## **IAP - IJPP CME - 2024**

# RATIONAL ANTI-SEIZURE MEDICATION TREATMENT

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Abstract: Pediatricians and neurologists often face challenges when managing children with epilepsy, including issues such as delayed initiation of treatment, medication non-adherence, social stigma, drug resistance and adverse effects related to treatment. Additionally, behavioral and cognitive co-morbidities are common in children with epilepsy. Understanding different types of epilepsy, and selecting appropriate medications tailored to each type is crucial for effective management. A systematic approach that includes understanding the unique characteristics of each patient's epilepsy, maintaining open communication, ensuring close followup, and timely referral to specialist care can help address these challenges effectively.

**Keywords**: Drug-resistant epilepsy, Childhood epilepsy, Antiseizure medication, Polytherapy.

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## Points to Remember

- A "one-size-fits-all" approach is ineffective in treating epilepsy; treatment should be individualized.
- Treatment should focus on the patient's clinical condition, not just EEG or MRI reports.
- Accurately identifying the seizure and epilepsy type is essential for selecting the appropriate first-line anti-seizure medication.
- Polytherapy is considered only when monotherapy options have been fully exhausted.
- A systematic approach to treatment yields better outcomes in epilepsy management.

#### References

- 1. Kwan P, Brodie MJ. Early identification of refractory epilepsy. N Engl J Med. 2000; 342:314-319.
- Chen Z, Brodie MJ, Liew D, Kwan P. Treatment Outcomes in Patients With Newly Diagnosed Epilepsy Treated With Established and New Antiepileptic Drugs: A 30-Year Longitudinal Cohort Study. JAMA Neurol. 2018; 75:279-286.
- 3. Kwan P, Arzimanoglou A, Berg AT, Brodie MJ, Hauser WA, Mathern G, et al. Definition of drug resistant epilepsy: Consensus proposal by the International League Against Epilepsy (ILAE) and International Bureau for Epilepsy (IBE). Epilepsia. 2010; 51:1069-1077.
- 4. Symonds JD, Elliott KS, Shetty J, Armstrong M, Brunklaus A, Cutcutache I, et al. Early childhood epilepsies: epidemiology, classification, aetiology and socio-economic determinants. Brain. 2021; 144:2879-2891.
- 5. Piero Perucca, Melanie Bahlo Samuel F Berkovic Annurev genom 2017; 40: 129-146 PMID: 32339036. doi: 10.1146/annurev-genom-120219-074937.

- Chung WK, Wensel T, Dubeau F, et al. Genetic and structural contributions to the development of drugresistant epilepsy in children: A retrospective study. Epilepsia. 2011; 52:1447-1456.
- 7. Srikumar G, Bhatia M, Jain S, Maheshwari M. Usefulness of short term video-EEG monitoring in children with frequent intractable episodes. Neurol India. 2000; 48: 29-32.
- 8. Montenegro MA, Sproule D, Mandel A, Cappell J, Chiriboga CA, Jacob S, et al. The frequency of non-epileptic spells in children: Results of video-EEG monitoring in a tertiary care center. Seizure. 2008; 17:583-587.
- 9. Riquet A, Lamblin M-D, Bastos M, Bulteau C, Derambure P, Valleeet L, et al. Usefulness of video-EEG monitoring in children. Seizure. 2011; 20:18-22.
- Fisher RS, Cross JH, French JA, Higurashi N, Hirsch E, Jansen FE, et al. Operational classification of seizure types by the International League Against Epilepsy: Position Paper of the ILAE Commission for Classification and Terminology. Epilepsia. 2017; 58(4):522-530.
- 11. Specchio N, Wirrell EC, Scheffer IE, Nabbout R, Riney K, Samia P, et al. International League Against Epilepsy classification and definition of epilepsy syndromes with onset in childhood: Position paper by the ILAE Task Force on Nosology and Definitions. Epilepsia. 2022; 63:1398-1442.
- 12. Matricardi S, Scorrano G, Prezioso G, Burchiani B, Di Cara G, Striano P, et al. The latest advances in the pharmacological management of focal epilepsies in children: a narrative review. Expert Rev Neurother. 2024; 24:371-381.
- 13. Patsalos PN. Drug interactions with the newer antiepileptic drugs (AEDs)-part 1: pharmacokinetic and pharmacodynamic interactions between AEDs. Clin Pharmacokinet. 2013; 52:927-66.

- 14. Gambardella A, Labate A, Mumoli L, Lopes-Cendes I, Cendes F. Role of Pharmacogenomics in Antiepileptic Drug Therapy: Current Status and Future Perspectives. Curr Pharm Des. 2017; 23:5760-5765.
- 15. Guerrini R, Zaccara G, la Marca G, Rosati A. Safety and tolerability of antiepileptic drug treatment in children with epilepsy. Drug Saf. 2012 Jul 1;35(7):519-33.
- 16. Kumar S, Sarangi SC, Tripathi M, Gupta YK. Evaluation of adverse drug reaction profile of antiepileptic drugs in persons with epilepsy: A cross-sectional study. Epilepsy Behav. 2020; 105:106947.
- 17. Striano P, Minassian BA. From Genetic Testing to Precision Medicine in Epilepsy. Neurotherapeutics. 2020; 17:609-615.
- 18. Talwar A, Estes E, Aparasu R, Reddy DS. Clinical efficacy and safety of cannabidiol for pediatric refractory epilepsy indications: A systematic review and meta-analysis. Exp Neurol. 2023; 359:114238.
- 19. Wirrell EC, Lagae L, Scheffer IE, Cross JH, Specchio N, Strzelczyk A. Practical considerations for the use of fenfluramine to manage patients with Dravet syndrome or Lennox-Gastaut syndrome in clinical practice. Epilepsia Open. 2024; 9:1643-1657.
- 20. Sourbron J, Klinkenberg S, van Kuijk SMJ, Lagae L, Lambrechts D, Braakmanet HMH, et al. Ketogenic diet for the treatment of pediatric epilepsy: review and meta-analysis. Childs Nerv Syst. 2020; 36:1099-1109.
- 21. Ali I, Houck K. Neuromodulation in Pediatric Epilepsy. Neurol Clin. 2021; 39:797-810.
- 22. Li H, Ji S, Dong B, Chen L. Seizure control after epilepsy surgery in early childhood: A systematic review and meta-analysis. Epilepsy Behav. 2021; 125:108369.