent weight placement in conjunction with lower lid tightening and brow ptosis correction.

The mean preoperative FaCE score was 44.1, and the mean postoperative score was 52.7. This was statistically significant ($P < .001$) (Figure 2). Overall, 31 of 37 patients (84%) reported an improvement in overall QOL on their FaCE survey. Those patients’ scores improved from 43.4 to 54.9. One patient had the same score, and 5 patients reported lower QOL following platinum eyelid weight placement. Their mean score dropped from 54.3 to 43.7 with a mean drop of 10.6 points (range, 1.67-38.33 points). Of these 5 patients with decreasing scores, in 1 this was attributed to worsening effects of chemoradiation therapy to the head and neck at the time the repeated survey was given, 2 had cellulitic reactions with 1 extrusion of the eyelid weight, and 1 patient developed a reaction to the topical antibiotic.

On the FaCE survey, question 5 asks the patient to rate how much of the time their affected eye feels dry, irritated, or scratchy. The presurgery mean score on that question was 2.4, and the postoperative score was 3.4 ($P < .001$). Response options include 1, all of the time;...
2, most of the time; 3, some of the time; 4, a little of the time; 5, none of the time (Figure 3). This change in score correlates with an improvement from “most” of the time to only “some” of the time. Only 1 patient reported their eye feeling dry, irritated, or scratchy more of the time following weight placement.

Question 7 asks patients how often they use eye drops or ointment in the affected eye. The mean response went from 2.2 to 2.8 (P = .03), showing a statistically significant decrease in the amount of time that patients used drops or ointment in the affected eye. Question 8 asks how much of the time the affected eye is wet or has tears in it. The mean responses were 3.1 before surgery and 3.1 after surgery, showing no change in that measure of ocular comfort.

The mean follow-up time from procedure to postprocedure survey for all patients was 68 days (range, 8-375 days). In the 7 patients whose postprocedure surveys were completed after more than 90 days, the etiology of facial paralysis precluded any recovery. Excluding those patients gave a mean follow-up time for the remaining patients of only 23 days, thus controlling for any return of normal ocular function contributing to improved eye comfort.

Subgroup analysis of individuals who underwent multiple periocular maneuvers at the time of eyelid weight placement revealed slightly lower mean improvements in QOL (scores of 48.5-50.6 for those undergoing concomitant lower eyelid tightening, and 44.9 to 52.9 for those undergoing lower eyelid tightening and brow ptosis correction along with eyelid weight placement), although statistically significant subgroup differences were not found.

**COMMENT**

Historically, the objective measuring and reporting of outcomes in facial paralysis has been difficult. Specifically, the QOL benefits that certain interventions have for patients with facial paralysis have not been thoroughly evaluated. Recently, efforts have been made to develop QOL instruments with respect to specific health issues, such as sleep disordered breathing, acute and chronic sinusitis, and vocal cord paralysis, showing the growing importance of quantitatively evaluating QOL outcomes in our field.

Over the past 7 years we have seen and treated approximately 1200 patients with facial paralysis. In the Facial Nerve Center we have begun to evaluate zone-specific facial reanimation interventions with respect to QOL. For example, we use the Nasal Obstruction Symptom Evaluation (NOSE) survey to evaluate improvements in nasal obstruction following intervention, and the Synkinesis Assessment Questionnaire in our patients presenting with synkinesis. The FaCE instrument was developed in 2001 and has been used by other groups to report QOL improvements after facial interventions. The FaCE survey is a simple, easy-to-administer, patient-graded assessment tool that reliably evaluates the degree of disability in patients with facial paralysis. It can be quickly and easily administered in the clinical setting and is an excellent tool to evaluate patients’ perceived changes in their QOL following intervention. The survey is, by nature, a subjective assessment best used in conjunction with objective clinical evaluation in determining treatment results. Some believe that instruments designed to measure QOL effects of different therapies are at least equal and perhaps even more relevant than objective measurements alone.

One of the potentially devastating sequelae of facial paralysis is the inability to close the eye, which may lead to significant complications including exposure keratitis, corneal ulceration, and potential vision loss. While many reports address the surgical feasibility, technique, and usefulness of placing an eyelid weight, resuspending the lower eyelid, and correcting brow position, to our knowledge, to date there has not been any study designed to evaluate the change in a patients’ self-reported QOL following these interventions. Herein, we describe the use of a validated QOL questionnaire with respect to facial paralysis and demonstrate an improvement using that instrument in patients treated with static periocular maneuvers. Thirty-seven patients completed preoperative and postoperative FaCE surveys following surgical intervention for paralytic lagophthalmos. Although the sample size is small, to our knowledge this study represents the first attempt to quantify QOL changes in patients properly treated for paralytic lagophthalmos.

In this group we were able to demonstrate a statistically significant improvement in global QOL through a simple, office-based periocular intervention. Only 3 of the 15 questions on the FaCE questionnaire specifically address the eye. Evaluating these specific questions showed a statistically significant decrease in the amount of time the patient’s eye felt dry, irritated, or scratchy, and only 1 patient reported worsened eye symptoms following intervention. In addition, patients reported a decreased overall use of drops or ointment for artificially lubricating the eye. However, there was not a clinically significant change in the tearing in the affected eye. Although it is difficult to discern the precise relationship between statistically significant rises in QOL score and clinical significance, it is encouraging to note the rise in overall QOL scores in this population.

A total of 5 patients reported worsened global FaCE scores after static periocular treatment. Further evalu-
tion of this subgroup showed that 1 patient had clinically significantly decreased overall health as a result of the chemoradiation he was receiving for his advanced head and neck cancer, 2 of these patients experienced cellulitic reactions to the eyelid weight with 1 extrusion, 1 patient developed a localized antibiotic reaction, and 1 patient experienced worsening synkinesis and required changing to a lighter weight. It is possible that administering the QOL instrument after resolution of these local wound issues would have resulted in improvements in QOL in these 3 patients. Interestingly, in this group, even though the global score did decrease, only 1 patient reported worsened eye-specific scores pertaining to the eye feeling dry, irritated, or scratchy. Two patients had the same score, and 2 reported higher scores in this eye-specific measure.

While in the current study 12 of 49 patients (24%) were missing either the preoperative or postintervention survey, this response rate is commensurate with the response rates of other prospective studies. However, we acknowledge that this loss to follow-up may introduce a bias in the study. Thus, a future focus in this center will be to diminish the nonresponse rates.

Placement of a platinum eyelid weight requires approximately 20 minutes and can easily be performed under local anesthesia in an office setting. Additional static periocular procedures include a unilaterial brow-lift, as well as lower eyelid tightening, which can also be performed in the outpatient office setting under local anesthesia. Some of our patients underwent additional static periocular procedures in the same setting as eyelid weight placement. However, because subgroup analysis revealed that patients undergoing additional periocular manipulations along with eyelid weight placement did not report larger improvements in QOL than those undergoing eyelid weight placement only, we can be confident that eyelid weight placement is a major contributor to QOL improvements.

Herein, we describe the global QOL benefit experienced by patients with paralytic lagophthalmos following simple static periocular maneuvers. This simple intervention can give patients improvement not only in eye health but in overall QOL. In addition, those patients who do not report an improvement in global QOL tend to still report an improvement in eye-specific QOL measures.

In conclusion, the surgical treatment of the paralyzed periocular complex seems to improve both overall QOL, and the amount of time the affected eye is dry, irritated, or scratchy in patients with facial paralysis. In the overall treatment paradigm for patients with facial paralysis, treating the eye using this modality is simple, and not only improves corneal protection but also yields significant subjective benefit. Zone-specific facial QOL instruments are likely to play a role in dictating optimal treatment in cases of facial paralysis.

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Analysis and interpretation of data: Henstrom, Lindsay, Che- ney, and Hadlock.
Drafting of the manuscript: Henstrom and Hadlock.
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