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Epilepsy India



Newsletter of the Indian Epilepsy Association & Indian Epilepsy Society



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Dr. Bindu Menon

First of all, we the members of the editorial team would like to wish all our readers a very happy, healthy, successful and prosperous New Year. The last year witnessed great achievements of members of IEA and IES in the field of Epilepsy and we look forward to 2018 for more!

Despite the wide armamentarium of anti-epileptic medications, seizures may continue to persist in about 1/3rd of patients with epilepsy leading to drug resistant epilepsy. In the last decade epilepsy surgery has witnessed major advances in this subset of patients. Dr. Manas Panigrahi and Dr. Suchindra Vooturi, have presented a comprehensive overview on these surgical procedures and options for this group of patients in the present issue.

We have added a new section on –‘Drug Corner’ and we continue with it. Dr. Atma Ram Bansal, has briefly updated on the therapeutic status of Zonisamide in the current issue.



Dr. Sita Jayalakshmi

The various Chapter activities on epilepsy awareness and education programs continue to be held and in this issue we are glad to share these with you from Jaipur and Bangalore.

We also wish to inform you that we continue to face the dilemma on old/incorrect mailing addresses of some of our members and have once again sent mail requests to secretaries of the respective Chapters to inform us on the updated mailing list of members. Barring a few we are still awaiting for responses from other chapters! A gentle reminder to those who are yet to mail.

A humble request to all our experts working passionately in the various disciplines of epilepsy to kindly share summary of your important and interesting scientific work through Epilepsy India Newsletter. We are sure you will help us to keep up with the interests and stand up to expectations of our members.



Dr. Chanda Kulkarni

Lastly, the organizing committee for ECON 2018, a 19th joint annual conference of Indian Epilepsy Association (IEA) and Indian Epilepsy society (IES) to be held at Bangalore, from 2nd – 4th Feb 2018, is all geared up and invites you for the same. The meeting has a galaxy of star studded faculties from India and across the globe and promises a state of art comprehensive educational program in the field of epilepsy. We wish all the very best to the organizing team and hope to meet you all at the garden city of Bangalore!

SURGERY FOR EPILEPSY



Dr. Manas Panigrahi

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Dr. Sudhindra Vooturi

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Introduction

Anti-epileptic drugs [AEDs] can control seizures well in ~ 70% of patients with epilepsy [PWE], but approximately 30% of patients are refractory to them and a few need surgical removal of the seizure focus in the brain as an option for seizure freedom or even a significant reduction in the disabling seizures. Epilepsy surgery has been an accepted form of treatment for over 50 years. With advances in MRI techniques and new surgical techniques along with ways of identifying areas to be removed, epilepsy surgery procedures are being done with good success. Surgery can be performed on both children and adults. However, it is not a suitable treatment for everyone who has epilepsy or for those in whom medications are ineffective.

Surgery is considered only if the area of the brain where the seizures start can be clearly identified. The area to be removed should not be responsible for any important functions, like sensation and movement, language. Epilepsy surgery is considered in people whose seizures can be shown to arise in one area of the brain. Over 70% of PWE who undergo epilepsy surgery become completely seizure free. Interestingly, surgery for epilepsy is advancing continuously with new techniques, new equipment and an increasing number of neurosurgeons embracing it. There is also a steady growth in number of people with epilepsy undergoing surgery and enjoy a much better quality of life.

Epilepsy Surgery

To find out whether someone is suitable for surgery a number of observations will need to be taken into account by the consultant Neurologist or epileptologist. Surgery is considered if the person has no other medical problem which would make them unsuitable for surgery and anti-epileptic drug treatment has been tried but still the seizures are uncontrolled. The seizures should be arising from one localized area of the brain and the person's ability to function normally should not be affected by removing this part of the brain. The affected part of the brain can be removed without causing further damage to any other part of the brain and the areas of the brain responsible for speech, sight, movement or hearing are not close to the part of the brain to be removed.

Pre-surgical evaluation

To get good information about the epileptogenic zone to be removed, few tests are done before surgery. These include:

- Video EEG- is routinely done to record a person's EEG over a number of days. The goal of this testing is to record a person's EEG when a seizure occurs – which shows the electrical activity in the brain ideally at the beginning, during, and after a seizure. If surgery is being considered, video and audio recording is

also done with the EEG, so the epilepsy team can see and hear what occurs during a seizure. All this information together helps determine the type of seizure, where it may begin in the brain, and where it may spread or other brain areas that may be involved. At times continuous EEG monitoring or long-term EEG monitoring are also considered.

- **MRI brain-** An MRI scan uses a strong magnetic field and radio waves to create pictures on a computer of tissues, organs and other structures inside the body. It shows if there's a structural cause for epilepsy.
- **SPECT & PET-** PET (positron emission tomography) and SPECT (single positron emission tomography), which involve injecting tiny traces of radio active substances into the body and watching which part of the brain they reach. This scan shows different parts of the brain in different colors thus identifying how much blood flow is in each part of the brain as well as extent of structural cause for the epilepsy.

In few patients, invasive EEG mapping is done in which the surgeon places special electrodes onto the surface of the brain to know the area of beginning of the seizures, although this is only done in a small number of cases. The type of surgery that a patient undergoes will depend greatly on what the surgeon hopes to achieve.

After all the tests are performed the results will be discussed in the patient management meeting of the multidisciplinary team for Epilepsy evaluation and surgery and a decision about the need for surgery and planning of surgery is done. This is discussed with the patient and family members on the chances of seizure control and the risks involved in the case and a final decision about epilepsy surgery is taken.

Types of surgeries performed ?

- **Temporal lobectomy** - This is the commonest surgery performed and nearly 80% are reported to be seizure free after surgery. A larger part of the temporal lobe is removed.
- **Hemispherectomy** - sometimes used to treat very severe epilepsy in children with damage to one whole side of the brain. The damaged side of the brain is disconnected from normal brain.
- **Lesionectomy:** Removal of a lesion such as a tumor or a cyst
- **Corpus callosotomy** – This is sometimes used to treat children with very severe epilepsy. The procedure involves cutting the fibers that connect the two halves of the brain.
- **Vagus Nerve Stimulation [VNS]:** This is a type of treatment for epilepsy. It aims to reduce the number, length and severity of seizures in PWE. VNS is a treatment for epilepsy where a small generator is implanted under the skin below the left collar bone and is connected to a lead with three coils at one end. These coils are wrapped around the vagus nerve in the left side of the neck by a small operation. The VNS stimulates the vagus nerve at intervals to reduce the frequency and intensity of seizures.

After the surgery

Despite the lengthy and very difficult nature of brain surgery, most patients make a rapid recovery and are usually up and walking within a couple of days. Between eight and fifteen weeks later, most people are able to return to work. Some aspects, like waiting for the nerves that supply sensation to the skull, may take some time to recover.

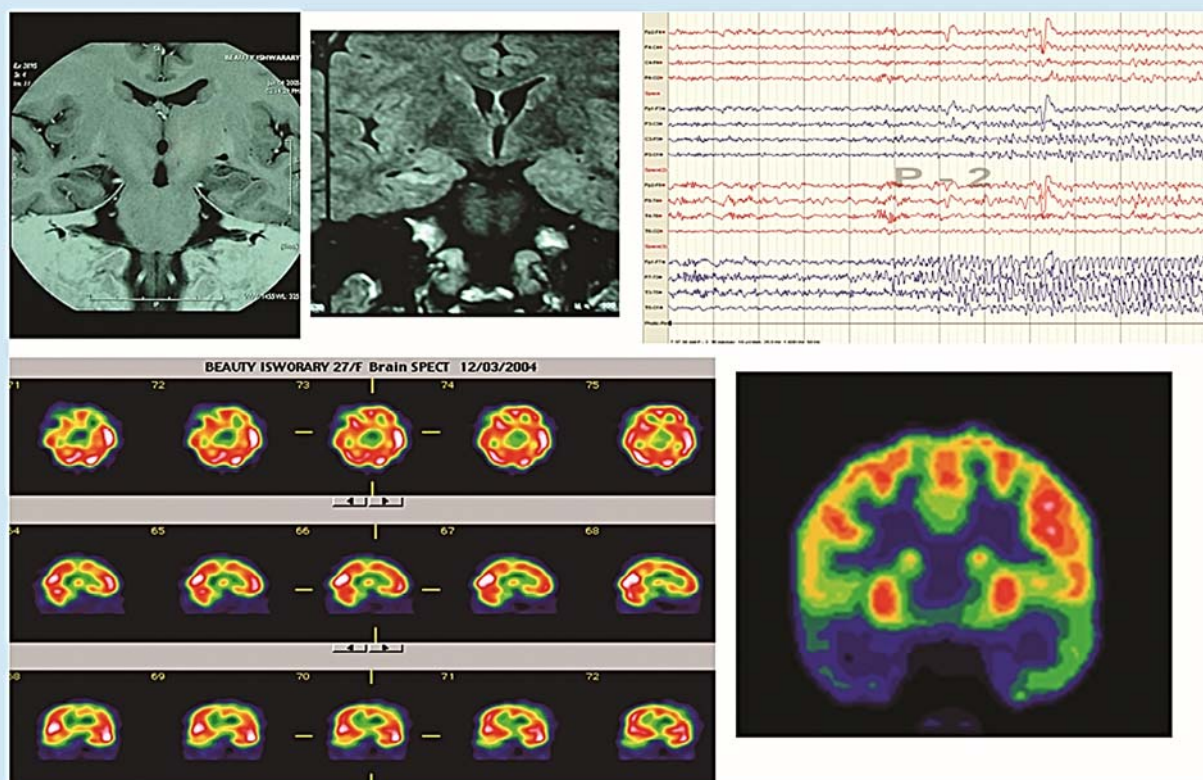
Results

Some PWE may experience seizures just after the operation due to temporary swelling. This does not mean that the operation has failed. Up to 75 to 80% of patients notice a dramatic reduction in the number of seizures after surgery, especially temporal lobectomy. They can then look at reducing or stopping their AEDs in consultation with their doctor. Most of the times AEDs should be continued up to one year after surgery after which a gradual reduction of these can be done.

How epilepsy surgery is planned

Good communication between the doctor and the patient is important for management of all PWE, especially when surgery is being considered. The patient and the family should have a realistic picture of the benefits, risks, and the chances of complete or partial control of epilepsy afterwards. The emotional aspects related to epilepsy need to be evaluated and managed before and after epilepsy surgery. People may feel disappointed if they are not totally seizure free or if they have to go on continuing the AEDs after surgery. It is better if both the patient and the family know what to expect and have discussed the same with multidisciplinary medical team (which may include neurologists, neuro-surgeons, nurses, and psychologists) before the surgery.

Figure 1. Presurgical Evaluation: Clockwise- Video EEG, Ictal SPECT and FDGPET, MRI.



References :

1. www.epilepsy.com – official website of Epilepsy Foundation.

Reported By:

Dr. R.K.Sureka

Professor & Head Neurology
Mahatma Gandhi Medical College, Jaipur



1] Release of poster on “WOMEN AND EPILEPSY” and a film on epilepsy “ MIRGI ROG-BHRANTHIYA AVAMTATHYA” as public awareness at residence of health minister, Jaipur.

A poster on “**Women and epilepsy**” and a short film on epilepsy “**MIRGI ROG – BHRANTHIYA AVAMTATHYA**” were released by Shri.Shankar Lal Sharma, MLA at the residence of Hon’ble Health Minister Shri. Kalicharan Saraf. The poster and film were developed by Epilepsy Care & Research Foundation [ECRF] working in the field of rural epilepsy care program for the last 23 years. Shri. Sharma, lauded the efforts of Dr.R.K.Sureka, Chief Neurophysician, ECRF and Professor & Head, Department of Neurology, Mahatma Gandhi Medical College, Jaipur for his efforts to remove myths about epilepsy. The poster on women with epilepsy was designed to depict various phases of women living with epilepsy and included - marriage, pregnancy, menopause and status of Indian law for women with epilepsy. The film is available on You Tube and covers various myths and misconceptions on epilepsy prevalent and the true facts advocating their removal. Also, an “Epilepsy Awareness Rath” was flagged off by Mr. Sharma with posters and pamphlets to spread the public awareness on epilepsy across the City of Jaipur.

2] Inauguration of Epilepsy Clinic on Tele Medicine and Exhibition on Epilepsy Awareness Program by Health Secretary, Govt Of Rajasthan, at Mahatma Gandhi Medical College, Jaipur

“**Epilepsy Clinic**” through Telemedicine was inaugurated on 17th November 2017, by Smt. Veenu Gupta, Health Secretary, Govt.of Rajasthan as a Chief Guest at Mahatma Gandhi Medical College, Jaipur

Telemedicine hall. This was attended by Heads & Faculty of various departments including Professor Hari Gautam, Ex Chairman, University Grants Commission.

Dr.Veenu Gupta, congratulated Dr R K Sureka, for his work and dedication to patients with epilepsy. Further, she appealed the team that epilepsy clinic through telemedicine be connected with 100 centers in the state of Rajasthan. She emphasized that the health care personnel involved to take forward their activities and offer its services to all the patients with epilepsy across the state. Additionally, requested the members of clinic to sensitize care takers and the public to assist in erasing stigma, myths and misconceptions about epilepsy. Her addressing the gathering was followed by inauguration of ‘epilepsy poster exhibition’ and expressed her deep appreciation on the information provided. Dr.R.K.Sureka, gave an awareness talk on “SEHAT KI BAAT “ involving epilepsy in women which was attended by faculty, medical and nursing students as well as patients .



Release of Poster on “Women & Epilepsy” at the Health Ministers residence, Jaipur



Inauguration of “Epilepsy Clinic “ through Telemedicine by Health Secretary.

Reported By:

Dr. Chanda Kulkarni

Advisor – Clinical Pharmacology
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"DEMYSTIFYING EPILEPSY"

JOINT SESSION OF SWISSNEX INDIA AND IEA BANGALORE CHAPTER

A joint session on **"DEMYSTIFYING EPILEPSY"** by **SWISSNEX INDIA and INDIAN EPILEPSY ASSOCIATION Bangalore Chapter** was held at the **Consulate General of Switzerland, Bangalore**, on Wednesday, 6th December 2017, with speakers representing Switzerland and India. **Mrs. Cornelia Camenzind**, Deputy Consul General of Switzerland moderated the session.

Dr P V Rai, President IEA Bangalore Chapter, former Associate Medical Director Swiss Epilepsy Center Zurich, spoke on **"Approach to epilepsy treatment in Switzerland"** with reference to Special Epilepsy Centers in Western Europe and about the successful epilepsy management at the Swiss Epilepsy Center Zurich. He also stressed on the fact that how patients are treated on an out-patient (poly clinic) basis to offer comprehensive day care at different levels, and have reduced good number of Hospital and Rehabilitation beds thus improving the social integration of people with epilepsy (PWE).

Dr P. Satishchandra, former Director/Vice - Chancellor NIMHANS, spoke in detail about **"Epilepsy: Indian Perspective"** with reference to the improving epilepsy management in India, giving examples of common forms of epilepsy caused by infections such as cysticercosis. He also presented videos of rather less common forms of epilepsy such as **"Hot water Epilepsy"**, **"Eating Epilepsy"**, **"Frontal Lobe Epilepsy"** with directions for their proper management. Dr Satish, also gave a brief overview on the AED treatment at different levels as well as about options for epilepsy surgery along with useful hints to care takers on the management of PWE.

The presentations were followed by an active Q/A session with the speakers and the senior neurologists/neuro-surgeon **Dr H V Srinivas, Dr G T Subhas, Dr Malla Bhaskar Rao**. This was an interactive session with ample scope for full participation of the audience. There were varieties of interesting questions and useful answers by the panelists. The Q/Asession went so long that the organizers had to interrupt, and requested the audience to carry forward their questions during dinner.

On the whole this educational event was well organized by SWISSNEX India, from the point of view to create Epilepsy Awareness among the general public.

Session ended with vote of thanks to SWISSNEX INDIA by IEA Bangalore Chapter followed by dinner.



Mrs. Cornelia Camenzind, Dy Consul General, Swissnex, Dr. P.V. Rai and members



Panel discussants from lt. to rt. – Dr. G.T. Subash, Dr. P.V. Rai, Dr H.V. Srinivas, Dr. P. Satishchandra and Dr. Malla Bhaskar Rao

Agenda schedule for IEA/IES meeting ECON 2018

19th Joint Annual Conference of Indian Epilepsy Society (IES) &
Indian Epilepsy Association (IEA)-ECON 2018
Venue : NIMHANS Convention Centre

Date	Time	Meetings
02/02/2018(Friday)	1500Hrs-1600Hrs	IES EC
02/02/2018(Friday)	1600Hrs-1700Hrs	IEA GC
02/02/2018(Friday)	1700Hrs-1730Hrs	IEA-IES Joint meeting
03/02/2018(Saturday)	1800Hrs-1830Hrs	IES AGM
03/02/2018(Saturday)	1830Hrs-1900Hrs	IEA AGM

Dr. Atma Ram Bansal
Senior Consultant
Neurologist & Epileptologist
Medanta-The Medicity, Gurgaon (Haryana)



Introduction:

Zonisamide, a benzisoxazole-based compound, was first synthesized and used in since 1970s for psychiatric disorders and was marketed as antiepileptic drug in Japan and Korea since 1989¹. The Food and Drug Administration (FDA) approved it in 2000 for adjunctive or add-on therapy in the treatment of focal seizures in adults. After various randomised control trials, it was introduced in Europe in 2005 for the same indication. For focal epilepsy, it is currently licensed as monotherapy in adult patients and as add on therapy in 6 years and older patients in Japan and European countries. With a more than 2million patient-years experience this drug is having ILAE Class A evidence for use as monotherapy in focal epilepsy in adults.

Pharmacological properties

Mechanism of Action

Though precise mechanism of action is not clear but its anti-seizure activity is believed to be by blocking the repetitive firing of voltage-gated sodium channels and reducing voltage-sensitive T-type calcium channels (without affecting L-type channels)². It does not affect GABA (gamma aminobutyric acid) or glutamate but has weak carbonic anhydrase inhibition property. Zonisamide affects tonic phase more than clonic phase. Due to some similarity to sodium valproate, it is effective even in absence and myoclonic seizures. In view of multiple mechanism of action, it is used as a broad spectrum anti-epileptic drug.

Pharmacokinetics

Zonisamide is rapidly and completely absorbed with peak plasma concentrations occurring within 2-4 hours². Food slows speed of absorption but doesn't affect bioavailability which is close to 100%. Only oral preparations are available. Mean plasma half life of elimination is around 60hours (50-70hours). In view of a very long half life, single daily dosing is advised. It undergoes acetylation via hepatic metabolism by CYP3A4 and then undergoes conjugation with glucuronides. Excretion is mainly renal. There is no auto-induction or any enzyme induction. Protein binding is low (40%). Drug should be used cautiously in severe renal dysfunction.

Drug interaction- Enzyme inducers drugs including antiepileptics like carbamazepine and phenytoin can increase metabolism of zonisamide and affect drug level however zonisamide per se doesn't affect drug level of other anti-epileptic drugs or oral contraceptives. In view of no major drug interaction, it can be used as polytherapy in epilepsy and is also useful in patients with various co-morbidities.

Dose

Adult- Starting dose is 100mg per day with an increment every 2 weeks by 100mg with a maximum dose of 600mg per day. Usual daily dose is 200-400mg per day.

Pediatric-Starting dose is 1mg/kg with an increment of 2mg/kg/day every 1-2weeks with a maximum of 12mg/kg/day

Side –Effects

Zonisamide is generally well tolerated. Common side effects include somnolence, headache, anorexia, dizziness, nausea, and irritation-agitation. It is advisable to drink plenty of water to avoid risk of renal stones. Decrease sweating (oligohydrosis and hyperthermia) is more common in children than adults. Adequate hydration and avoiding hot weather is advisable. In view of weight loss associated with zonisamide, it is useful in obese patients with epilepsy.

Indication

FDA has approved this medicine for use as an adjuvant in focal epilepsy in adults and children of 16years of age and older.

In European countries it is approved as monotherapy in adults with focal epilepsy and as an add-on children of 6years and above with focal epilepsy.

In Japan it is used as monotherapy in focal epilepsy. It is also used for myoclonic epilepsies including Juvenile myoclonic epilepsy (JME) and progressive myoclonic epilepsy (PME) and in children with absence epilepsy and infantile spasm.

Review of literature

In Cochrane review, five trials of zonisamide were included with a total of 949 participants³. Overall patients treated with a dose of 300-500mg zonisamide per day twice as likely as people given placebo to have 50% or more seizure reduction. Ataxia, somnolence, agitation and anorexia were the common adverse effects associated with zonisamide. Authors conclude zonisamide to be efficacious as add-on in drug resistant focal epilepsy.

Zaccara and Spachio reviewed long term efficacy of zonisamide and reported drug retention rate at 1year between 45-65% and >50%seizure reduction in 37-65% with a 6 month seizure freedom period of 9%⁴. However about 4-24% patients discontinued the drug due to adverse effects. The study mentioned a good efficacy and tolerability and supported its use as adjuvant therapy.

In pediatric review by Tan et al, zonisamide was used in all types of drug resistant epilepsy and about 25% patients had >50% seizure reduction at a median follow up of 12months (2-35)⁵. About 1/3rd patients with infantile or epileptic spasm had similar response. More than half of the patients retained zonisamide at one year.

A multicentre open label study in India showed seizure freedom of around 40% and seizure response rate of about 80% in focal and generalised epilepsies in a total of 563 patients at 24weeks⁶. It was used as monotherapy in nearly 20% and as first add-on in around 60%.

Pregnancy

There is no adequate data to comment on safety of zonisamide in pregnancy and hence teratogenicity risk is not clearly defined. Dose adjustment is required, especially in the last trimester of pregnancy. It is excreted in breast milk. Risk and benefit of zonisamide in pregnancy and breast feeding should be discussed on individual basis.

Conclusion

Zonisamide is a broad spectrum anti-epileptic drug with nearly three decades of experience. It is well tolerated and effective drug with once daily dosing schedule and no major drug interactions. It is successful in treating epilepsy as an adjuvant therapy and potentially as monotherapy.

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2. Sills GJ, Brodie MJ. Pharmacokinetics and drug interactions with Zonisamide. *Epilepsia*. 2007;48(3):435–441.
3. Carmichael K, Pulman J, Lakhan S, Parikh P, Marson AG. Zonisamide add-on for drug-resistant partial epilepsy. *Cochrane Database Syst Rev*. 2013;19 (12):CD001416
4. Zaccara G, Specchio LM. Long-term safety and effectiveness of zonisamide in the treatment of epilepsy: a review of the literature. *Neuropsychiatr Dis Treat* 2009;5:249–259.
5. Tan HJ, Martland TR, Appleton RE R. Effectiveness and tolerability of zonisamide in children with epilepsy: A retrospective review. *Seizure*. 2010;19:31–35.
6. Dash A, Ravat S, Srinivasan AV, et al. Evaluation of safety and efficacy of zonisamide in adult patients with partial, generalized, and combined seizures: an open labeled, noncomparative, observational Indian study. *Therapeutics and Clinical Risk Management*. 2016;12:327-334.

Epileptology Fellowship at Amrita Advanced Centre for Epilepsy Kochi, Kerala

One of the most advanced comprehensive epilepsy centres in India is inviting applications for Epilepsy Fellowships. Two seats are available every year. Duration of the fellowship is one year. The fellowship is designed provide expertise and proficiency in the following areas:

1. Comprehensive understanding: Refractory epilepsy, epilepsy syndromes, women with epilepsy, pediatric epilepsy
2. Advanced electrophysiology of epilepsy including electrical source localization
3. Presurgical evaluation of epilepsy, including:
 - 1) VEEG telemetry,
 - 2) Advanced interictal EEG/ictal EEG/semiology characterization,
 - 3) Ictal SPECT
 - 4) Interictal PET
 - 5) 3T and functional MRI
4. Advanced techniques in epilepsy surgery:
 - 1) Intracranial EEG,
 - 2) Detailed SEEG methodology,
 - 3) Functional brain mapping (fMRI, intraoperative & extraoperative electrocortical stimulation, Wada),
 - 4) Advanced Intracranial EEG analysis (HFO mapping, CCEP, ictal onset stimulation mapping),
 - 5) Intraoperative electrocorticography,
 - 6) Advanced image coregistry techniques as applied to epilepsy surgery,
 - 7) Neuromodulation therapy including DBS.
5. Comprehensive clinical experience in long-term medical management of epilepsy including
 - 1) Ketogenic diet
 - 2) Evidence-based drug management.
6. Research thesis in clinical epileptology

Interested candidates are advised to send resume and contact:

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Head, Amrita Advanced Centre for Epilepsy, Professor, Department of Neurology.

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ECON 2018

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IEA (Bangalore Chapter)

**19th Joint Annual Conference of
Indian Epilepsy Association & Indian Epilepsy Society**
NIMHANS Convention Centre, Bengaluru 2nd - 4th February 2018

Highlights

Pre-conference symposia - Adverse Events of Epilepsy Management
Conference Theme - Epilepsy across ages: Pediatrics to geriatrics

Renowned International Faculties

Dr. Jerome Engel, USA | Dr. Patrick Chauvel, USA | Dr. Prakash Kotagal, USA
Dr. Sanjay Sisodiya, UK | Dr. Ashwini Sharan, USA | Dr. Akio Ikedo, Japan
Dr. Jayant Acharya, USA | Dr. Nandini Mullati, UK | Dr. Jithangi Wanigasinghe, Sri Lanka

Registration Details

Category	Regular Registration Upto 31 st Dec 2017	Late Registration Upto 1 st Jan 2018	Spot Registration* From 26 th Jan 2018
IEA / IES Member	Rs. 4,720	Rs. 5,900	Rs. 7,080
Non Members	Rs. 5,900	Rs. 7,080	Rs. 8,260
Resident / PG Student	Rs. 3,540	Rs. 4,720	Rs. 5,900
Non Doctors IEA Member	Rs. 2,950	Rs. 4,130	Rs. 5,310
Accompanying Person	Rs. 2,950	Rs. 4,130	Rs. 5,310

Conference secretariat:

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Epilepsy India - January-March, 2018

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