ABSTRACT BOOK

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Guest Editor: Taoufik Alsadi[1]

[1]Sheikh Khalifa Medical City, Abu Dhabi, United Arab Emirates

Abstract of Presentations

Presidential Lecture. Pharmacotherapy of Epilepsy in 2013

Emilio Perucca, University of Pavia, Pavia, Italy

Over the last 20 years, many second generation antiepileptic drugs (AEDs) have been introduced into clinical practice. Because each AED differs from the others in spectrum of activity against different seizure types, tolerability profile and interaction potential, an expanded pharmacological armamentarium provides unprecedented opportunities to tailor treatment choices to the need of the individual patient. On the other hand, mastering at best the use of over 20 different AEDs is a difficult challenge for the attending physician, particularly the non-specialist, and there is a risk that suboptimal use could lead to harmful effects. Although some of the new AEDs offer advantages in terms of ease of use, reduced interaction potential and side effect profile, the number of patients who achieve seizure freedom has not increased markedly with the introduction of these agents, and about one third of patients remain refractory to existing treatments. Yet, there is no doubt that the evidence base to make rational therapeutic decisions in epilepsy has improved in the last 20 years, partly due to a better understanding of the clinical pharmacology of individual drugs and information derived from well controlled randomized trials (RCTs). Such trials have addressed a wide range of critical issues, including (i) the value of prophylactic AED treatment in people at high risk of developing epilepsy; (ii) the efficacy of AEDs in preventing seizure recurrence after a single seizure; (iii) the comparative efficacy and tolerability profiles of various AEDs in newly diagnosed epilepsy; (iv) the efficacy and tolerability of newer generation AEDs as adjunctive therapy; (v) the relative merits of alternative monotherapy vs adjunctive therapy in patients unresponsive to a single AED; (vi) the clinical impact of therapeutic drug monitoring; (vii) the risk of seizure recurrence after AED withdrawal in seizure-free patients and (viii) the value of resective epilepsy surgery. Although the results of these trials can inform clinical decision making, the amount and the quality of data from RCTs remains inadequate for a fully evidence-based approach to epilepsy treatment. In fact, many RCTs conducted to date have major shortcomings, such as a low statistical power, failure to account adequately for the heterogeneous nature of seizure disorders, choice of endpoints addressing regulatory concerns rather than therapeutic needs, and bias in study designs which may have favoured the sponsor's product. Critical interpretation of existing data is essential for selection of the many existing treatment options. For the future, we need better research on biomarkers that could detect the epileptogenic process at an early stage and also predict response to individual treatments. Identification of such biomarkers could prove invaluable in applying new paradigms for drug discovery, including the development of innovative treatments to prevent epileptogenesis.

Plenary Sessions

PS1.1. Stroke and Epilepsy

Hassan Hosny, Cairo University, Cairo, Egypt

Seizures and epilepsy are both common neurologic conditions but when they occur in close relationship they produce much more concern than either does alone. The question is usually how aggressive should one control acute seizures for the fear of worsening the stroke or the risk for development of late seizures.

The points which should be addressed are (1) how often do the various types of stroke present with seizures (2) Whether it is a stroke or a Todd's paralysis. (3) should the patient with post-ictal paresis receive thrombolytic therapy (4) what diseases can manifest as both a stroke and epilepsy (5) Which stroke types are associated with chronic epilepsy (6) What treatments are optimal after a stroke (7) Can post –stroke epilepsy be prevented?

PS1.2. Posttraumatic Seizures

Iyad Khoudeir, Noor Hospital, Abu Dhabi, United Arab Emirates

Post-traumatic seizures can occur early or late after a traumatic brain injury. PTE can affect the prognosis of the traumatic brain injury itself. Post traumatic epilepsy (PTE) is a common cause among symptomatic epilepsies. Predicting which patient will develop late PTE can be challenging as can be the treatment. Risk factors for early and late seizures exist and may help in predicting the occurrence of PTE.
An agreement exists about treating early seizures but this does not protect against the future development of late PTE. Actual research is focusing on understanding the epileptogenesis of PTE and by doing so improving the chances of an efficient prophylactic treatment.

PS1.3. Tumor and Epilepsy

Sonia Khan, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

The association of focal seizures and focal epilepsy with brain tumors has been recognized for over one century when Jackson emphasized that glioma could cause symptomatic epilepsy and seizures could be the initial or the only clinical manifestation and the epileptogenicity related to the involvement of cortical gray matter. Brain tumors vary in epileptogenicity according to histopathology and rate of growth and location. Slowly growing glial and glioneural tumors and cortical based tumors are more epileptogenic than others. Brain tumors become epileptogenic due to alteration of local neurochemicals profiles, altered focal and global network. Data from magnetoencephalography showed alterations in functional connectivity can contribute to tumor related epilepsy. In gliuoneural tumors up regulations of P13-mTOR pathway, inflammatory, activation of metabotropic glutamate receptors (mGluR1/5) inlammatorycytokines and down regulation of GABAA receptors subunits contribute to the epilepsy of these tumors. In primary human glial tumors reduced kir currents with mislocalization of kir 4.1 channels with parallel increased expression of Interleukin 1L-1b increase propensity to seizure. In rapidly growing tumors such as high grade glioblastoma multiforme perilesional changes with mechanical distortion, differentiation of cortical area, ischemic and hemosiderine deposition lead to epileptogenicity of the tumor. Additional mechanisms of epileptogenicity in brain tumors include radionecrosis, infections, additional drugs prescribed to patient's intrathecal or intraarterial chemotherapy and alterations in blood brain barrier. Low grade tumors constitute 10-30% of patients with intractable focal epilepsy. Good seizure outcome can be achieved with total tumor resection, early operative intervention, extended resection of temporal lobe tumors.

PS1.4. Drug Induced Seizures

Ahmed Shatila, Mafraq Hospital, Abu Dhabi, United Arab Emirates

Drug induced seizures are a common disorder with more than 60% of the cases in one study being due to prescribed medications.

Drug induced seizure have been associated with status epilepticus anoxic brain injury and death. Many prescribed medications along with street/recreational drugs can cause seizures. It is estimated that 6.1% of new onset seizures are drug related. This presentation will focus on the many medications and street drugs that can cause seizure. The mechanism of drug induced seizures will be briefly discussed as well.

PS2.1. Pitfalls in EEG Interpretation

Ahmad Beydoun, American University of Beirut, Beirut, Lebanon

Although the diagnosis of epilepsy is a clinical one, the EEG can be very helpful in supporting that diagnosis and in lateralizing/localizing the irritative and ictal onset zone. It is also an essential test to define the electroclinical syndrome. Additionally, the EEG can be useful in following the response to therapy (eg. absence seizures), and in predicting the risk of recurrence after a first unprovoked seizure.

The EEG however has a number of shortcomings. For example, the ictal EEG can be normal in patients during simple partial seizures or complex partial seizures of frontal lobe origin. In addition, the sensitivity of the first EEG in patients with definite EEG is in the range of 35-55% depending on the age of the patient, the duration of the study and the presence or absence of sleep recordings. Furthermore, the EEG can show partial or generalized discharges in approximately 1% of adults and 3-4% of children.

The diagnosis of epilepsy is supported by recording epileptiform discharges on the EEG. A number of benign patterns including sharp transients or rhythmic discharges are sometimes misinterpreted as epileptiform. In this lecture, we will review some of those patterns and discuss their clinical relevance.

PS2.2. The Role of VEEG in the Diagnosis of Epilepsy (epilepsy mimics)

Cigdem Ozkara, University of Istanbul, Istanbul, Turkey

Stepwise approach to diagnosis and management is essential in patients with epilepsy. The first question is always should be '' is this an epileptic seizure?'' The differential diagnosis among similar paroxysmal events with motor phenomena or involvement of consciousness such as psychogenic nonepileptic seizures (PNES), migraine, syncope, transient ischemic attacks, parasomnia etc must be carefully done in the beginning. The key information can be obtained by EEG and sometimes simultaneous video EEG recording is required. One should not forget the possibility of normal EEG in patients with epilepsy and epileptiform activities in patients without epilepsy. Therefore the EEG findings need to be interpreted with clinical information. In some instances even video EEG may be misleading due to movement artifacts which obscures the brain activity or which could be confused with ictal activity. Furthermore co- existence of PNES with epileptic seizures is the major confusing condition which puts the clinician in the trouble. Syncope is another common mimicker of epilepsy however it is essential to include ECG electrodes during VEEG to record cardiac activity for differential diagnosis.
The second question to be answered is the type of the seizure if it is generalized or focal. Seizure history, age at onset, EEG, semiology, precipitating factors, timing, duration are all need to be taken into account for diagnosis. Patients should be meticulously interviewed related to their events and a witness is almost mandatory for detailed information. Auras such as visual, auditory, olfactory hallucinations, motor or sensory phenomena provide valuable information for the region of onset, semiology like side of head deviation or prominent limb movements, dystonic posture, automatisms are also very important clues. If one can obtain enough reliable information and hypothesize about the localization this may be helpful for further investigations to reveal possible etiology. However this information may not always be correctly achieved and even can be misleading. Seizures related to primary generalized epilepsies (e.g. juvenile myoclonic epilepsy) may have focal features in EEG and/or semiology which gives rise to diagnosis with partial seizures and epilepsy. Misdiagnosis is a common cause of pharmocoresistant epilepsy. Many patients with idiopathic generalized epilepsy may be referred to surgical centers as they are diagnosed to have focal seizures. EEG recording with simultaneous video will solve this problem in many cases.

Furhermore VEEG is almost mandatory for the presurgical evaluation of patients with epilepsy to delineate the epileptogenic zone. Electrophysiological data with seizure semiology is the most valuable information for epileptologist to make the hypothesis for respective surgery. Majority of patients in VEEG units are composed of surgical candidates and usually kept for an adequate length of time to capture enough seizures to decide.

VEEG unit should be run very carefully for safety issues with a specially trained personnel and equipment.

PS2.3. What is New in the Classification of Seizures and Epilepsy Syndromes?

Sonia Khan, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

The revision of the International League Against Epilepsy ILAE epilepsy and seizure classifications in 1981 and 1989 was mandated by recent major technologic and scientific advances in the science of epilepsy. The ILAE commissions aimed to construct a "new scientific classification from application of methods used in biology that determines separate species and natural classes" proved elusive and, therefore, the last Commission in their report of 2010

confined their revisions to "new terminology and concepts" instead of "proposing a new classification (in the sense of organization) of epilepsies. Most of the proposals in this report are modified interpretations and nomenclature of previous ILAE classifications with new concepts but recent advances have not been incorporated. It seems that the purpose of the 2010 classification report was primarily for clinical use to assist in patient care; a secondary purpose is for research. The 2010 Organization of the Epilepsies is considered by a group of epilepsy experts as an important clinical tool in the neurologist's armamentarium and impacts on virtually every epilepsy consultation. By necessity, the organization is dynamic and evolving. The new concepts reflect current understanding and are introduced as outdated terms and frameworks are no longer valid for clinical practice. These changes represent a major step forward that will improve patient management and understanding of the neurobiology of the epilepsies. However, the new ILAE report met a considerable protest from several expert epileptologists after critical revision that referred to several weaknesses .The following points are examples. A revised seizure classification should incorporate advanced knowledge of seizure pathophysiology, and clinical, interictal, and ictal manifestations. Such an attempt was made and detailed in the 2006 report of the ILAE Classification Core Group. However, these changes are largely discarded in the new ILAE report of 2010 despite the scientific advances that were available to the two Commissions were the same or had improved between 2006 and 2010. Another concern is that "No specific classification is recommended for focal seizures which should be described according to their manifestations" which may create some confusion as free text descriptions are fine in a manual of differential diagnosis but not as a classification system. A third concern is that accepted types of epileptic seizure are listed by name only, without defining them and this may also lead to confusion. Furthermore, the report fails to consider reflex epileptic seizures. Status epilepticus classification was omitted despite immense advances of the understanding of status epilepticus and the relevance on the classification. Several authors studied the applicability of the 2010 classification in clinical practice and large number of patients remained unclassified in the new classification system and the new epilepsy classification has not substantially improved inter-observer agreement which indicates that the new classification needs improvement and more specification.

PS3.1. The Role of Therapeutic Drug Monitoring in the 21st Century

Hamza Alsayouf, APNC, Dubai, United Arab Emirates

The primary goal of AED is 100 % seizure control. The best way to achieve this is by optimizing the AED dose to avoid high serum trough levels with excessive toxicity or low serum levels with breakthrough seizures. To find this fine balance therapeutic drug level monitoring can help to provide rough guidelines for neurologist and epileptiologist.
Variability among individuals in absorption of AED medication and poor correlation between serum drug levels and efficacy can pose significant challenges in optimizing epilepsy treatment. This Lecture will discuss the pros and cons of therapeutic drug level monitoring of AED.And it will also try to compare therapeutic drug level monitoring for old and new AED medications and finally will try to provide an overall summary of the current recommendations regarding obtaining AED drug levels.

PS3.2. How to Combine AEDs?

Emilio Perucca, University of Pavia, Pavia, Italy

There is universal agreement that the pharmacological treatment of epilepsy should be initiated with a single antiepileptic drug (AED). When seizures do not respond to treatment with a single AED including, when appropriate, attempts with two or more alternative monotherapies, a trial of two drugs in combination is justified. Not all drug combinations, however, are equal in their efficacy and tolerability. First of all, multiple drug therapy involves the risk of pharmacokinetic drug interactions (e.g., interactions resulting in changes in serum levels of the affected drug), which may require dosage modifications to avoid toxicity or loss of anti-seizure activity. Moreover, AEDs may be subject to pharmacodynamic interactions, which occur at the site of action without any change in serum drug levels. In particular, results from animal studies show that when two AEDs are administered simultaneously, their anticonvulsant activity may be additive, supra-additive (synergistic) or infra-additive, and the same may occur for toxic effects. The ideal combination should result in synergistic efficacy and infra-additive toxicity: indeed, some AED combinations exhibiting

such features have been identified in experimental models, but these findings may not necessarily apply to the clinical situation. Although the suggestion has been made that a favourable outcome is more likely to occur when AEDs with different (and potentially complementary) mechanisms of action are combined, evidence is not fully univocal in this respect. A number of studies do suggest that simultaneous use of two sodium channel blockers (particularly carbamazepine, oxcarbazepine,phenytoin, lamotrigine, and lacosamide) may result in undesirable potentiation of adverse central nervous system effects, whereas combining certain drugs with different mechanisms (most notably, lamotrigine and valproate) may lead to more favorable effects. A fully mechanistic approach to combination therapy, however, is not currently feasible due to incomplete understanding of the mechanisms of action of the various AEDs, and the fact that the majority of available AEDs possess multiple modes of action. A rational approach to use of AED combinations should also consider the risk of adverse pharmacokinetic interactions, the adverse profiles of individual AEDs, and empirical evidence derived from clinical observation.

P**S4.1. Paroxysmal Non Epileptic Events in Infants and Toddlers**

Khaled Zamel, Mafraq Hospital, Abu Dhabi, United Arab Emirates

Misdiagnosis in epilepsies, when considering its dimensions and consequences, is a colossal medical problem and could lead to serious repercussions. In general, the first step towards the correct diagnosis of epilepsies is to establish whether a paroxysmal clinical event was actually an epileptic seizure or something else. In children, nonepileptic paroxysmal events (NEPEs) are common leading to at least 20 percent of referrals to pediatric epilepsy centers. Misdiagnosis often leads to multiple trials of anticonvulsant medications before the correct diagnosis is recognized. Many children have behaviors that initially sound like true seizures that on video-electroencephalogram (EEG) monitoring prove to be nonepileptic. In younger children, many of these represent common disorders such as temper tantrums, oppositional defiant behavior, and attention deficit disorder/attention deficit hyperactivity disorder. Others represent stereotyped paroxysmal disorders that could be associated with episodic impairment of awareness or unusual motor phenomena. In adolescence, psychogenic non-epileptic seizures (PNES), sometimes called “pseudoseizures”, are the most common condition misdiagnosed as epilepsy with many adolescents sent to epilepsy centers for difficult seizures eventually found to have PNES instead of epileptic seizures. In these patients, disproving the diagnosis of epilepsy is important from several points of view. The diagnosis is often easy for adequately trained physicians who are able to obtain a clear history and recognize if the episode represents one of the various forms of epileptic seizures. However, even for the most experienced epileptologists, occasionally it could be very difficult to reach an unequivocal diagnosis for reasons such as atypical seizure presentations, inadequate history or overlapping symptom manifestations. Capturing and characterizing the events of concern on video-EEG monitoring is essential to making an accurate diagnosis of NEPEs.

PS4.2. Febrile Seizures

Mohamed Al-Malik, Tawam Hospital, Al Ain, United Arab Emirates

Febrile seizures are the most common seizure disorder in childhood, affecting 2% to 5% of children before the age of 5 years. How serious are they for the child? Opinions have changed with time.

The contents of this presentation two carries Messages, one for the primary care and secondary care pediatricians. The first message is that Most febrile seizures are brief, do not require any specific treatment or extensive workup, and have a benign prognosis. They need to understand the scientific basis for using or avoiding various proposed tests and treatments for children with simple febrile seizures and be able to educate and counsel the caregivers.

The second Massage to the our colleague in the tertiary care who will be faced with difficult, complex and recurrent cases of febrile seizure. They need to understand that there are different opinions and controversies around treatment and outcome of these children. That will help them avoiding therapies with high potential for adverse effects and no demonstrated ability to improve children’s long-term outcomes. That would also help them in proper counseling of the anxious and distressed caregivers.

PS4.3. Metabolic Epilepsies

Waseem Fathalla, Mafraq Hospital, Abu Dhabi, United Arab Emirates

Metabolic disorders are rare causes of seizures; but seizures are common manifestations of metabolic disorders. No electro-clinical syndrome is diagnostic of a specific metabolic disorder, but certain electro-clinical syndromes are highly suspicious of certain metabolic disorders. Metabolic epilepsy syndromes are potentially treatable; one must suspect and exclude the treatable metabolic causes when history and clinical picture meet threshold This presentation will review pathogenesis of epilepsy as it relates to neurometabolic disorders, with focus on select epilepsy syndromes and their underlying metabolic etiology. Certain Electro-clinical syndromes are considered a red flag for some neurometabolic epilepsies. An age stratified approach is presented with representative diseases. A Review of some of the treatable metabolic epilepsies is stressed in order to raise awareness of importance of early recognition and treatment for improved outcomes.

I will also address suggestive electro-clinical findings in relevance to specific etiologies: such as burst suppression pattern in non-ketotic hyperglycinemia, refractory focal status epilepticus in relevance to POLG1 mutations, among others.

An update on the current molecular-pathophysiological pathways leading to epileptogenesis in some neurometabolic disorders is briefly reviewed, with particular focus on differential diagnosis and therapeutic implications; this is well represented by the pyridoxine pathway inborn errors of metabolism.

P**S4.4. Epileptic Encephalopathy**

Raida Al Baradei, KFSH-D & Dammam University, Dammam, Saudi Arabia

Epileptic encephalopathies are severe brain disorders of early age that manifest with: (1) electrographic paroxysmal activity that is often aggressive, (2) seizures that are refractory and usually multi-form, (3) behavioral, cognitive and neurological deficits that may be relentless, and (4) sometimes early death.
The concept of 'epileptic encephalopathies' is based on the assumption that aggressive ictal and electrical epileptogenic activity during brain maturation is the main causative factor of progressive cognitive and neuropsychological deterioration or regression. Conversely, this deleterious epileptic activity is a specific age-related brain reaction of excessive neocortical excitability to different pathological conditions, which are focal or diffuse, idiopathic or symptomatic cause. This age-related epileptogenic reaction is peculiar to the immature brain and varies significantly in accordance with the stage of brain maturity at the time that this occurs. Thus, EEG demonstrates primarily burst-suppression patterns in the neonatal period, and hypsarrhythmia in infancy, and slow generalized spike and wave discharges (GSWD) in early childhood. With advancing age, the seizure and electrographic epileptogenic features may evolve from one to another age-related stage that is from burst-suppression to hypsarrhythmia and then to slow GSWD. All epileptic encephalopathies have a tendency to abate, discontinue, or even stop in adolescence but often with serious neurocognitive residuals.

PS5.1. The Role of Neuroimaging in Refractory Epilepsy

Raida Al Baradei, KFSH-D & Dammam University, Dammam, Saudi Arabia

The care of patients with epilepsy, as with that of most other patients with neurologic diseases, has been revolutionized by developments in neuroimaging since the late 20th century. This has led to a far more accurate diagnosis of the pathologic substrate of epilepsy, which is essential for accurate classification, determination of prognosis, and surgical candidacy.
Structural MRI has greatly reduced the need for invasive electroencephalographic evaluation of patients with intractable epilepsy and has therefore reduced morbidity.
Although general consensus exists among neurologists specializing in epilepsy as to when and what type of neuroimaging studies should be performed in patients with epilepsy, these views have not yet been accepted completely by general neurologic and medical practitioners, despite the recommendations of the ILAE (1997).
Neuroimaging has important applications in the diagnosis and treatment of patients with seizures and epilepsy. Having replaced computed tomography (CT) in many situations, MRI is the preferred imaging technique for patients with epilepsy. Advances in radionuclide-based techniques such as single-photon

emission CT/positron emission tomography and electromagnetic source imaging with magnetoencephalography are providing new insights into the pathophysiology of epilepsy. In addition, techniques such as magnetic resonance spectroscopy are beginning to impact treatment. In this review, I discuss how these techniques are used in clinical practice but more importantly, how imaging findings play an increasing role in neurotherapeutics.

PS5.2. Surgical Treatment of Epilepsy

Cigdem Ozkara, University of Istanbul, Istanbul, Turkey

Epilepsy surgery can be defined as the surgical intervention in which the primary goal is to treat medically refractory epilepsy . The main aims are to stop seizures with minimal or without neurologic deficit and especially in children to optimize the cognitive and developmental potential. The optimal candidates for surgery are the patients suffering from developmental disorder or damaged brain or cortical zone, from where the seizures arise and whose neurological picture won't be worse than the current one.

The seizure duration should not be shorter that 2 years in adult patients, however it might be shorter in acute and life threatening conditions or in children. There is no age limit whereas the outcome is known to be less favorable in older ages. Patients with benign epileptic syndromes , progressive systemic disorder, maladaptiveness to medical therapy are absolute, interictal psychosis and mental retardation are relative contraindications for surgery.

Patients with focal onset seizures, whose seizures do not respond to drugs after 2 AED trials and sufficient time passed (min. 2 years) to decide, or patients with unacceptable side effects due to AED, seizures causing serious danger and/or limitations in daily life, children especially younger than 2 years and with MR lesion are the good candidates. There are conditions that can be considered as surgically amenable such as : mesial temporal lobe epilepsy and hippocampal sclerosis, focal epileptogenic lesion (CD, Tumor, AVM etc), diffuse hemispheric lesions, large destructive/atrophic lesions, presumably symptomatic partial, MRI negative patients.

Patients and/ or caregivers motivated for surgery, and capable of cooperation during pre and post surgical procedures with suitable for resective surgery shoud be considered in earliest advance as delay in referral and presurgical evaluations may be harmful for the patient. It should be noted that surgery is not the last resort for treatment. However timing for surgery should be individualized according to each patient.

Debates

Debate 1.1. Are Mechanisms of Action of AEDs Relevant to its Efficacy?

Khaled Zamel, Mafraq Hospital, Abu Dhabi, United Arab Emirates
Waseem Fathalla, Mafraq Hospital, Abu Dhabi, United Arab Emirates

This debate discusses the role of the mechanism of antiepileptic action in the treatment of epilepsy. More specifically; Has mechanism-driven antiepileptic drug discovery brought us better epilepsy treatment? Although this question is difficult to answer, the short answer may be: "not yet." Modern antiepileptic drugs with new or modified mechanisms of action are being developed as "designer drugs", yet the outcomes and at times the safety of some of these drugs appear to have not stood up to its promise.

It is important to remember that response to AEDs is never 100%; Up to one-third of our patients remain refractory. If the response to the initial monotherapy is just not good enough, then we need to search for an alternative monotherapy. We also need to monitor for adverse effects. Even in patients who are seizure-free, if a given individual cannot tolerate a drug, he or she is not going to want to stay on it. And we don't want that person to stay on it.

Moreover, some AEDs can make certain seizure types worse. Our classic sodium channel drugs will frequently worsen absence seizures, atonic or drop attacks, and myoclonic seizures. The more we know about mechanisms of action and how those seizures emanate - what they respond to - the better we will do for each and every patient.

The past development of new antiepileptic drugs targeted putative mechanisms of seizure generation. As seizures are only symptoms of the underlying epilepsy, blocking seizure generation can provide at best only symptomatic treatment. It may be that the failure in treating drug-resistant seizures is related, at least in part, to the failure of current drugs in targeting the mechanisms underlying epilepsy. Developing antiepileptic drugs with antiepileptogenic activity may be a clue to better treatment of presently drug-resistant epilepsy.

Debate 2.1. When First Drug Fails Add on or Alternative Monotherapy?

Ahmad Beydoun, American University of Beirut, Beirut, Lebanon
Taoufik Alsadi, SKMC, Abu Dhabi, United Arab Emirates

The rational management of newly diagnosed epilepsy is based on prescription of a single antiepileptic drug (AED). Use of monotherapy minimizes the risk of toxicity, including teratogenicity, facilitates assessment of drug response, prevents drug interactions, and may improve patients' compliance. While the advantages of monotherapy in the initial management are widely accepted, there is no universal agreement on the policy to be adopted when seizures continue after initial monotherapy. Two different strategies are being used, i.e. substitution of the initially ineffective AED with another AED given as monotherapy (alternative monotherapy) or administration of a second AED as adjunctive therapy (polytherapy).

Advantages of switching from one monotherapy to another include an appreciable probability of achieving seizure control without undue toxicity, the possibility of evaluating the effects of drugs separately, and avoidance of drug interactions. The beneficial effects on patients' well-being of reducing polytherapy have been repeatedly documented. By contrast, polytherapy could offer theoretically advantages in terms of a more rapid seizure control and, possibly, higher seizure-freedom rates, mainly through exploitation of positive pharmacodynamic interactions. However, the therapeutic gain from adding a second AED in patients failing on one or more sequential monotherapies is controversial. For example, the proportion of patients uncontrolled by two sequential monotherapies who achieved seizure free freedom on combination therapy has ranged in different studies from as high as 35% to as low as 15%. Rational choice of drug combinations is, at present, based more on avoidance of pharmacodynamic or pharmacokinetic side effects than on evidence for supra-additive efficacy.

In the present debate, these therapeutic strategies will be compared in patients with epilepsy whose seizures had not been controlled on single or sequential monotherapies. However, one strategy will not fit all and it is evident that the strategy should be determined individually, dependent on patient scenario, and his logic resonates.

Oral Communications

OC1. Neuropsychological Aspects of Tuberous Sclerosis Complex

Ahmed Mansy, Royal Commission Hospital, Jubail, Saudi Arabia

Tuberous Sclerosis Complex is an autosomal dominantly inherited multisystem disorder in which two-thirds of cases are due to spontaneous mutation. Individuals with Tuberous Sclerosis Complex are commonly associated with neuropsychological features as epilepsy, mental retardation, autism and other psychological disorders.

This study aims to assess neuro-psychological features of Tuberous Sclerosis Complex and to correlate the psychological findings with neurological manifestations. This descriptive study was conducted on patients of only definitive Tuberous Sclerosis Complex of both sexes.

Inclusion criteria: All the patients of both sexes included in the study follow the diagnostic criteria for TSC that have been revised (1).

A group of twenty individuals in the pediatric age group with definitive TSC were included in the study, 12 males (60%) and 8 females (40%).

Patients complaining of seizures were 18/20 presenting 90% of cases. Infantile spasms was the most common type of seizures representing 13/20 (65%). Infantile spasms were detected in all cases with moderate to severe (significant) mental retardation representing 100%. As for mild mental retardation, infantile spasms were present in 50% of cases. The mean number of tubers was significantly greater among individuals with mental retardation than among those without (P value= 0.005). All autistic patients had epilepsy with an EEG showing hypsarrhythmia.

There is a significant relationship between the number of tubers and epilepsy. The presence of more number of tubers is a risk factor for the development of infantile spasms or onset of seizures below one year.

Patients of TSC with seizures are having higher incidence of mental retardation especially if they started below six months of life. There is no significant relation between the presence of autism and epilepsy especially infantile spasms, neither nor significant relationship between the number of tubers and autism.

The presence of tubers in the temporal lobe might be

associated with autism. The results show the presence of the temporal lobe tubers is most probably a necessary but not sufficient risk factor for the development of autism.

OC2. The Spectrum of Fixation-off Sensitivity and Scotosensitivity: Typical and Atypical Forms

Imad Saadeldin, Tawam Hospital, Abu Dhabi, United Arab Emirates

The aim of the study was to define the spectrum of the epileptic syndromes and epilepsies that can be associated with fixation-off sensitivity (FOS) and delineate the electro-clinical types of FOS. Clinical and video EEG data of all our patients with FOS over the last 6 years were reviewed using FOS technique described by Panayiotopoulos.

The results show that from January 2005 to June 2012, 12 of about 1,800 patients had had one or more video-EEGs with FOS (0.66%). From the 12 patients with full clinical and EEG data available, 8 had various epilepsies that included: symptomatic or probably symptomatic focal (7), cryptogenic generalized (3), and two had no seizures. Two patients (33%) were photosensitive and one was scotosensitive. FOS EEG abnormalities were occipital in 6 patients, and generalized in two. Two showed atypical forms. One boy of normal intelligence showed abnormal behavior associated with disorientation and confusion and postictal amnesia. His video/EEG evaluation unexpectedly documented the presence of FOS. Another patient was diagnosed with atypical benign partial epilepsy, and his repeated video/EEG recordings showed FOS. His sister was diagnosed with epileptic encephalopathy with continuous spike and wave complexes. Three patients were diagnosed as childhood absence epilepsy.

Irrespective of classification, routine video-EEG monitoring for documenting FOS using Panayiotopoulos technique should be offered to selected patients with epilepsy. Unusual and rare cases within the spectrum of benign childhood seizure susceptibility syndrome can explain the atypical cases.

OC3. Anti Epileptics in Pregnancy: Corniche Experience

Fatima Farook, Corniche Hospital, Abu Dhabi, United Arab Emirates

Corniche Hospital is a major maternity hospital in Abu Dhabi, UAE, with an average of eight thousand deliveries per year. This includes 10 % women with medical disorders in pregnancy.

Epilepsy is the commonest neurological disorder in pregnancy, with a significant impact on maternal and foetal morbidity and mortality.

According to three major epilepsy and pregnancy registries from USA, Australia and UK, both major and minor malformations were reported in foetuses exposed to anti epileptic drugs (AEDs). Major anomalies were 4-6 % in exposed foetuses compared to 2-3 % in the normal population. Sodium valproate, Phenytoin, Carbamezapine, phenobarbitone and topiramate are associated with a higher base line anomaly rate. Polytherapy increases the risk up to 6 - 8.6%.

The aim of the study was to observe the incidence of congenital malformations in foetuses exposed to AEDs in our patient population, identify the individual drugs involved, and iIdentify additional risk factors.

Prospective observational study of pregnant patients with epilepsy attending the Obstetric Medicine Neurology Clinic in Corniche Hospital from 1st February 2008 till 31st December 2012. All patients with a diagnosis of Epilepsy in pregnancy were followed in the clinic and foetal outcome noted. AEDs taken were documented. Fetal Anomaly scans were requested for all patients. Newborns were examined by the neonatologist at birth for congenital malformations.

Eighty patients were observed during 102 pregnancies. The average maternal age was 28 yrs. 85% had generalised epilepsy. Seventy one patients were on medication during pregnancy. Sixty seven were on a single drug. Three had 2 drugs during pregnancy. One patient used 3 drugs at conception and later changed to 2 drugs. Ten patients were off medication during the first trimester, but recommenced in the second trimester of pregnancy. Sixty three patients were compliant with medications in pregnancy. Dose adjustment was required in 8 patients during pregnancy for breakthrough seizures. Of the 102 pregnancies the outcome was 96 live births. Eighty six babies delivered in Corniche hospital. There were 80 term deliveries and 6 preterm deliveries (all due to obstetric reasons). There were 6 pregnancy losses, 4 first trimester and 1 second trimester miscarriage. One intrauterine foetal death at 26 weeks was recorded. Average birth weight was 3 kg with 6.25% low birth weight babies. Two term babies had low apgar scores

at birth (< 7 at 5 minutes). Three foetuses had major congenital malformations.

Over all congenital malformation rate previously reported in the UAE is 14.2/1,000. In our study only 3 babies had congenital malformations among 71 mothers exposed to AEDs. All 3 had an associated risk factor other than the AED including consanguinity, family history of congenital malformations, diabetes mellitus and lack of folic acid use in first trimester. Thus in our own population we were unable to prove a definite association between congenital malformations and antiepileptic medications.