Long-term Treatment Effects of Sensory Motor Retuning in a Pianist with Focal Dystonia

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Here we present the case of a pianist suffering from unilateral focal hand dystonia for 10 yrs which affected his piano playing as well as other activities of daily life. The treatment applied was sensory motor retuning (SMR), a behavioral treatment for focal hand dystonia. Improvement was clearly achieved from the beginning of therapy. After 10 mos of treatment, performance levels were comparable to those before illness onset. The patient returned to high-level piano playing, and after 8 yrs of follow-up, performance remains normal. *Med Probl Perform Art* 2011; 26(2):106–107.

Focal hand dystonia is a relatively frequent affliction in musicians.[1,2] Among this collective of patients, the symptoms can cause devastating functional disturbances of the hand, usually forcing them to limit their repertoire practice or to entirely abandon the musical profession. Even though pharmacological therapies have been used effectively for the treatment of other forms of dystonias, and even though isolated reports of success with very different kinds of treatments have being published,[3,4] therapeutic reports on levels of recovery compatible with a high level of musical performance are unusual. Because of the motor involvement of the disorder, it appears that the usefulness of any therapeutic intervention would be dependent on a motor and a concomitant sensory re-education.[5]

All treatment regimens have proved to be ineffective for long-standing cases or those characterized by advanced symptoms.[6] Additionally, those therapies intending sensorimotor reprogramming, which have demonstrated good results for the patients already mentioned,[7,8] have been criticized mainly because of the preliminarity of the data as well as the lack of a general long-term follow-up.[9] For these reasons, it seems to be of interest to present data from a patient with long-standing and severe focal dystonia symptoms who was treated by means of sensory motor retuning (SMR)[7,8,10] and who presented full recovery from the illness, sustained for 8 years' follow-up.

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CASE REPORT

A 45-year-old male professional classical pianist presented with a 10-yr history of progressive focal hand dystonia in his right fourth finger, coincident with an enhancement of instrument practice. During the 2 yrs prior to our clinical assessment, spread of the symptoms occurred, also affecting different everyday activities, such as teeth-brushing, typing, using eating utensils, and dressing behaviors, such as buttoning a shirt.

Physical assessment and complementary exams (blood analysis, electromyography, electronystagmography, and brain NMR) did not show any alteration other than an important motor change characterized by a hyperextension of metacarpophalangeal (MCP) joints, especially of digits 3, 4, and 5, and hyperflexion of interphalangeal (IP) joints while trying to play the piano, even during the most rudimentary finger motor movements (Fig. 1).

The patient underwent a daily therapy routine for a period of 1 yr, consisting on the splinting of fingers other than the finger diagnosed as being dystonic in an angle similar to the fingers' passive angle while playing the instrument. One finger, or a group of them, considered as being compensatory, were splinted, and those digits left unsplinted performed sequences of key strokes on the piano.[7,8,10]



FIGURE 1. The patient showed important extension of the metacarpophalanges, especially of the middle, ring, and little fingers, and hyperflexion of interphalanges while playing the piano.



FIGURE 2. After 10 mos of retraining, there was no movement disorder during piano playing and everyday activities.

To assess the functional level of the patient, 10 musical selections clearly affected by the illness (scales, arpeggios, and octaves, as well as three repertoire pieces) were chosen. The patient rated each single item with a score ranging from 0 to 10, with 0 representing dystonia at its worst and 10 indicating normality. All single scores were then added and the resulting value expressed as a percentage.

Before the beginning of treatment, the functional level was rated as 29%. Soon after the first days of treatment, the patient and the therapist observed clear signs of symptom reduction. By the first month of therapy, restrictions concerning his everyday activities disappeared almost completely, and the piano playing score was 60%. By the fifth month of therapy, the score raised to 81%, and at the end of 10 mos, the patient reported his condition as being normal (piano playing score 100%) (Fig. 2).

At the time of the last evaluation, 8 years after returning to professional musical performance, the patient reported sustained success with no loss of any therapeutic gain or reappearance of symptoms during piano playing or everyday activities.

DISCUSSION

The present case deserves special attention for different reasons. Firstly, the severity and long-standing nature of the case underscore the power of the results obtained with this kind of treatment, especially bearing in mind the results reported by Tubiana and Chamagne[6] with a lack of positive results after treatment in severe cases. Secondly, recovery was amazingly fast, in agreement with some of the cases reported by Candia and coworkers.[7,8] Thirdly, after treatment, the secondary symptoms that had appeared during the 2 years prior to therapy onset also disappeared, even though no additional retraining protocol for these daily life symptoms was designed.

Further, the level of recovery reached the point of normal playing, which is an extremely difficult goal for any kind of therapeutic intervention, and especially in the case of focal hand dystonia. Bearing in mind that such a group of patients would probably label every kind of recovery different from normal as being nonsatisfactory,[11,12] the present case deserves special mention. Finally, the results presented here are long-term, allowing the patient the continuation of his music profession without any restrictions, and demonstrating that, at least in this case, complete permanent recovery is possible in musician's focal dystonia.

REFERENCES

1. Hochberg F, Harris SU, Blattert TR: Occupational hand cramps: professional disorders of motor control. Hand Clin 1990; 6:417-428.
2. Lederman R: Focal dystonia in instrumentalists: clinical features. Med Probl Perform Art 1991; 6:132-136.
3. Durso SC, Drachman DB: Performance hand cramps in violinist, remitting with quinine sulfate: a case report. Med Probl Perform Art 1996; 11:120-122.
4. O'Neill ME, Gwinn KA, Adler CH: Biofeedback for writer's cramp. Am J Occup Ther 1997; 51: 605-607.
5. Elbert T, Candia V, Altenmüller E, et al: Alteration of digital representations in somatosensory cortex in focal hand dystonia. Neuroreport 1998; 9:3571-3575.
6. Tubiana R, Chamagne P: Prolonged rehabilitation treatment of musician's focal dystonia. In Tubiana R, Amadio P, eds.: Medical Problems of the Instrumentalist Musician. London, Martin Dunitz, 2000: pp369-378.
7. Candia V, Elbert T, Altenmüller E, et al: Constraint-induced movement therapy for focal hand dystonia in musicians. Lancet 1999; 353:42.
8. Candia V, Schäfer T, Taub, et al: Sensory motor retuning: a behavioral treatment for focal hand dystonia of pianists and guitarists. Arch Phys Med Rehabil 2002; 83:1342-1348.
9. Jankovic J, Ashoori A: Movement disorders in musicians. Mov Disord 2008; 23:1957-1965.
10. Rosset-Llobet J, Fàbregas-Molas S: What should be done when there are symptoms of dystonia. In Rosset-Llobet J, Fàbregas-Molas S, eds: Musician's Dystonia: A Practical Manual to Understand and Take Care of the Disorder that Affect the Ability to Play Music. Rome, Panamir, 2010, pp 193-228.
11. Chen R, Hallett M: Focal dystonia and repetitive motion disorders. Clin Orthop 1998; 351:102-106.
12. Cole RA, Cohen LG, Hallett M: Treatment of musician's cramp with botulinum toxin. Med Probl Perform Art 1991; 6:137-143.