9th Annual Meeting: Wrap-Up

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Importance of Diagnostic Criteria

Consensus-Based Attributes for Identifying Patients With Spasmodic Dysphonia and Other Voice Disorders

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Importance of Diagnostic Criteria

Development and validation of a clinical guideline for diagnosing blepharospasm

**ABSTRACT**

**Objective:** To design and validate a clinical diagnostic guideline for aiding physicians in confirming or refuting suspected blepharospasm.

**Methods:** The guideline was developed and validated in a 3-step procedure: 1) identification of clinical items related to the phenomenology of blepharospasm, 2) assessment of the relevance of each item to the diagnosis of blepharospasm, and 3) evaluation of the reliability and diagnostic sensitivity/specificity of the selected clinical items.

**Results:** Of 19 clinical items initially identified, 7 were admitted by content validity analysis to further assessment. Both neurologists and ophthalmologists achieved satisfactory interobserver agreement for all 7 items, including "involuntary eyelid narrowing/closure due to orbicularis oculi spasms," "bilateral spasms," "synchronous spasms," "stereotyped spasm pattern," "sensory trick," "ability to voluntarily suppress the spasms," and "blink count at rest." Each selected item yielded useful discriminatory power, discriminating patients with blepharospasm from healthy subjects and patients with similar motor disorders. Combining the selected items, however, improved diagnostic sensitivity and specificity. The best combination, yielding 93% sensitivity and 90% specificity, was an algorithm consisting of "stereotyped, bilateral, and synchronous orbicularis oculi spasms inducing lid closure" followed by recognition of "sensory trick" or, alternatively, "increased lid closure for "sensory trick.""

**Conclusion:** This study provides an accurate and valid clinical guideline for diagnosing blepharospasm. Use of this guideline would make it easier for providers to recognize and research settings. *Neurology* 2013;81:236-240
Importance of Natural History

Movement disorders

ORIGINAL RESEARCH

Risk of spread in adult-onset isolated focal dystonia: a prospective international cohort study

Brian D Berman,1 Christopher L Groth,2 Stefan H Sillau,1 Sarah Pirio Richardson,3 Scott A Norris,4 Johanna Junker,5,6 Norbert Brüggemann,5,6 Pinky Agarwal,7 Richard L Barbano,8 Alberto J Espay,9 Joaquin A Vizcarra,10 Christine Klein,6 Tobias Bäumer,6 Sebastian Loens,6 Stephen G Reich,11 Marie Vidailhet,12 Cecilia Bonnet,17 Emmanuel Roze,12 Hyder A Jinnah,13 Joel S Perlmutter,14
Importance of Patient Experience

Figure 2. Fluctuations in severity over time and complications of therapy.

- **A. Ideal therapeutic response.**
- **B. Short duration therapeutic response.**
- **C. Dose Failure.**
- **D. Progressive decrementing effect.**
Importance of Objective Measures

Objective, computerized video-based rating of blepharospasm severity

ABSTRACT

Objective: To compare clinical rating scales of blepharospasm severity with involuntary eye closures measured automatically from patient videos with contemporary facial expression software.

Methods: We evaluated video recordings of a standardized clinical examination from 50 patients with blepharospasm in the Dystonia Coalition’s Natural History and Biorepository study. Eye closures were measured on a frame-by-frame basis with software known as the Computer Expression Recognition Toolbox (CERT). The proportion of eye closure time was compared with 3 commonly used clinical rating scales: the Burke-Fahn-Marsden Dystonia Rating Scale, Global Dystonia Rating Scale, and Jankovic Rating Scale.

Results: CERT was reliably able to find the face, and its eye closure measure was correlated with all of the clinical severity ratings (Spearman $\rho = 0.56, 0.52$, and 0.56 for the Burke-Fahn-Marsden Dystonia Rating Scale, Global Dystonia Rating Scale, and Jankovic Rating Scale, respectively, all $p < 0.0001$).

Conclusions: The results demonstrate that CERT has convergent validity with conventional clinical rating scales and can be used with video recordings to measure blepharospasm symptom severity automatically and objectively. Unlike EMG and kinematics, CERT requires only conventional video recordings and can therefore be more easily adopted for use in the clinic.
Importance of Objective Measures
Importance of a Biobank

Natural History Enrollment
August 2009 - Present

DYSTONIA TYPE
- Focal Dystonia 68%
- Generalized Dystonia 4%
- Hemidystonia 0%
- Multifocal Dystonia 7%
- Segmental Dystonia 21%

# of subjects
- Dec-09: 0
- Dec-10: 500
- Dec-11: 1000
- Dec-12: 1500
- Dec-13: 2000
- Dec-14: 2500
- Dec-15: 3000
- Dec-16: 3500
- Dec-17: 4000
- Dec-18: 4500
- Dec-19: 5000
- Dec-20: 5500
- Dec-21: 6000

[Graph showing enrollment growth over time and a pie chart indicating dystonia type distribution]
Experimental Therapeutics

REVIEW

New approaches to discovering drugs that treat dystonia

Sarah Pirio Richardson\textsuperscript{a,b} and H. A. Jinnah\textsuperscript{c}

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Review

The neurobiological basis for novel experimental therapeutics in dystonia

Anthony M. Downs\textsuperscript{a,1}, Kaitlyn M. Roman\textsuperscript{a,1}, Simone A. Campbell\textsuperscript{a}, Antonio Pisani\textsuperscript{b,c}, Ellen J. Hess\textsuperscript{a,d}, Paola Bonsi\textsuperscript{b,e}
Dystonia Coalition: What have we done so far?

- Grown from 8 Sites to Many
  35 active or initiated recruiting centers
  8 affiliate centers

- Conducted Several Major Clinical Studies
  all address bottlenecks in trial readiness
  all have international participation

- Seeded Numerous Smaller Pilot Studies
  40 pilot projects
  14 career awards

- More than 100 publications
  *Brain*, *JAMA*, *J Neurosci*, *Mov Disord*, *Neurol*
Dystonia Coalition: Data & sample sharing

- **Main Research Projects**
  - ~3200 subjects in Natural History Project
  - ~200 subjects in CD Rating Scale Project
  - ~200 subjects in LD Diagn & Rating Scale Project
  - ~200 subjects in BSP Diagn & Rating Scale Project

- **What is available?**
  - Clinical data
  - Video recordings of exams
  - DNA specimens (at Coriell)

- **How to request data or samples?**
  - Data/sample request form
  - dystoniacoalition@emory.edu
  - 56 requests made already
The Dystonia Coalition: A Multicenter Network for Clinical and Translational Studies

Gamze Kilic-Berkmen¹, Laura J. Wright², Joel S. Perlmutter³, Cynthia Comella⁴, Mark Hallett⁵, Jan Teller⁶, Sarah Pirio Richardson⁷, David A. Peterson⁸, Carlos Cruchaga⁹, Codrin Lungu¹⁰ and H. A. Jinnah¹,¹¹*
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- National Center for Advancing Translational Sciences
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Special thanks to some people who make everything happen!

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