



**Validation of a Cervical Dystonia Questionnaire (CDQ)**  
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**OBJECTIVE**

To quantitatively evaluate the reliability and validity of a short, self-administered, survey regarding symptoms of cervical dystonia (CD), also termed spasmodic torticollis (ST), designed to identify individuals with CD in epidemiological studies and for possible use in multiple settings including offices of primary care physicians and web-based surveys.<sup>1</sup>

**BACKGROUND**

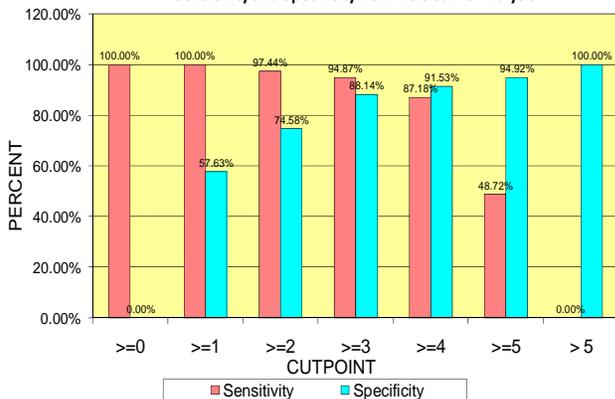
The prevalence of CD or ST, or both, is estimated to be 390 per 100,000<sup>2</sup>, but epidemiological studies have been hampered by a lack of reliable instruments that identify individuals with CD symptoms with high sensitivity and specificity. Early and accurate diagnosis may lead to appropriate therapeutic intervention and better long-term outcomes.

**METHODS**

We administered a 5-question Cervical Dystonia Questionnaire (CDQ) to 93 patients seen in the Baylor College of Medicine Movement Disorders Clinic. Patients were diagnosed with CD or some other movement disorder (blepharospasm = 10, hemifacial spasm = 8, Parkinson's disease = 6, Tourette syndrome = 6, hand dystonia = 5, and other movement disorders = 16) by a movement disorder specialist. Responses were analyzed individually for sensitivity, specificity, positive and negative predictive value (PPV, NPV) with ROC curve analysis, and for ability to distinguish patients with CD using Pearson's chi-square test or Fisher's exact test. Reliability of the instrument was evaluated using Cronbach's alpha as well as principal components analysis.

**Figure 1.**

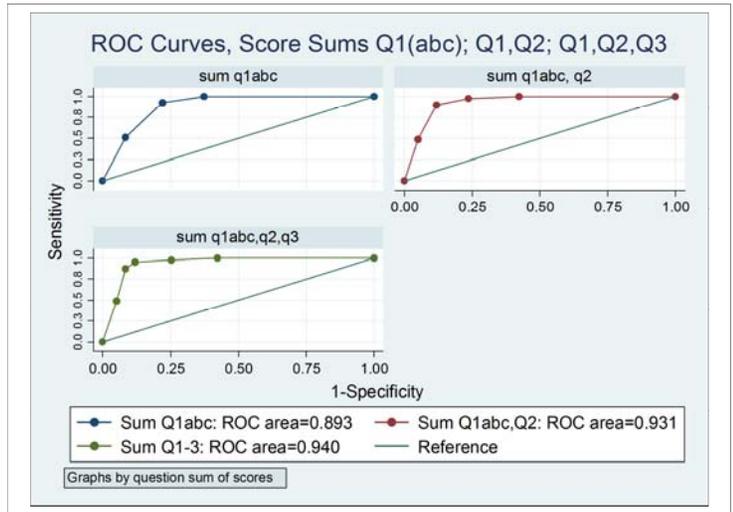
**Sensitivity and Specificity from ROC Curve Analysis**



**RESULTS**

All questions showed statistically significant ability to distinguish CD from other movement disorders. Specificity, sensitivity, PPV and NPV ranged from moderate (64.6% sensitivity on the question regarding head shaking or jerking) to complete (100% PPV for question "are you receiving treatment for CD"). Cronbach's alpha for the mean of the standardized items was 0.88. Principal components analysis generated an Eigenvalue for component 1 of 4.23, with 3 other components less than one.

**Figure 2.**



**CONCLUSIONS**

Our study provides evidence that the brief questionnaire is a valid instrument that reliably differentiates with high sensitivity and specificity patients with CD from other movement disorders. Further testing in a more diverse patient population is needed to determine whether the CDQ will be a useful screening tool in future epidemiological studies.

**REFERENCES**

- Saunders-Pullman R., Soto-Valencia J., Costan-Toth,C., Shriberg J., Raymond D., Derby C.A., Lipton R.B., Bressman, S.B. A new screening tool for cervical dystonia. *Neurology* 2005;64: 2046-9.
- Jankovic J., Tsui J., Bergeron C. Prevalence of cervical dystonia and spasmodic torticollis in the United States general population. *Parkinsonism and Related Disorders* 2007;13:411-6.