

## Case Description

- 59-year-old male with Parkinson's disease, presented for management of right lower extremity spasticity and cervical dystonia.
- The patient also suffered from diffuse severe hyperhidrosis involving his entire body including axillae, hands, and torso.
  - His diffuse hyperhidrosis was thought to be secondary to his underlying Parkinson's disease.
- Past Medical History:
  - Parkinson's disease, diffuse hyperhidrosis, and obstructive sleep apnea
- Past Surgical History:
  - Deep brain stimulation procedure

## Physical Exam

- Strength was at least 4+/5 throughout bilateral upper and lower extremities
- Sensation to light touch intact throughout
- Modified Ashworth scale of 2/4 in right tibialis anterior and right tibialis posterior
- Right equinovarus deformity
- Left anterolateral collis
- Deep brain stimulation device in place

## Treatment

- Patient first underwent successful diagnostic selective motor nerve blocks to the nerves innervating the right tibialis anterior, right tibialis posterior, left sternocleidomastoid, and left posterior scalenes.
- Subsequently, when selecting a choice of neurotoxin, the decision was made to utilize rimabotulinumtoxinB specifically for its known side effect of generalized reduced sweating.<sup>1,3</sup>
- Patient underwent chemodenervation with the use of rimabotulinumtoxinB, receiving 1,500 units each to the left sternocleidomastoid and left posterior scalenes, 3,000 units to the right tibialis anterior, and 4,000 units to the right tibialis posterior. A total of 10,000 units of rimabotulinumtoxinB was given.
  - Of note, his deep brain stimulation device was not able to be turned off at the time of the procedure. Therefore, rather than EMG guidance, electrical stimulation was utilized to ensure correct identification of muscles.

## Follow Up

- At the five week follow up visit, patient reported marked reduction of diffuse hyperhidrosis, even in areas that were not directly injected with neurotoxin. This was then confirmed on exam.
- RimabotulinumtoxinB also effectively managed his right lower extremity spasticity and cervical dystonia.

## Discussion

- When selecting a choice of neurotoxin, consider the patient's comorbidities and the selected neurotoxin's side effect profile.
- In this case, rimabotulinumtoxinB, with its known side effect of generalized reduced sweating, was effective for treating the patient's diffuse hyperhidrosis as well as spasticity and cervical dystonia.<sup>1,3</sup>
- Botulinum toxin type B, such as rimabotulinumtoxinB, has been shown to have increased anticholinergic effects with greater systemic spread, as compared to botulinum toxin type A, causing a parasympathetic blockade with autonomic dysfunction.<sup>1,2</sup>
  - This should be kept in mind when selecting a choice of neurotoxin, both for its ability to treat or aggravate underlying conditions, especially in relation to those with autonomic disorders or conditions where anticholinergics are contraindicated.<sup>1,2</sup>

## References

1. Dressler, D., & Benecke, R. (2003). Autonomic Side Effects of Botulinum Toxin Type B Treatment of Cervical Dystonia and Hyperhidrosis. *European Neurology*, 49(1). <https://doi.org/10.1159/000067023>
2. Dressler, D., & Eleopra, R. (2006). Clinical use of non-a botulinum toxins: botulinum toxin type B. *Neurotoxicity Research*, 9(2-3). <https://doi.org/10.1007/BF03033929>
3. Forbat, E., Ali, F. R., & Al-Niimi, F. (2016). Non-cosmetic dermatological uses of botulinum neurotoxin. *Journal of the European Academy of Dermatology and Venereology*, 30(12). <https://doi.org/10.1111/jdv.13772>