INTERNATIONAL REVIEW OF NEUROBIOLOGY

Imaging in Movement Disorders: Imaging Applications in Non-Parkinsonian and Other Movement Disorders

Edited by

MARIOS POLITIS, MD MSc DIC PhD FRCP FEAN

Professor of Neurology & Neuroimaging, Director, Neurodegeneration Imaging Group, Institute of Psychiatry, Psychology and Neuroscience, King's College London, United Kingdom







ACADEMIC PRESS

An imprint of Elsevier

CONTENTS

Contributors Preface Acknowledgments		vii ix xi
1.	Neuroimaging Applications in Dystonia Kristina Simonyan	1
	•	
	Multi-modal Neuroimaging Application in Dystonia	2
	 Structural Neuroimaging of Dystonia Functional Neuroimaging of Dystonia 	4 11
	Neuroreceptor Mapping Studies in Dystonia	17
	5. Contribution of Neuroimaging to Understanding the Pathophysiology	17
	of Dystonia	21
	References	22
2.	Neuroimaging Applications in Restless Legs Syndrome Giovanni Rizzo and Giuseppe Plazzi	31
	1. Introduction	32
	Imaging Studies in Restless Legs Syndrome Patients	33
	3. Concluding Remarks	56
	References	59
	Further Reading	64
3.	Neuroimaging Applications in Tourette's Syndrome Davide Martino, Christos Ganos, and Yulia Worbe	65
	1. Phenomenology and Basic Pathological Mechanisms of Tics	66
	2. Neural Correlates of Tics	68
	3. Neural Correlates of PU for Tics	88
	4. Neuronal Signature of Behavioral Disorders and Cognitive Functions	
	Associated With Tics	95
	5. Conclusions	101
	References	102
4.	Neuroimaging Applications in Chronic Ataxias	109
	Mario Mascalchi and Alessandra Vella	
	1. Introduction	110
	2. Classification of Chronic Ataxias	110

vi Contents

	3. Applications of Neuroimaging Techniques to Chronic Ataxias4. ConclusionsReferences	112 150 150
5.	Neuroimaging Applications in Functional Movement Disorders Luis Pedro Faria de Abreu, Tiago Teodoro, and Mark J. Edwards	163
	 Introduction The Role of Neuroimaging in the Diagnostic Work-Up of Patients With 	164
	Suspected Functional Movement Disorders 3. Brain Imaging in the Development of Novel Neurobiological Models of	165
	Functional Movement Disorders	166
	4. Conclusions	174
	References	175
6.	Transcranial B-Mode Sonography in Movement Disorders Rezzak Yilmaz and Daniela Berg	179
	1. Introduction	180
	The Method of Transcranial B-Mode Sonography	180
	Transcranial B-Mode Sonography in Movement Disorders	185
	4. Limitations of Transcranial B-Mode Sonography	204
	5. Conclusion	204
	References	204
7.	Imaging Transplantation in Movement Disorders	213
	Edoardo Rosario de Natale, Heather Wilson, Gennaro Pagano, and Marios Politis	
	1. Introduction	214
	2. Transplantation in Parkinson's Disease	215
	3. Transplantation in Huntington's Disease	242
	4. Transplantation in Other Movement Disorders	249
	5. Neuroimaging of Adult-Derived Mesenchymal Stem Cells in Movement	
	Disorders	250
	6. Conclusions	252
	References	253
	Further Reading	263