Sree Chitra Tirunal Institute for Medical Sciences and Technology

Department of Neurology

Curriculum for PDF program in Movement Disorders

1. **Basic sciences of Movement Disorders**

A. Anatomy and Physiology of basal ganglia and related structures in the brain

B. Neurochemistry and neuropharmacology of Dopaminergic and other neurotransmitter systems important in Movement Disorders

C. Basic principles of genetics and clinical genetic testing. Genetics of common movement disorders including Parkinson's disease (PD) and other Parkinsonian disorders, Dystonic and choreatic disorders, Childhood Movement disorders etc

D. Mechanisms of Neurodegeneration in PD and other neurodegenerative movement disorders, protein misfolding and aggregation, neuropathology of common movement disorders

E. Pathophysiology and neurobiology of Movement disorders including circuit alterations happening in basal ganglia

2. **Basic motor physiology**

A. Basic principles of transcranial magnetic stimulation, and its applications in the practice of movement disorders

B. Basic principles of other electrophysiological (EP) investigations in movement disorders including tremor analysis, and EP studies in myoclonic disorders

3. **Clinical Movement Disorders**

A. Phenomenology of hyperkinetic (Chorea, Dystonia, Ataxia, Myoclonus, Tremor etc) and akinetic rigid movement disorders

B. Clinical history taking in movement disorders

C. Clinical examination of movement disorders and techniques of videotaping

D. Diagnostic criteria of common movement disorders including PD, various atypical Parkinsonian disorders and hyperkinetic disorders

E. Diagnostic investigations, including imaging techniques used in Movement disorders

F. Principles and applications of nuclear imaging

4. **Therapeutics of Movement Disorders**

A. Basic Neuropharmacology of Parkinsonism and hyperkinetic movement disorders

B. Pathophysiology and management of motor complications of PD

C. Pharmacology of medications used in other acquired movement disorders including auto-immune movement disorders

D. Medical management of hyperkinetic and akinetic rigid movement disorders, including treatment protocols

E. Toxicology, pharmacokinetics and pharmacodynamics of Botulinum Toxin; various Botulinum Toxin Preparations, Chemodenervation with botulinum toxin and its applications in movement disorders, practical aspects of free-hand and EMG-guided botulinum toxin injection

5. Interventional Procedures in Movement Disorders

A. Overview of device assisted therapies for movement disorders

B. Lesioning surgeries – patient selection, basic principles, practical aspects

C. Deep Brain Stimulation – History, basic principles and mechanisms, types of implants available, patient selection and pre-operative evaluation, target selection and target planning, stereotactic planning, intraoperative clinical and electrophysiological monitoring, post-operative care, principles and practical aspects of DBS programming, long term follow up and care of DBS patients, emerging indications and targets, emerging technological advances

D. Other device assisted therapies for continuous dopaminergic stimulation – principles, applications, patient selection and management

6. Clinical research in Movement disorders

Basic research methodology, biostatistics, writing a research proposal, manuscript prescription for submission to journals.