



Trends in The Treatment of Facial Paralysis

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Introduction

Facial expression is a complex process involving both neuromotor and psychomotor pathways that allow for the communication of emotion through physical expression. Aside from nonverbal communication, the facial nerve coordinates muscles that control critical functions including eyelid closure, articulation of labial sounds, and oral competence. Facial paralysis (FP) is a devastating disorder with profound psychosocial impact, functional consequences, aesthetic disfigurement, and reduced quality of life. As such, the management of FP encompasses a broad range of medical therapies and surgical techniques and requires multidisciplinary attention including physical and psychotherapy. With a myriad of possible etiologies, the clinician's role in managing FP is to determine the patient's unique pattern of dysfunction and tailor management accordingly. The primary aim of this study is to evaluate trends in treatment of patients with facial paralysis in the United States based on a claims database of insured patients.

Methods

Data was collected from the MarketScan Commercial Claims and Encounters Database (CCED) by Truven Health. From the database, all inpatient and outpatient claims with ICD-9-CM diagnosis codes for facial paralysis/dysfunction between 2005-2013 were extracted. Trends in medical and surgical management were evaluated specifically cataloging the use of steroids, antivirals, botulinum toxin, surgical and rehabilitation service CPT codes.

Results

57,941 patients were identified with a new diagnosis of facial paralysis (8% <18 years old), Bell's palsy the diagnosis in 77.3% and 73.7% of adult and child-age groups, respectively. Steroids were provided to 44.4% of children and 52.7% of adults and antivirals were prescribed to 20.8% and 31.8% of children and adults, respectively.

Within the first two years after diagnosis, 1% of adults and 0.7% of children received surgery, 0.4% of children and 3.2% of adults received botulinum toxin treatments, and 11.4% of children and 23% of adults received rehabilitation services (Tables 1 & 2).

Our data reflect the lack of consensus in the treatment of facial paralysis. Despite the low morbidity associated with treatment modalities such as physiotherapy and botulinum toxin these interventions were underutilized, particularly in the pediatric population.

| | Age<18 N=526 | Age >18 N=12264 |
|---|-----------------|--------------------|
| Time to first rehab service, days | | |
| Mean | 223.7 | 239.7 |
| (SD) | (224.04) | (227.20) |
| Median | 148.5 | 172.0 |
| Interquartile range | 21.0, 403.0 | 25.0, 424.0 |
| Range | (0.0-728.0) | (0.0-730.0) |
| Types of rehab services (all separate) | | |
| 1: Biofeedback training by any modality | 0 (0%) | 13 (0.1%) |
| 2: Physical therapy evaluation | 402 (76.4%) | 8902 (72.6%) |
| 3: Electrical stimulation | 67 (12.7%) | 2325 (19%) |
| 4: Therapeutic procedures | 442 (84%) | 9905 (80.8%) |
| 5: Massage | 30 (5.7%) | 1179 (9.6%) |

| | Age <18 (N=4626) | Age >18 (N= 53315) |
|--------------------------------|------------------|--------------------|
| Surgery | | |
| No | 4594 (99.3%) | 52764 (99%) |
| Yes | 32 (0.7%) | 551 (1%) |
| Botulinum Toxin | | |
| No | 4609 (99.6%) | 51586 (96.8%) |
| Yes | 17 (0.4%) | 1729 (3.2%) |
| Rehabilitation Services | | |
| No | 4100 (88.6%) | 41051 (77%) |
| Yes | 526 (11.4%) | 12264 (23%) |
| Steroids | | |
| No | 2573 (55.6%) | 25216 (47.3%) |
| Yes | 2053 (44.4%) | 28099 (52.7%) |
| Anti-Virals | | |
| No | 3663 (79.2%) | 36350 (47.3%) |
| Yes | 963 (20.8%) | 16965 (31.8%) |

Discussion

Facial paralysis (FP) is a potentially devastating disorder that may result in extensive emotional, functional, and psychosocial sequelae for patients. There are a multitude of underlying etiologies which may be attributable to this disorder. Therefore, an individualized treatment plan is essential for optimization of outcomes. Advances in facial reanimation surgery and pharmacotherapy have resulted in new treatments to restore form and function.

Despite these advances, and evidence supporting the use of interventions including botulinum toxin and physical therapy, these modalities continue to be used infrequently while interventions with little evidence, such as anti-virals and electrical stimulation continue to be implemented.

Studies have shown a beneficial effect of physiotherapy techniques and chemodenervation for synkinesis or contralateral hyperkinesis. However, the use of antivirals remains controversial due to a lack of proven benefit.

In select patient populations, surgical therapies to statically and dynamically treat facial asymmetries, provide reinnervation to the paralyzed face, and treat post-palsy synkinetic symptoms have been found to increase quality of life and functionality.¹⁻³ Neuromuscular reeducation, soft-tissue mobilization, and meditation techniques, have all demonstrated utility. However, studies investigating electrical stimulation have been unable to provide convincing evidence in support of its use.³⁻⁴

Conclusions

- Despite the limitations of a claims database study, results show trends in care of facial paralysis are still non-surgical with many patients receiving no treatment at all.
- Although limited literature has shown an evidence for the use of physiotherapy, chemodenervation, and various surgical therapies, these interventions continue to be underutilized.
- Management of pediatric patients continues to remain controversial due to a lack of formal clinical trials.

References

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