The Restoration Act (INGO) is proudly offering virtual seminars on various clinical topics of inborn errors of metabolism, genetics, and neurology in collaboration with the Ministry of Health Kurdistan Regional Government, Directorate General of Health Duhok, Iraqi & Kurdistan Boards for Medical Specialization/Pediatric, University of Duhok College of Pharmacy and Pediatric Department of Medicine, Kurdistan Pediatric Society, Hevi Hospital, and the Iraqi Pediatric Society.

"Updates in Epilepsy in Children"

Held 26 March 2024

Watch the recorded Virtual Clinical Seminar

Presented by:

Renowned Pediatric Neurologist

Dr. Jean-Baptise Le Pichon, MD, PhD, FAA

Dr. JB's written answers to questions asked during the live seminar:

Question: Do you think that the era of progress in genetics has any role in the outcome of epilepsy? (We can diagnose cases with some genetic conditions but still either the treatment is the same or even there is no treatment like two cases we diagnosed with familial progressive myoclonus epilepsy)

Dr. JB Answer: *Yes, there are multiple reasons to test children with epilepsy. Children with sodium channelopathies (SCN1A being the most common) should not be treated with sodium channel blockers (with very rare exceptions where the mutation is a gain of function). Other epilepsies have treatments. For example, Glut1 transporter deficiencies are treated with the ketogenic diet. Pyridoxine-responsive epilepsies respond very well to B6 treatment. Finally, we are entering the area of genetic treatments using both anti-sense oligonucleotides and gene therapy proper.*

Question: In absence of EEG, is there a 'broad spectrum anti-epileptic 'medicine?

Dr. JB Answer: *Yes, there are several. Levetiracetam is always a good bet. It is widely available, it has no liver metabolism, it has no medication interactions, it has 100% bioavailability, it can be loaded orally and intravenously, and has a very rapid onset of action. The only negatives is that it can cause irritability and has a short half-life (6.5 hours). Others include topiramate, zonisamide (check for sulfonamide allergies), and valproate (do not give to children younger than 3 years old).*

Question: Can we give benzodiazepines as sedatives to make baby calm and sleep to take EEG? Thank you

Dr. JB Answer: *No, benzodiazepines affect the EEG, they cause an increase in beta activation, they cause slowing, and they can suppress the activity you are looking for. It is much better to bring the baby sleep deprived, or, if they are young enough to swaddle them.*

Question: It is challenging to distinguish seizures from other non-epileptic phenomena especially in younger non-verbal children? How we can be sure please?

Dr. JB Answer: *The answer is experience! But even experienced epileptologists get it wrong. As a rule, epileptic seizures are very stereotyped, rhythmic, and follow a classic progression. Hopefully, some of the videos I showed helped. If the family can video tape the events it is also very useful.*

Question: Will the patient in focal epilepsy remember when his friend spoke with him?

Dr. JB Answer: *It depends, but it is possible if the seizure remains focal. If the seizure is generalized, the answer is no.*

Question: what is the role of deep brain stimulation in epilepsy?

Dr. JB Answer: *Deep brain Stimulation (DBS) and Responsive NeuroStimulation (RNS) are two methods that consist in inserting leads deep in the brain to stimulate the seizure focus and elicit a zone of inhibition, suppressing seizure activity. These are more and more used in high-income countries but are still reserved for medically refractory epilepsies that are not good candidates for other surgeries.*

Question: Is there any role is Piracetam in treatment of BHS breath holding spells?

Dr. JB Answer: *Levetiracetam is the piracetam that we have the most experience with. There were multiple non-controlled studies that were suggestive of a possible effect. However, there have not been any randomized controlled studies to this day that I know of. The data for using piracetams in breath holding spell remains very weak. I typically don't use it. Note that in my experience, fluoxetine has been more successful in treating the most refractory cases of breath holding spells.*

Question: Role of EEG and when to use AED in febrile seizures?

Dr. JB Answer: *For simple febrile seizures (generalized, less than 15 minutes, and associated with a fever in a child 6 months to 5 years) there is no role for EEG or anti-seizure medications (note the new nomenclature here, the ILAE is trying to replace AED with ASM). For complex febrile seizures an EEG may be obtained several days later and, if there is focality either in the semiology or on the EEG, imaging is required. There is no benefit at treating these children with an ASM prophylactically (we used to treat them with phenobarbital, this has been shown not to be of any benefit).*

Question: thank you very much, is there any role of implanted nerve stimulation device for treatment?

Dr. JB Answer: *You are welcome, it was my pleasure! Yes, there is a role for implanted nerve stimulation in children with medically resistant epilepsy who are not candidates for any other surgery. These include Vagal Nerve Stimulation (VNS), Deep Brain Stimulation (DBS), and Responsive NeuroStimulation (RNS).*

Question: what is role of diet in epilepsy?

Dr. JB Answer: *There are several diets that work well. They are all versions of the ketogenic diet, including the modified Atkins diet, and other versions of the diet with various themes on the use of MCT oils and low carb. They are all very difficult to follow, so you need a dedicated family. When strictly followed they are very effective (we published a paper showing effectiveness of the ketogenic diet in breastfed infants!).*