

Guest Editors' Introduction

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Deep brain stimulation (DBS) surgery has revolutionized the management of patients with movement disorders, particularly those with Parkinson's disease (PD) and dystonia.¹ The most remarkable advantage of DBS compared with lesions in the same brain region is the adaptability and reversibility of the procedure and its bilateral application, without the potentially serious and permanent complications of simultaneous bilateral ablations.

Dystonia is not an easy disorder to deal with. It occurs as an isolated symptom in primary dystonia or in combination with other phenomenology of variable complexity in nonprimary forms. Moreover, the diagnosis of dystonia is not always easy.² Medical treatment can usually only partially relieve symptoms, and side effects are not uncommon.³ Ablative surgeries, such as thalamotomy and pallidotomy, provide variable results.³

DBS in dystonia was first reported in 1977 by Mundinger,⁴ who performed intermittent stimulation of the thalamus and subthalamic area. Continuous high-frequency stimulation of the thalamus was started in the 1990s by the Grenoble group. Five of 12 patients with generalized dystonia and thalamic DBS experienced mild to moderate improvement of limb dystonia.⁵ Following the clinical benefit observed after pallidotomy in patients with dystonia and PD and after globus pallidus internus (GPi) DBS in PD, stimulation of the GPi was successfully employed in generalized and cervical dystonia.³

To date, several reports on GPi DBS in primary and other types of dystonia are available. Two recent multi-

center studies on bilateral GPi DBS in a larger number of patients with primary generalized/segmental dystonia have confirmed the significant clinical benefit of this treatment.^{6,7} Lately, the subthalamic nucleus has also been investigated as a possible target for DBS in dystonia.

However, comprehensive guidelines for the selection, assessment, and postoperative management of patients with dystonia and DBS are still lacking despite a 12-year global experience with DBS for dystonias. Two single-center approaches were published in 2002 and never expanded.^{8,9} The aim of this supplement is to fill this important gap by providing a rational approach to DBS in dystonia that takes into account current literature and expert opinion. This document has been written keeping in mind the needs of neurologists, neurosurgeons, nurses, and other allied health personnel when approaching and dealing with DBS dystonia patients and their families. Furthermore, we hope that this tool will foster and stimulate a systematic and collaborative approach to future studies in dystonia.

This project originated in 2006, when one of us (E.M.) initiated an Executive Committee (EC, see Appendix 1) and a Consensus Committee of experts in DBS and dystonia for the purpose of developing a common protocol on preoperative selection of dystonia patients candidate for DBS surgery^{10,11} and on their intraoperative,^{12,13} and postoperative^{14,15} management. The framework of the document for PD¹⁶ was followed (ie, development of a comprehensive document based on an extensive search, review, and evaluation of the existing literature covering DBS in dystonia).

A series of questions was developed to assess the most common and relevant aspects of DBS surgery in dystonia, with special focus on the preoperative, intraoperative, and postoperative phases. To facilitate this work, 2 members of the EC were assigned as chairs of each phase. These chairs then invited experts from major centers around the world to be involved in the project as Consensus Committee members. Experts were chosen among neurologists, neurosurgeons, psychiatrists,

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psychologists, researchers, and other care providers known for their experience and expertise in dystonia and DBS (online Appendix 1). The members were then assigned specific questions to answer based on the literature and using an evidence-based approach. The American Academy of Neurology guidelines for literature classification were used to assign a class to the surveyed articles.¹⁷ The literature search spanned the period from 1980 until September 2009 and was performed using PubMed, CINAHL, and the Cochrane Collaborative databases. A total of 306 English-language full publications involving human subjects and related to dystonia and DBS were found. To facilitate the analysis, the articles were classified according to preoperative, intraoperative, and postoperative issues.

As the level of evidence to make recommendations was low, the consensus chapters of the supplement were organized in 4 parts: (1) available data, (2) conclusions, (3) pragmatic recommendations, and (4) points to be addressed.¹⁶

The project was approved and endorsed by the Movement Disorder Society (MDS) as a Task Force for DBS in Dystonia in 2007.

To formulate recommendations and conclusions, the entire Task Force met for a 1-day meeting during the 2008 MDS Congress in Chicago. The EC edited each chapter of the document, and it was then distributed to the entire Task Force for final approval.

In addition to the chapters on the surgical management of dystonia, neuropsychological and neuropsychiatric issues related to DBS for dystonia were also addressed as part of the document.¹⁸

All manuscripts underwent peer review and subsequent revisions.

This work is the result of the generous effort and collaboration of a multidisciplinary group involved in DBS for dystonia (Online Appendix 1). We hope this document will be an important and useful tool for those who provide DBS treatment to dystonia patients and will stimulate further research and development in the field.

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