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Letter to editor

Rare disease, twin girl with Dopa Responsive Dystonia suspicious Segawa disease in Indonesia

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To the Editor,

I am writing to highlight the often-overlooked condition known as Dopa Responsive Dystonia (DRD), a rare and complex movement disorder that can have profound effects on pediatric and their families. This condition often misdiagnosed or overlooked among healthcare professionals regarding the clinical presentation. One of the main challenges in diagnosing DRD lies in its similarities to other movement disorders. It is an uncommon neurotransmitter disorder caused by a mutation in the GTP cyclohydrolase 1 (GCH 1) or tyrosine hydroxylase (TH) gene (1). One of major clinical manifestation in DRD is dystonia which characterized by involuntary muscle contraction resulting to abnormal posture and movement and commonly occur in lower extremities even deformities. This condition accounts for 5-10% of all primary dystonia and may lead to tremor or severe encephalopathy in children. While medical advances have led to increased understanding of various neurological conditions, DRD remains relatively under-discussed, resulting in misdiagnoses and delayed treatment for many individuals**.** Masaya Segawa initially described dopa-responsive dystonia (DRD) in 1976. Among its symptoms include dystonia that manifests in childhood, gait anomalies rigidity, mild parkinsonism, diurnal swings, and a significant reaction to levodopa. It is important to distinguish DRD from clinical examination and neuroimaging modalities, as well as from other specific dystonia-related syndromes such as dyskinetic cerebral palsy (CP), juvenile Parkinson's disease and drug-induced dystonia. Based on current studies, the diagnosis of DRD may be confirmed through a combination of metabolic profile, gene analysis, cerebrospinal fluid (CSF) neopterine, and dopamine transporter (DAT) imaging (2). Early diagnosis and intervention are critical for managing DRD effectively. When patients receive appropriate treatment with levodopa early in the disease course, they often experience significant improvement in their symptoms and overall quality of life. Delays in treatment can lead to increased disability and a diminished ability to participate in daily activities, affecting not only the patients but also their families. Furthermore, early intervention can alleviate the psychological burden that accompanies chronic illness. Many patients with DRD suffer from anxiety and depression due to the unpredictable nature of their symptoms and the stigma associated with movement disorders. A timely diagnosis can help mitigate these issues by providing patients with a clear understanding of their condition and a structured treatment plan. Despite widespread use of anti-dystonia medications in pediatric dystonia, there remains a paucity of evidence. Every youngster whose origin of dystonia is unknown should try levodopa because of its amazing effects in DRD. Beside pharmacology, Botulinum neurotoxin (BoNT) and deep brain stimulation (DBS) applied to many different dystonic diseases (3). The recommended daily dose of levodopa for treating Segawa illness is 4–10 mg/kg (4). In clinical practice, BoNT can be utilized, as it is with all dystonia patients, as an

adjuvant to pharmaceutical or surgical therapy (5). We identified a comparable instance in our tertiary hospital. Nine-years-old twin girls, presented to our hospital with walking disturbance for two-and-a-half year's duration. The involuntary movement was worsening during day and resolved in the morning, resulted in limitation in daily activities such as running, writing, and walking up the stairs. No history of trauma, developmental delay, family history with specific condition or complication during birth and pregnancy reported. Their mother was giving birth normally, full term, with birth weight 2500 gr (Vs) and 2400 gr (Va). They received formula feeding. Motoric examination showed clonus. Gait observation showed steppage gait in both patients. These twin girls underwent several examinations, laboratory and radiology. Complete blood count, blood gas analysis, ammonia, glucose, renal and liver function test reveal in normal limit. There was no electrolyte imbalance. Brain Magnetic Resonance Imaging (MRI) contrast from both shows normal basal ganglia, normal cortex and no evidence of brain atrophy or hypoxia. Following levodopa challenge test, they were diagnosed with dopa-responsive dyskinesia without atypical features. They were prescribed oral levodopa 25 mg twice a day along with physiotherapy session twice a week, with which their motoric symptoms improved. In several month levodopa consumption (combination benzeraside preparation), the elder sister, first born of twins (Vs) still had light abnormality in walking especially in toward evening. She often missed nap, even went to bed late at night. The levodopa dose increased and presented a guanosine triphosphate cyclohydrolase-1 (GCH-1) test (deletion/duplication) by MLPA (Multiplex Ligation-Dependent Probe Amplification) analyses. Negative result given. Whole exome sequencing (WES) is needed as a result of the various gene mutations that lead to DRD like GTP-CH-1 deficiency, tyrosine hydroxylase, sepiapterin reductase, 6-pyruvoyl-tetrahydropterin (PTP) synthase and quinoid dihydropteridine reductase (QDPR). However, most of these diagnostic modalities were not available and accessible in limited source area or low-middle country. Levodopa challenge test is reliable diagnostic method for DRD. To distinguish DRD from idiopathic torsion dystonia, which is not responsive to levodopa, pediatrician can simply administer a low-dose levodopa challenge.

Declaration of Patient Consent: The authors confirm that they have obtained all necessary patient consent documents. In the form provided, the parents have given their consent for the publication of clinical information in the journal.

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