

## Diversity of Responses to Writer's Dystonia – A Condition Resistant to Treatment

The Editor,

Sir,

Writer's dystonia is a type of task-specific focal dystonia that affects the small muscles of the hand and forearm, and manifests itself during the act of writing (1). This disorder causes gradual spasms of hand and forearm muscles while writing and leads to difficulty in grasping the pen followed by an inability to hold the pen for long periods of time (2). Further stress on the hand can lead to tremors and prolonged difficulty in writing (1, 2). Pharmacological treatment options for this condition include oral medications, botulinum toxin injections, and surgery (1, 3). Other popular non-pharmacological treatment options are writing devices, typing, relaxation exercises and even lifestyle changes (3).

We report four patients diagnosed with writer's dystonia and who were treated with pharmacological and non-pharmacological means (Table). All four patients experi-

environmental and genetic factors in the development of this movement disorder. The exact cause and effect of dystonia has not yet been elucidated mainly because there are many confounding factors that can lead to the development of these movement disorders (2, 5).

Since this condition is resistant to treatment, we hypothesized that an underlying genetic abnormality might be a significant factor. Genetic analysis has shown DYT1 gene to be associated with writer's cramp (6). Changes in the DYT1 gene have also been identified in writer's dystonia; however, individuals with such mutations very rarely have writer's cramp as the only symptom (7). The presence of structural abnormality in the cerebellum and substantia nigra are also suspected to play an important role in the development of writer's cramps (8). More research is recommended to identify the genetic factors underlying this condition. Furthermore, we hypothesize that partial improvement as seen in these case reports with Blackburn® writing device might be an expectancy effect. Patients' expectation that a device can improve their writing/functioning might reduce psychological and physiological stress and consequently enhance muscular function, resulting in partial improve-

Table: Effects of Blackburn® writing device and botulinum toxin on four patients diagnosed with writer's dystonia

	Age (years)	Occupation	Effect of Blackburn® writing device	Effect of botulinum toxin
Patient 1	38	Journalist	Partial improvement	No improvement
Patient 2	59	Accountant	Partial improvement	No improvement
Patient 3	47	Grocery store worker	No improvement	No improvement
Patient 4	47	Novelist	No improvement	Partial improvement

enced pain in their wrist and forearm and significant cramping in the hand while writing. These patients experienced difficulty writing after just two or three sentences and this condition interfered with their daily activities significantly. One patient noticed more difficulty writing numbers down stroke, whereas writing upstroke was easy. The rest of the neurological examination and computed tomography (CT) scans of the head for all four patients were normal.

A study conducted by Ranawaya and Lang reported a series of 20 patients with writer's dystonia treated with a Blackburn® writing device where 15 of the 20 patients showed an improvement in writing (4). On the contrary, we did not obtain optimistic results as only two of the four patients in the present study showed partial improvements with a Blackburn® writing device. These improvements were not significant enough to change the quality of life for these patients. Unlike previous studies, we treated the same patients with butolinum toxin after about 50 days of treatment with Blackburn® writing device. Three patients showed no improvement and only one patient showed partial improvement.

This diversity of responses to treatments is not surprising when we consider complex interactions of both en-

ments. Writer's dystonia can be aggravated by anxiety, fatigue and emotional or social stress (5, 9). A controlled study is recommended to exclude such confounders or to identify possible expectancy effects.

*From: AQ Rana, U Saeed  
Parkinson's Clinic of Eastern Toronto and Movement Disorders Centre, Toronto, Ontario, Canada.*

*Correspondence: Dr AQ Rana, Parkinson's Clinic of Eastern Toronto and Movement Disorders Centre, 404-2863 Ellesmere Road, Toronto, Ontario, Canada, M1E 5E9.  
E-mail: ranaaq@yahoo.com*

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