# Cervical Dystonia Subtypes

## Baseline Results From the Cervical Dystonia Patient Registry for Observation of OnabotulinumtoxinA Efficacy (CD PROBE)

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## OBJECTIVE

- To describe patient, disease, and treatment characteristics associated with subtypes of predominant head and neck postures in subjects with cervical dystonia (CD).

## BACKGROUND

- CD presents with variable head and neck postures as well as movements (dystonic tremor). Most clinical studies preferentially include subjects with presentations of predominant torticollis or laterocollis. In order to better understand why subjects with predominant retrocollis and anterocollis are often excluded, we have characterized the various CD subtypes with respect to demographic characteristics, severity and disability, and treatment approaches.

## METHODS

- CD PROBE (NCT00836017) is an ongoing longitudinal registry enrolling subjects with CD treated with onabotulinumtoxinA (Botox®). Subjects with CD and medically appropriate for botulinum toxin treatment that were either naïve to toxin or new to the physician and ≥16 weeks since the last injection are eligible for enrollment.[1] The predominant subtypes of CD at baseline are examined by the Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS), Physician Global Assessment of Severity, Cervical Dystonia Impact Questionnaire (CDIP-58), and dose at initial treatment.

## RESULTS

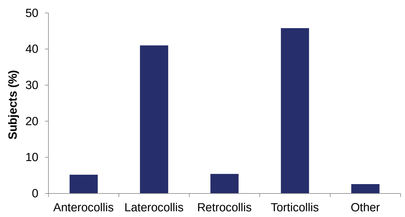
- As of September 13, 2011, 786 subjects had enrolled in CD PROBE and were analyzed for this report. Baseline characteristics are presented in **Table 1**.
- Predominant presentation subtypes are presented in **Figure 1**. Subjects presenting with predominant anterocollis or retrocollis experienced onset at a later age when compared with laterocollis or torticollis ($p<0.05$; **Table 2**). The time from diagnosis to treatment was shortest for retrocollis when compared with torticollis ($p<0.0001$; **Table 2**).
- Physicians more often rated subjects with anterocollis as severe when compared with other subtypes ($p<0.02$; **Figure 2**), and anterocollis subjects scored higher on TWSTRS and its disability subscale ($p<0.05$; **Figure 3**).
- Subjects with anterocollis or retrocollis scored higher on the CDIP-58 (**Figure 4**), and subjects with retrocollis were least likely to be employed ($p<0.001$; **Table 2**).
- Retrocollis was treated with the highest median dose (190U) when compared with the other subtypes ($p<0.05$) and anterocollis the least (115U; **Figure 5**).

### Table 1. Baseline Demographic and Disease Characteristics

| Characteristic | |
|---|---|
| Sex | |
| Female | 596 (76.1) |
| Male | 187 (23.9) |
| Race/Ethnicity | |
| Asian | 16 (2.0) |
| Black | 14 (1.8) |
| Hispanic | 25 (3.2) |
| Native American | 1 (0.1) |
| White | 725 (92.6) |
| Other | 2 (0.3) |
| Age, y | 57.7 ± 14.3 (19.4–100.0) |
| Body mass index | 26.5 ± 5.4 (3.6–50.1) |
| Toxin status | |
| Naïve | 502 (64.2) |
| Non-naïve | 280 (35.8) |

CD = cervical dystonia
Data are presented as n (%) or mean ± standard deviation (range)

### Figure 1. Predominant CD Subtypes at Baseline

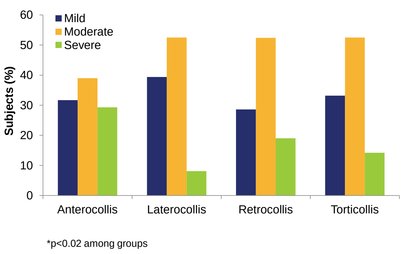



### Table 2. Baseline Patient CD History

| | Anterocollis | Laterocollis | Retrocollis | Torticollis | Total | p value |
|---|---|---|---|---|---|---|
| Age at symptom onset, y | 53.0 ± 16.9 | 48.7 ± 16.8 | 53.1 ± 17.2 | 47.2 ± 15.4 | 48.5 ± 16.2 | 0.044 |
| Time from CD onset to diagnosis, y | 3.5 ± 6.4 | 5.5 ± 8.0 | 3.9 ± 7.5 | 5.4 ± 8.9 | 5.3 ± 8.4 | 0.217 |
| Time from CD diagnosis to first treatment, y | 0.7 ± 2.5 | 0.9 ± 3.2 | 0.1 ± 0.2 | 1.4 ± 5.3 | 1.1 ± 4.2 | <0.0001 |
| Currently employed | 15 (37.5) | 142 (46.7) | 6 (15.4) | 165 (47.8) | 328 (45.1) | 0.001 |

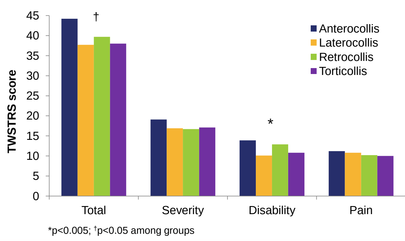
CD = cervical dystonia
Other included homemaker and student
Data are presented as n (%) or mean ± standard deviation (range)

### Figure 2. CD Severity by Subtype at Baseline



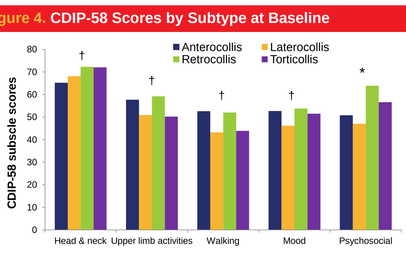

*p<0.02 among groups

### Figure 3. Baseline TWSTRS Total Score and Subscales by Subtype



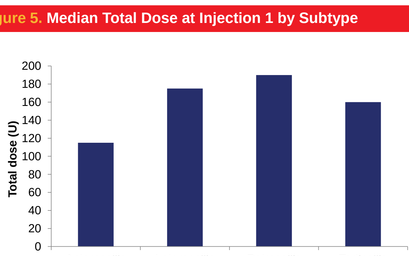

*p<0.005; †p<0.05 among groups

### Figure 4. CDIP-58 Scores by Subtype at Baseline




*p<0.001; †p<0.05 among groups. Pain and Discomfort, Sleep, and Annoyance subscales did not significantly differ across subtypes

### Figure 5. Median Total Dose at Injection 1 by Subtype




*p<0.05 among groups

## CONCLUSIONS

- CD presenting with predominant anterocollis or retrocollis is less common but is often associated with increased disease burden, disease severity, and disability; decreased quality of life; and effects on employment status when compared with other subtypes.

## REFERENCE

1. Jankovic J, Adler CH, Charles PD, et al . *BMC Neurol.* 2011;11:140.

## CD PROBE Study Group

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