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Biography

Kafil Shadani is a Consultant Paediatrician at Beacon Hospital, Ireland. He is highly qualified in paediatrics and holds **MBBS, MRCPCH, MRCPI, FRCPCH, and FRCPI** qualifications. He is associated with **Beacon for Kids**, providing specialist pediatric care and contributing to the management of children's healthcare needs.

Approach to Movement Disorders in Children

Abstract:

Approach to Movement Disorders in Children: A Classification-Based Framework Integrating International Consensus Definitions, Basal Ganglia Circuitry, Clinical Evaluation, Investigation, and Management

Background: Paediatric movement disorders comprise a heterogeneous group of neurological conditions characterized by abnormalities in the speed, fluency, and control of voluntary or involuntary movements. The International Movement Disorder Society (MDS) has developed consensus definitions and classification systems that provide a standardized framework for diagnosis and research. A systematic understanding of movement disorders begins with distinguishing **hyperkinetic** disorders, characterized by excessive involuntary movements, from **hypokinetic** disorders, characterized by reduced movement amplitude and velocity.

Objective: To provide a practical, classification-based approach to the assessment of paediatric movement disorders by integrating internationally accepted definitions, basal ganglia pathophysiology, clinical evaluation, differential diagnosis, investigations, and evidence-based management.

Methods: This review summarizes current international consensus guidelines and contemporary literature regarding paediatric movement disorders. The discussion begins with the anatomical and physiological principles of the **direct and indirect basal ganglia pathways**, illustrating how alterations in these neural circuits produce either excessive or reduced movement. Hyperkinetic movement disorders—including **dystonia, chorea, athetosis, ballism, myoclonus, tremor, tics, stereotypies**—are defined using standardized MDS terminology, with concise descriptions of their characteristic phenomenology, common acquired and genetic causes, age-specific clinical presentations, and distinguishing examination findings. Hypokinetic disorders, particularly paediatric parkinsonism, are rare in children compared to adult population

Approach: We should follow a structured diagnostic approach based on careful history, video analysis, neurological examina-

tion, identification of associated neurological and systemic features, and recognition of red flags suggesting treatable disorders.

Investigations: Recommended investigations include neuroimaging, metabolic screening, genetic testing, neurophysiology, cerebrospinal fluid analysis, and disease-specific biomarkers according to the suspected phenotype.

Management: Management strategies focus on establishing the underlying diagnosis while optimizing symptomatic treatment through multidisciplinary care. Pharmacological therapies, including anticholinergics, levodopa, dopamine-depleting agents, benzodiazepines, antiepileptic medications, and botulinum toxin, are discussed alongside disease-specific therapies for metabolic and immune-mediated disorders. Advanced interventions such as **deep brain stimulation**, intrathecal baclofen, and comprehensive rehabilitation involving physiotherapy, occupational therapy, speech and language therapy, and psychological support are also reviewed.