EDITORIAL

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Not All Seizures Listen- Time to Change the Story

Seizures are sudden and often unpredictable episodes of abnormal brain activity that may present as convulsions, impaired awareness, behavioral changes, or sensory phenomena. Epilepsy, characterized by recurrent unprovoked seizures, is one of the most common neurological disorders in children. Rather than being a single condition, it represents a broad spectrum ranging from easily manageable disease to those seizures that are relentless and resistant to treatment. The rising incidence of childhood epilepsy is underscored by data from the Global Burden of Disease (GBD) study, which analyzed trends across 204 countries from 1990 to 2021. Based on this data, Zhang et al. reported the estimated prevalence rates ranging from 3 to 7 per 1,000 children in developed countries, rising to as high as 44 per 1,000 in low resource countries.[1] Around 20-40% children with epilepsy have a difficult path where seizures become refractory.[2]

"Not all seizures listen" captures the daily reality of children and families navigating the unpredictable and resistant nature of epilepsy. Drug resistant epilepsy (DRE) is when seizures fail to respond to two anti-seizure medications at appropriate dosage. DRE is a therapeutic challenge that requires more than just titration of medication; it demands a fundamental shift in our approach to diagnostic evaluation and comprehensive management of such epilepsies. It serves as a wake-up call to evaluate the existing treatment strategies and embrace more inclusive and adaptive approaches to care. The era of "idiopathic" epilepsy is almost ending and one needs to take into account individual's variability according to etiology and response of a child to anti-seizure medication. The shift should include earlier recognition of etiology that can range from structural brain abnormalities, immune mediated mechanism and/or genetic mutations. Although in low resource settings, access to genetic testing have remained uneven but recent advancements have unveiled a large number of epilepsy related genes. Some of these pathogenic variants are now linked to epileptic syndromes that have targeted therapies. Moreover, this identification can also help clinicians avoid medications which may exacerbate seizures.[3]

Wirrell et al. emphasized that early identification of resistant seizures and timely referral to specialized centers can substantially improve their neuro-developmental outcomes, further supporting the need for a proactive and precision driven approach.[4] Time to change the story emphasizes on the need to change the therapeutic narrative. If trial of sequential and appropriate anti-seizure medication fails to control seizures, then there is a growing hope in newer and more targeted treatments. Ketogenic diet has been found efficacious in managing generalized epileptic encephalopathies such as Lennox-Gastaut and Doose syndromes and remains the treatment of choice in epilepsies due to metabolic defects like GLUT1 deficiency and pyruvate dehydrogenase deficiency. Similarly, Everolimus is effective for refractory epilepsy associated with tuberous sclerosis, while cannabidiol in Dravet syndrome and responsive neurostimulation represent additional emerging options for DRE. Thus, the expanding field of precision medicine, driven by genetic insights, is also reshaping the therapeutic landscape, allowing for more personalized interventions earlier in the disease course.[5]

While seizure control is the primary outcome, it is not the only one. For children, their ability to communicate, learn, play and grow are equally important. Children suffering from epilepsy often face behavioral issues, learning difficulties and

even stigmatization. Such factors combined with ongoing seizures severely affect the quality of life of the children and the families. Thus, the changing narrative must place the child, not just the seizure, at the center of care. Care should be delivered through multi-disciplinary teams, with a focus not only on control of seizure, but also on providing neuro-developmental support, individualized educational planning and promoting over all well-being of the family. To drive meaningful change, we must shift our mindset, advance diagnostic and therapeutic interventions and rethink our approach to epilepsy in children.

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