GUIDELINE
Bell's Palsy

Michael S. Harris, MD
Division of Otology and Neuro-Otologic Skull Base Surgery

Learner Objectives
• After this presentation you should:
  – 1) understand Bell's Palsy as a diagnosis of exclusion
  – 2) understand the appropriate role of physical exam, laboratory testing, and imaging
  – 3) understand the evidence regarding steroid and antiviral therapy and surgical decompression

Guideline
Clinical Practice Guideline: Bell's Palsy
Baugh, Baura, Ishii et al.
Otolaryngology - Head and Neck Surgery
149:S1-27, 2013
Guideline Statements

1. Patient history and physical examination
2. Laboratory testing
3. Diagnostic imaging
4. Oral steroids
5. A. Antiviral monotherapy
   B. Combination antiviral therapy
6. Eye Care
7. A. Electrodiagnostic testing with incomplete paralysis
   B. Electrodiagnostic testing with complete paralysis
8. Surgical decompression
9. Acupuncture
10. Physical therapy
11. Patient follow-up

Reconciling AAO-HNSF and AAN Bell’s Palsy Guidelines

Bell’s Palsy

- Minimum Diagnostic Criteria
- Acute onset of unilateral facial palsy
- Sudden onset
  2/3 progress to complete paralysis in 3-7 days
- Self-limiting
  expect some recovery within 2-3 weeks after onset
  complete recovery at 3-4 months
- Diagnosis of exclusion
Bell's Palsy

- May occur at any age
- More common in 15 years to 45 years
- DM: 2.5 fold ↑: 14% with insulin-requiring DM
- 66% pathologic glucose tolerance
- Pregnancy: Incidence ↑ 3 x higher
  - Risk greatest 3rd trimester

Peitersen’s Landmark Study

- Copenhagen Facial Nerve Study 1978, 1982
- 1011 cases of idiopathic, spontaneous, peripheral palsy observed without treatment (neither steroid nor surgery)

<table>
<thead>
<tr>
<th>Presenting with Complete Paralysis</th>
<th>% Back to HB</th>
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<tbody>
<tr>
<td>Month 1</td>
<td>29</td>
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<tr>
<td>Month 2</td>
<td>46</td>
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<td>Month 3</td>
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<td>Month 4</td>
<td>62</td>
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<td>Month 5</td>
<td>69</td>
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<td>Month 6</td>
<td>71</td>
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- 71% complete recovery
- 29% incomplete paralysis
- 94% complete recovery
- 6% residual weakness
- 13% mild residual, 16% fair to poor

- Patients >60 years old more likely to have reduced return of function
- When recovery was delayed >3 mo, all experienced sequelae

Proposed to benefit most from aggressive medical or surgical therapy
STATEMENT 1. PATIENT HISTORY
AND PHYSICAL EXAMINATION

History & Physical Examination

- Exclude identifiable causes of facial paresis or paralysis in patients presenting with acute-onset unilateral paresis or paralysis

- Benefits
  - enabling accurate diagnosis
  - avoidance of unnecessary testing
  - opportunity for appropriate patient counseling
History & Physical Examination

- 10,000 fibers
  - 7,000
  - Muscles of facial expression
  - 3,000
  - Submandibular, lacrimal glands
  - Sensory fibers to posterior EAC
  - Sensory fibers for taste

Consistent with Bell's
- Sudden onset
- Unilateral
- Both upper and lower affected
- Viral prodrome
- Recovery 3-6 months

Inconsistent with Bell's
- Gradual onset
- Bilateral
- Only lower
- 2nd paralysis same side
- Constitutional: It, rash, other symp
- No recovery 3 months

Take Note:
- Paretic vs paralysis
- Timing
- Underlying factors predisposing to alternative diagnosis
- Special attention to eye signs and symptoms
- Lyme endemic?

Recommendation Against
STATEMENT 2. LABORATORY TESTING

August 3-6, 2017   |   The American Club   |   Kohler, WI
Laboratory Testing

• Should not obtain routine laboratory testing in patients with new-onset Bell’s Palsy

• Benefit
  – avoidance of unnecessary testing, treatment
  – avoidance of pursuing false positives
  – provoking patient anxiety
  – cost savings
  – unlikely to alter diagnosis

Laboratory Testing

• Associated with facial weakness and detectable by laboratory testing
  – Human immunodeficiency virus (HIV)
  – Guillain-Barre Syndrome
  – Syphilis
  – Leukemia
  – Sarcoidosis
  – Bacterial Meningitis
  – Melkerson-Rosenthal Syndrome

• Lyme disease
  – accounts for up to 25% of cases of facial paralysis
  – 4.5%-10% patients demonstrate FN dysfunction
  – bilateral in 25%

Endemic Region Expanding
Recommendation Against

STATEMENT 3. DIAGNOSTIC IMAGING

Diagnostic Imaging

- Should not routinely perform diagnostic imaging for patients with new-onset Bell’s palsy
- Benefit:
  - avoidance of unnecessary radiation exposure
  - avoidance of incidental findings
  - avoidance of contrast reactions
  - cost savings

Diagnostic Imaging

- Does not influence therapy, absent concern for other diagnoses
- Enhancement around geniculate ganglion typical
- When to order imaging... (C +/- MRI IAC or beyond, as indicated)
  - Absence of improvement 4-6 mo after onset
  - Recurrent ipsilateral facial paralysis
  - Progressive paralysis beyond 3 mo
  - Presence of facial twitching
STATEMENT 4. ORAL STEROIDS

Strong Recommendation

Oral Steroids

- Should prescribe oral steroids within 72 hours of symptom onset for patients 16 years and older
- Goal: improve recovery time, improve facial nerve functional recovery
- Exceptions:
  - diabetes
  - steroid intolerance
  - psychiatric disorders
  - pregnant women should be treated on an individualized basis

Oral Steroids

- Inflammation & ischemia seem to predominate in early phase of injury
- Neural blockade, degeneration, fibroblastic response later in sequence

Evidence: steroid therapy may...

- reduce likelihood of incomplete recovery (MB1) at 3 months\(^1\)
- prevent or lessen synkinesis\(^2\)
- prevent progression of incomplete to complete
- hasten recovery time\(^3\)

1. Sullivan et al., 2007
2. de Almeida et al., 2009
3. Engstrom et al., 2008
Oral Steroids

• Form of steroid not specified
  – Prednisone, prednisolone, others used in trials

• My regimen
  – Oral prednisone (1 mg/kg/day)
    once daily for 7-10 days
    taper over 10 days
  – Discuss risks of oral corticosteroids

• Use of steroids in children controversial

Strong Recommendation Against

STATEMENT 5A. ANTIVIRAL MONOTHERAPY

Antiviral Monotherapy

• Should not prescribe oral antiviral therapy alone for patients with new-onset Bell’s Palsy
• Benefit:
  – avoidance of medication side effects
  – cost savings
Antiviral Monotherapy

- Theory that Bell’s Palsy has viral etiology has served as rationale for numerous antiviral trials¹
- Most extensively studied antivirals are acyclovir and valacyclovir
- Data strongly link Bell’s palsy & HS
  Causality is uncertain, not proven

¹McCormick, 1972

Antiviral Monotherapy

- Lack of support…
- Randomized controlled trials
  - Failed to find improved rate of recovery between those receiving valacyclovir alone vs placebo
- Meta-analyses
  - Much heterogeneity in methodology, but consistent, unequivocal in conclusion:
    Antiviral therapy alone no better than placebo, inferior to steroid therapy

Option

STATEMENT 5B. COMBINATION ANTIVIRAL THERAPY
Combination Antiviral Therapy

- May offer oral antiviral therapy in addition to oral steroids within 72 hours of symptom onset for patients with Bell's palsy
- Benefit: Small potential improvement in facial nerve function
  - Randomized controlled trial
    - Improvement in facial function at 6 months with valacyclovir and prednisolone (88.5%) vs. steroid alone (89.7%)
  - Meta-analysis of 18 trials
    - Combination of antiviral therapy with steroids resulted in 25% reduced risk of incomplete nerve recovery compared with steroid alone
- Children, pregnant women treated on an individual basis

Strong Recommendation
STATEMENT 6. EYE CARE

Eye Care

- Bell's predisposes the eye to injury due to
  - Lagophthalmos
  - Upper eyelid retraction or lower lid ectropion
  - Failure of the lacrimal pump mechanism
  - Decreased blink and tear production
Eye Care

- Should implement eye protection for Bell's Palsy with impaired eye closure
- Statistical benefit not demonstrated
- Treatment modalities in literature
  - Use of sunglasses
  - Frequent administration of lubricating ophthalmic drops
  - Frequent administration of ophthalmic ointment
  - Use of a moisture chamber using a polyethylene cover
  - Eye patching or taping
- Low threshold for ophthalmologic evaluation, Oculo- or Facial Plastics consultation

Recommendation Against

STATEMENT 7A.
ELECTRODIAGNOSTIC TESTING WITH INCOMPLETE PARALYSIS

- Should not perform electrodiagnostic testing in Bell's Palsy patients with incomplete facial paralysis
- Benefit
  - avoidance of unnecessary testing
  - cost savings
Electrodiagnostic Testing with Incomplete Paralysis

• Evaluate the extent of physiologic damage
• Quality and degree of axonal degeneration (i.e., denervation, muscular denervation)
• Predict prognosis
• Determine treatment
• Single examination often NOT sufficient

Electrodiagnostic Testing with Incomplete Paralysis

• No strong evidence that testing with incomplete paralysis can successfully predict which patients are more or less likely to recover complete function

Option

STATEMENT 7B.
ELECTRODIAGNOSTIC TESTING WITH COMPLETE PARALYSIS
Electrodiagnostic Testing with Complete Paralysis

- May offer electrodiagnostic testing to Bell’s patients with complete facial paralysis
- Unlike paresis, there is prognostic benefit
- Large role for shared decision making
  - may provide only prognostic information for the patient
  - ...or who may be considered for surgical decompression of the facial nerve

**Electroneuronography (ENoG)**
- Window: 3-14 days
- Peak-to-peak **AMPLITUDE** is proportional to **NUMBER OF INTACT AXONS**
- Sides compared as % of response.
  - <90% degeneration within 2-3 weeks predicts 80%-100% spontaneous recovery

**Electromyography (EMG)**
- Anytime, utility wanes >12 mo
- Determines activity of muscle, rather than nerve
- Voluntary muscle contraction can trigger muscle depolarizations too small to see but apparent electrophysiologically

10-22 days post-injury
- **FIBRILLATIONS** + degeneration
STATEMENT 8. SURGICAL DECOMPRESSION

No Recommendation

Surgical Decompression

• Controversy stems from
  – Good outcomes for patients with incomplete paralysis with observation (70%) or medical treatment (94%)
  – Lack of large trials supporting surgical decompression
  – Diversity of patients in existing trials using surgical decompression (i.e., degree and duration of facial paralysis)
  – The variable surgical approaches that have been reported

• Role for patient preference: Large

Surgical Decompression

• Proposed candidates...
  • Gantz and coauthors, 1999; Multi-centered, case-control study
    – ENoG testing with >90% reduction in amplitude on affected side
    – …and no voluntary EMG activity
    – Testing and treatment at least 3, but no more than 14 days after onset
  • No high-level evidence is available to confirm these findings

\( P = 0.0002 \)
**Surgical Decompression**

- **Labyrinthine Portion (3-5 mm)**
  - Narrowest portion of fallopian canal
    - nerve occupies 83% available space
    - tympanic: occupies 23% available space
    - mastoid: occupies 64% available space
  - Physiologic bottleneck
    - circumferential band of periosteum

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**Surgical Decompression**

- Rare but serious risks of MCF decompression
  - conductive or sensorineural hearing loss
  - injury to the facial nerve
  - risk of cerebrospinal fluid leak
  - infection
  - risks of temporal lobe retraction
    - temporary or permanent aphasia, seizures, and stroke
  - risks of general anesthesia
- ICU stay

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No Recommendation

**STATEMENT 9. ACUPUNCTURE**
Acupuncture

- No recommendation
- Risks, harms, costs
  - cost of acupuncture therapy
  - time required for therapy
  - therapy side effects
  - delay in instituting steroid therapy
- Role of patient preferences: Large

Acupuncture

- Significant number of patients seek alternative/complementary medicine
- Paucity of high-quality evidence
- Chen and colleagues, 2010
  - Cochrane systemic review, 6 RTCs
    - 4 acupuncture vs medication
    - 2 acupuncture vs physical therapy
    - All concluded benefit
  - Severe methodological flaws
    - Paucity of information regarding randomization, blinding
    - Incompleteness of outcome data
    - High risk of bias
    - Outcome assessments varied

No Recommendation

STATEMENT 10. PHYSICAL THERAPY
Physical Therapy

• No recommendation can be made regarding the effect of physical therapy in Bell’s Palsy patients
• Role of patient preference: Large role for shared decision making

Physical Therapy

• No consistent and accepted definition of physical therapy or standardized modalities and protocols
• Several therapy modalities reported in the literature
  – Thermal therapy
  – Electrotherapy
  – Massage
  – Facial exercise
  – Biofeedback
  – Mime Therapy
• No preponderance of evidence showing difference across different PT measures

Recommendation

STATEMENT 11. PATIENT FOLLOW-UP
Patient Follow-up

- Minimum patient follow-up
- Clinicians should reassess or refer to a facial nerve specialist those Bell’s Palsy patients with
  - (1) new or worsening neurologic findings at any point
  - (2) ocular symptoms developing at any point
  - (3) incomplete facial recovery 3 months after initial symptom onset to reconsider initial diagnosis
- Benefit: reevaluation for alternative diagnoses of facial paralysis, discussion of therapeutic/reconstructive options, psychological support

Patient Follow-up

- Opportunity for consultation or further referral, as appropriate
  - Ophthalmology
  - Facial plastics
  - Psychological counseling

Summary of Guideline
Summary

• Do:
  – Exclude alternative diagnosis through history and physical examination
    • Reserve laboratory testing, imaging when alternative diagnosis suspected
  – Prescribe steroid taper
  – Ensure eye protection when eyelid closure incomplete

• Do not:
  – Order routine laboratory tests
  – Order electrodiagnostic testing with incomplete paralysis
    • May offer with complete paralysis
  – Prescribe antiviral monotherapy
    • May offer antiviral combination therapy