

# Cervical Dystonia Patient Registry for Observation of BOTOX® Efficacy (CD PROBE): Interim Results of Physician-Reported Outcomes

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## INTRODUCTION

- The most common form of adult-onset focal dystonia is cervical dystonia (CD).<sup>1</sup>
- Since the introduction of botulinum toxin for the treatment of CD over 25 years ago,<sup>2</sup> botulinum toxin has become the treatment of choice to provide relief from the abnormal head position and pain.<sup>3</sup>
- Despite clinical evidence from randomized controlled trials and use in thousands of patients, there is a lack of consensus regarding the optimal use of botulinum toxin for CD.<sup>4</sup>
- CD PROBE, an ongoing clinical registry of patients with CD treated with onabotulinumtoxinA across a broad range of physicians, may provide invaluable data about how best to treat this chronic, disabling neurologic condition.

## OBJECTIVE

- To report an interim analysis of physician-reported outcomes of efficacy with repeat injections of onabotulinumtoxinA in patients with CD.

## METHODS

### Study Design

- This is a multicenter, open-label, prospective, standard of care, observational clinical registry of patients with CD treated with onabotulinumtoxinA (ClinicalTrials.gov, NCT00836017).
- Subjects were administered 3 injections of onabotulinumtoxinA separated by >90 days; dose and treatment intervals were based on the physician's standard of care.
- Subjects were followed over 3 treatment cycles and evaluated at baseline (injection 1), each injection, and 4–6 weeks after each injection (peak effect).
- Physicians assessed outcomes included the Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS) and Clinical Global Impression of Change (CGIC) questionnaire.

### Subjects

- 499 Patients enrolled as of October 11, 2010 (Tables 1 & 2).
- Inclusion criteria
  - ≥1 of the following: new to principle physician's practice; new to botulinum toxin therapy; or, if previously participated in a botulinum toxin clinical trial, did not receive botulinum toxin for ≥16
  - Informed consent obtained
- Exclusion criteria
  - Planning elective surgery during the observational study period
  - Pregnant, nursing, or planning a pregnancy

**Table 1. Baseline Demographic Characteristics**

Enrollment as of October 11, 2010, N	499
Female	384 (77.0)
Race/ethnicity	
White	408 (93.8)
Hispanic	13 (2.6)
Asian	10 (2)
Black	6 (1.2)
Native American	1 (0.2)
Other	1 (0.2)
Age, y	57.5 ± 14.3 (20–90)
Height, in	65.8 ± 7.7 (56–78)
Weight, lb	160.8 ± 38.6 (66–335)
Body mass index, kg/m <sup>2</sup>	26.3 ± 5.5 (4–50)

Data are presented as n (%) or mean ± standard deviation (range) unless noted. SD = standard deviation.

**Table 2. Baseline Disease Characteristics**

Age at symptom onset, y	48.2 ± 16.1 (0–89)
Time to CD diagnosis, y	5.4 ± 8.6 (0–53)
Time to 1st injection of botulinum toxin after diagnosis, y	1.0 ± 3.7 (–23 to 53)
Received botulinum toxin in the past	177 (35.5)
Predominant feature of CD, % (CI)	
Torticollis	44.2 (39.9, 48.6)
Lateralcollis	42.2 (37.9, 46.6)
Retrocollis	5.9 (4.1, 8.3)
Anterocollis	4.7 (3.1, 6.9)
Other	3.0 (1.9, 5.0)
TWSTRS scores	
Severity	16.9 ± 5.5 (1–32)
Disability	10.7 ± 6.5 (0–30)
Pain	10.4 ± 5.2 (0–20)
Total	38.0 ± 13.4 (4–77)
Physician assessment of CD severity (n=493), %	
Mild / Moderate / Severe	40.2 / 48.7 / 11.2

Data are presented as n (%) or mean ± standard deviation (range) unless noted. CD = cervical dystonia; SD = standard deviation; TWSTRS = Toronto Western Spasmodic Torticollis Rating Scale.

## RESULTS

- At baseline, 89.6% (440/491) of subjects reported pain.
- 495, 312, and 194 subjects have received 1, 2, or 3 injections of onabotulinumtoxinA, respectively.
  - The mean (SD) interval between the 1st and 2nd injections was 100.4 (±22.9) days and 100.0 (±22.3) days between the 2nd and 3rd injections.

### Physician-Reported Outcomes

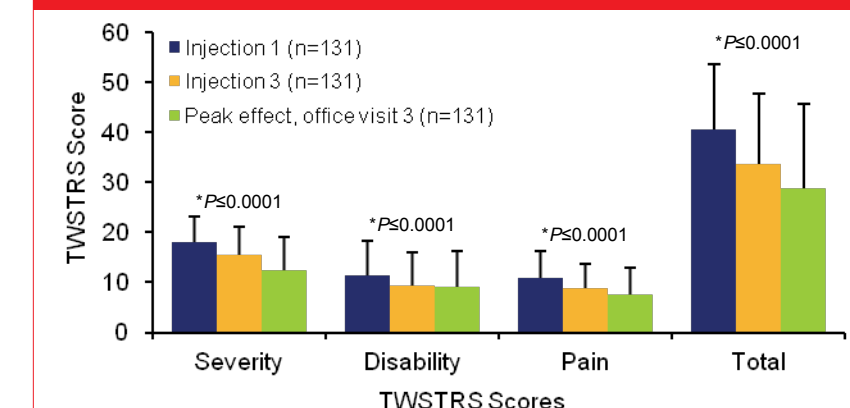
- Mean (SD) total dose for injection 1 was 175.6 (±104.9) units. The mean (SD) doses for injection 1 differed significantly based on the physician assessments of CD severity ( $P < 0.0001$ ) (Table 3).

**Table 3. Mean Dose of OnabotulinumtoxinA at Baseline (Injection 1) by Physician-Assessed Severity**

Severity	n	Dose, Mean ± SD (Units)
Mild	188	154.7 ± 94.1
Moderate	225	181.3 ± 112.0
Severe	52	226.0 ± 90.4

SD = standard deviation.

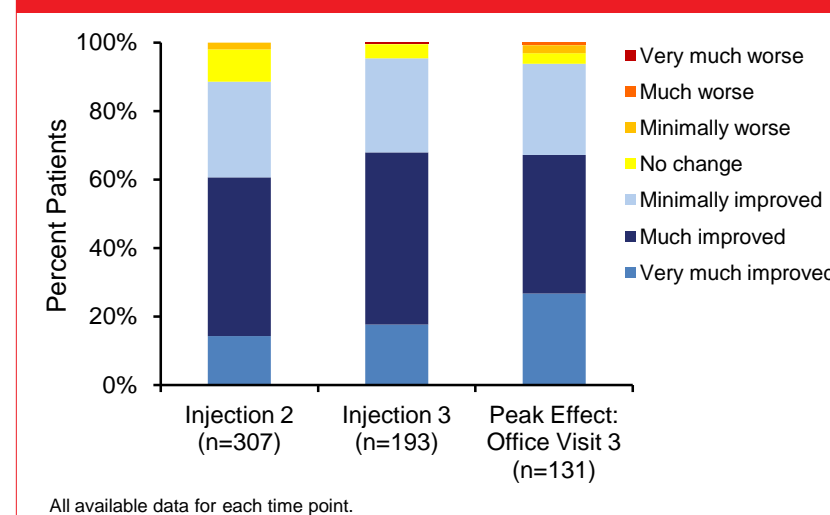
**Figure 1. Assessment of TWSTRS Total Score and Subscales**



\*Repeated measures (ANOVA); all available data for each time point.

- Among subjects with assessments following 3 injections, TWSTRS total score (SD) decreased from 40.5 (±13.2) at baseline to 28.9 (±16.8) at Injection 3 peak effect ( $P < 0.0001$  vs baseline).

**Figure 2. Clinicians' Global Impression of Change**



All available data for each time point.

- According to CGIC assessments, physicians rated 93.4% of subjects with some improvement at injection 3.
  - >60% of patients were much/very much improved following injection 2 and injection 3 compared with baseline.

### Adverse Events

- Severe adverse events (SAEs) were reported for 17 patients.
  - In 16 patients, the SAE was considered not related to treatment
  - In 1 patient, the SAE (pyrexia) was considered unlikely due to the treatment.

## CD PROBE Study Group

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### DISCLOSURE

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The potency units of onabotulinumtoxinA are specific to the preparation and assay method utilized. They are not interchangeable with other preparations of botulinum toxin products and, therefore, units of biological activity of onabotulinumtoxinA cannot be compared with or converted into units of any other botulinum toxin products assessed with any other specific assay method.

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