In the Name of

GOD

the Compassionate,
the Merciful

چهاردهمین کنگره بین المللی صرع

14th IEC

14th International Epilepsy Congress

۶-۴ بهمن ماه ۱۳۹۶/اصفهان-ایران

Isfahan-Iran

24-26 Jan 2018

محل برگزاری همایش بیمارستان میلاد اصفهان

همراه با امتیاز بازآموزی

محورهای همایش

1. Imaging
2. EEG
3. Genetics
4. Refractory Epilepsy
5. New Treatments
6. Neuropsychiatry and Psychology
7. Pregnancy and Epilepsy
8. Children and Epilepsy
9. Ethics and Epilepsy
10. Non-epileptic events
11. Epilepsy surgery

Iranian Chapter of ILAE

انجمن صرع ایران

ISMRM Iranian Chapter

بیمارستان میلاد اصفهان
ISFAHAN MILAD HOSPITAL

Shefa Neuroscience Research Center
مرکز تحقیقات علوم اعصاب شفا

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Isfahan-Iran 2018

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ایران-اصفهان- خیابان کاشانی -مرکز جامع صرع بیمارستان آیت ا... کاشانی

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سرشناسه : کنگره بین‌المللی صرع (چهارهمین : ۱۳۹۶ : اصفهان)
عنوان و نام پدیدآور : چهاردهمین کنگره بین‌المللی صرع- ۶-۴ بهمن ماه ۱۳۹۶
14th International Epilepsy Congress / 24-26 Jan 2018 Isfahan – Iran
به کوشش محمدرضا آشتیانی.
مشخصات نشر : تهران: انتشارات رسانه تخصصی، ۱۳۹۶.
مشخصات ظاهری : ۱۲۸ ص.
فروست : ... مجموعه کتاب‌های جامع رسانه تخصصی؛ سیصد و بیست و پنجمین .
شابک : ۳-۳۴۲-۲۹۳-۶۰۰-۹۷۸
وضعیت فهرست نویسی : فیپا
موضوع : صرع-- کنگره‌ها
شناسه افزوده : آشتیانی عراقی، محمدرضا، ۱۳۴۵ - ، گردآورنده

14th International Epilepsy Congress

Collector : ***Mohammad Reza Ashtiani***
Executive and Business Affairs: ***Hamid Reza Eskandari***
Designer and Layout : ***Farzaneh Vahdat Behrouty***
Printing turn : ***First /2018 (1396)***
ISBN: ***978-600-293-342-3***
Circulation :1000

The 325th Comprehensive Collection of books in **RASANEH TAKHASSOSI**

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Welcome message from Chancellor of Isfahan University of Medical Science President

Professor Tahere Changiz, MD-PhD
Chancellor of Isfahan University of Medical Science
President of 14th international Epilepsy Congress

Dear excellence, by support of the lord and hardwork of a group of my best colleagues, Isfahan University of Medical Sciences organized this congress, I am delighted to welcome and hope you enjoy very much in this meeting.

Without any doubt, Epilepsy has a remarkable rank among different medical sciences with a very fast expansion in different dimensions.

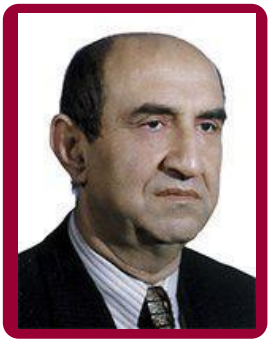
This expansion has created new challenges for clinicians in their professional tasks.

This is the 14th international congress of Epilepsy in Iran that explores challenges in clinical Epileptology to update the knowledge and share valuable experience of participants.

Although in international level some topics are not new, we believe that in national level there are many questions without any precise response in applying new and strong evidences in diagnosis, care and treatment, and follow up to patients.

In other words, we have to do much to utilize new knowledge efficiently and implement the concepts of the evidence based medicine throughout the system.

I highly appreciate your active participation , and wish you have a pleasant time in Isfahan.



Welcome message from President of Iranian Neurological Association

Dr.Hossein Pakdaman
President of Iranian Neurological Association

Dear Friends and Colleagues,

It is the great pleasure to welcome you to the 14th international Epilepsy Congress that will take place in Isfahan, Iran from the January 24thto 26th 2018.

This congress is a great opportunity to share our information about epilepsy and to improve the care of people with epilepsy. There will be sufficient time for discussion and to interact with speakers. It contains different cession of oral and poster presentation. Also teaching workshops complements the main congress program. We believe that you will enjoy your stay in Isfahan, a beautiful and historical city.

We are looking forward to welcoming you in this scientific program.

Best Regards,

Welcome message from Iranian chapter of ILAE

Dr.Mahmoud Motamedi
Head of Iranian chapter of ILAE

The 14th international epilepsy congress of Iran which is held in Isfahan is actually organized by an extensive joint collaboration between Isfahan University of Medical Sciences, Iranian Neurological Association (INA), Iranian Chapter of international League Against Epilepsy (IC- ILAE) and Iranian Epilepsy Association (IEA). IC-ILAE is our national organization representing professionals working in epilepsy, an official epilepsy expert subdivision of INA and the close partner of IEA. Our main mission is to ensure that the health professionals, epileptic patients and their care-providers and the government have access to educational resources that are essentials in understanding, diagnosing and treating epileptic patients.

Fortunately, after years of endeavors, definitive acceptance of IC-ILAE was confirmed in the 32th international congress in Barcelona, Spain , but the decision of which region Iran will join (Commission on Asian and Oceanian affaires ,or Commission on European affairs),will need to be considered in the ILAE executive committee and the final decision will be announced later.

On behalf of the constituent's members of IC-ILAE, it is my pleasure to welcome your attendance, I am sure that this congress with it's wide range of main and parallel sessions, as well as teaching courses and workshops will be innovating and very attractive .It is really the opportunity to achieve the latest information, to communicate with the well- known international guest epileptologists and professionals in this field.

We look forward to meet you all at this congress, I hope you take away unforgettable memories, not only of the meeting itself but also from this beautiful historic city.

Welcome message from Head of the Board of Directors Iranian Epilepsy Association

Dr.Kourosh Gharegozli
Head of the Board of Directors
Iranian Epilepsy Association

In the Name of God Almighty

So many thanks to the Lord that Iranian Epilepsy Association is once again blessed with holding the annual epilepsy congress with the efforts made by all scientists and executives and **"The 14th International Epilepsy Congress"** will be held on January 24-26, 2018.

This congress has been held throughout the past years with the efforts of the executives of Iranian Epilepsy Association, as an IBE representative, and with the aid of professors and physicians interested in epilepsy treatment and research.

Since the last year and after years of attempts, professors of epilepsy fellowship established the Iranian branch of ILAE and the scientific and research administration of the congress was delegated to this branch. We hope that, in the years to come, we will witness the concurrent efforts of Iranian Epilepsy Association, as the organization in charge of supporting epilepsy patients, as well as fellowship colleagues as the experts of research for solving the problems associated with this social phenomenon and its consequences.

It is expected that the major efforts made by IBE and ILAE representatives in Iran, as two major organizations in fighting epilepsy, will lead to achieving huge honors for our society, not only on a national level, but also on an international level.

The esteemed secretary of **"The 14th International Epilepsy Congress"** is a distinguished scientific figure and epilepsy fellow, Jafar Mahvari, M.D., who is assuming this responsibility for the second time. In light of his extensive experience in holding the congress, we are confident that he will manage this scientific event in the best way possible thus enhancing the scientific level of students and researchers in all epilepsy-related fields.

In the end, hereby I would like to express my gratitude to all of my esteemed colleagues in the executive team each of whom contributed greatly to the congress. This congress will hopefully be warmly attended by physicians rendering the congress as rich and as magnificent as it can be.

Welcome message from Founder and CEO, Iranian Epilepsy Association

Dr.Daryoush Nasabi Tehrani
Founder and CEO, Iranian Epilepsy Association

In the Name of God

Epilepsy is a disorder in the physiological functioning of brain cells dating back to a long time ago.

In the course of years, this disorder has hindered the progress of a great number of patients, while leading some toward genius and hidden talents.

Epilepsy is no longer considered to be a simple disease. It is, rather, a spectrum and a syndrome of brain cell performance disorder ranging from very hidden, negligible cases in the thoughts and behavior to the disruption of the physiological functioning of autonomic nervous system, special emotional behaviors, and finally medical emergencies and life threats.

Today as medical sciences have made remarkable advancements and the identity of epilepsy is known more than ever before, we witness the fact that many psychiatric diseases have entered the realm of epilepsy and, at the same time, some wrong diagnoses of epilepsy have been assigned to psychiatric disorders.

We may see nowadays that as the precision tools of medical diagnosis have been evolving, the anatomic conditions of epilepsy are clearer than ever causing surgeries to be a glimmer of hope for a part of intractable epilepsies as a replacement for lengthy, unsuccessful treatments.

During a long period of efforts for the identification of this neurological disorder more than ever, Iranian Epilepsy Association is honored to hold **"The 14th International Epilepsy Congress"** with the collaboration of Iranian and foreign professors and scientists in the beautiful, historic city of Isfahan.

We hope that an exchange of experiences and state-of-the-art science will take place in the course of the congress as physicians and neurologists will attend. The spirit of friendship and cooperation among the doctors interested in epilepsy research and treatment activities will hopefully pave the way for a considerable treatment of this neurological disorder in our dear home, Iran.

Welcome Message From The Scientific Chairman Of Congress

Dr. Jafar Mehvari
Scientific Director of Congress

Dear Friends and Colleagues

On the behalf of scientific committee, its our pleasure to welcome you to the 14th international Epilepsy Congress (IEC) in Isfahan, January 24th – 26th 2018.

This congress is organized by Iranian chapter of International League Against Epilepsy (ILAE), Iranian Epilepsy Association and Isfahan Neurosciences Research Center.

We have dedicated many sessions to recent development in this field and allowing enough time for speaker-audience discussion.

The congress which is held in the Milad Hospital give delegates from all of over the countries chance to come together with fellow researcher, clinicians , residents and nurses .

The scientific program is highly engaging with a wide range of main and parallel sessions as Multidisciplinary conference and teaching sessions.

Let me wish you the warmest welcome to this city, I hope Isfahan with its art, its history, and culture and its beauty will be good host for this congress.

Congress Organization

14th International Epilepsy Congress

24-26 Jan 2018 Isfahan - Iran

Chancellor of Isfahan University of Medical Science **President of 14th international Epilepsy Congress**
Professor Tahere Changiz, MD – PhD
President of Iranian Neurological Association
Dr.Hossein Pakdaman
Iranian chapter of ILAE
Dr.Mahmoud Motamedi
Head of the Board of Directors Iranian Epilepsy Association
Dr.Kourosh Gharegozli
Founder and CEO, Iranian Epilepsy Association
Dr.Daryoush Nasabi Tehrani
Scientific Chairman Of Congress
Dr. Jafar Mehvari

Scientific Committee

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Dr. Pakdaman Hossein	دکتر حسین پاکدامن
Dr. Sedigh Marvasti Fatemeh	دکتر فاطمه صدیق مروستی

Dr. Shariatzadeh Aydin	دکتر آیدین شریعت زاده
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Dr. Tabrizi Nasim	دکتر نسیم تبریزی
Dr. Gholamreza Zamani Ghaletaki	دکتر غلامرضا زمانی
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Dr. Ashtari Fereshteh	دکتر فرشته اشتری
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Dr.Mehvari Habibabadi Jafar	دکترجعفر مهوری
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Dr. Mostafaei Hamideh	دکتر حمیده مصطفایی
Dr. Motamedi Mahmoud	دکتر محمود معتمدی
Dr. Nafisi Shahriar	دکتر شهریار نفیسی
Dr. Zare Mohamad	دکتر محمد زارع

Organization Committee

Dr. Mansour Kondori	دکتر منصور کندری
Dr. Nasim Tabrizi	دکتر نسیم تبریزی
Dr. Seyed Navid Naghibi	دکتر سید نوید نقیبی
Ms. Masoum Mousavi	خانم معصومه موسوی
Mr. Hamid Ghasemi	آقای حمید قاسمی
Ms. Fatemeh Javadi	خانم فاطمه جوادی
Ms. Leila Dehghan	خانم لیلا دهقان
Mr. Mohsen Faraj	آقای محسن فرج

Biosketch
CURRICULUM VITAE

PROF. EUGEN TRINKA, MD, MSC, FRCP

Professor and Chair of the Department of Neurology, and Deputy Director of Christian Doppler Klinik (2013-2016), Paracelsus Medical University Salzburg, Austria

President Elect of the Austrian Society for Neurology
Chair of the Commi ssion on European Affairs of the International League Against Epilepsy
(CEA-ILAE)

PROF . ISCIA LOPES-CENDES, M.D.PH.D

Professor of Medical Genetics; School of Medical Sciences, University of Campinas – UNICAMP, Campinas, SP. BRAZIL

A staff physician and head of the neurogenetics outpatient clinic at UNICAMP University Hospital.

PROF. FERNANDO CENDES

Department of Neurology, FCM – UNICAMP, Cidade Universitária Zeferino Vaz, Campinas SP, Brazil

Director; Epilepsy Surgery Program, Dept. Neurology, FCM-UNICAMP
Director; Neuroimaging Laboratory, Dept. Neurology, FCM-UNICAMP
Chair, Diagnostic Commission ILAE- International League Against Epileps
2006-2008; President Brazilian League Against Epilepsy

DR. YVES STARREVELD

Assistant Professor / Department of Clinical Neurosciences University of Calgary , Canada

2012-ongoing : Co-Director of Alberta Radiosurgery Centre

2010-ongoing : Co-Director of PITNET (Pituitary Inter-disciplinary Team-based Endocrine Treatment Program)

2012-ongoing: Member of Postgraduate Surgical Resident Training Committee

2002-present: President of Atamai, Inc.

DR. Yahya Agha-Khani, MD, FRCPC

Assistant Professor of Neurology, Department of Clinical Neurosciences, University of Calgary , Canada

Medical director of the EEG labs, University of Calgary, Canada. July 2015-Present.

Epilepsy program representative in post graduate/residency committee. University of Calgary, Canada. July 2013- July 2015.

Director of the EEG lab and Epilepsy service. Department of Internal Medicine, Section of Neurology, University of Manitoba, Canada. August 2005- Feb 28, 2012

PROF. SPECCHIO NICOLA ,

Division of Neurology, Department of Neuroscience, Bambino Gesù Children's Hospital, IRCCS, Rome, Italy

Neurologist and Epileptologist

For the period 2011-2014 and 2014-2017 he was elected to the Board of Directors of the Italian League Against Epilepsy

From April 2017 he is member of the ILAE Nosology and Definitions Task Force.

PROF. DENNIS VELAKOULIS

Director, Neuropsychiatry Unit, Royal Melbourne Hospital (since 2001)

Clinical Director, Melbourne Neuropsychiatry Centre, University of Melbourne and North Western Mental Health (since 2004)

Professor, Department of Psychiatry, University of Melbourne (since 2012)

Private practice, The Melbourne Clinic, Richmond, Victoria

Program
14th International Epilepsy Congress

First Day, Wednesday24 Jan

Name of Lecturer	Title	Time	Date
Opening Ceremony		8:00 – 8:50	Wednesday 24 Jan
Chairs: Dr. Fereshteh Ashtari - Dr. Seyed Jalal Ziyaei – Dr. Majid Ghasemi- Dr. Reza Azizi Mal Amiri		8:50 - 10:30	
Dr. Hossein Pakdaman (Iran)	Epidemiology of seizure and epilepsy	8:50 - 9:10	
Prof. Dennis Velakoulis (Australia)	Neuropsychiatry and cognitive comorbidities of epilepsy	9:10 – 9:40	
Prof. Iscia Lopes Cendes (Brazil)	Genetic testing in epilepsy	9:40 – 10:10	
Dr. Majid Ghaffarpour (Iran)	When to start and when to stop AEDs	10:10 – 10:30	
Coffee Break			10:30 – 11:00

Name of Lecturer	Title	Time	Date
Chairs: **Dr. Darioush Nasabi Tehrani -Dr. Ahmad Chitsaz –** **Dr. Fariborz Khorvash - Dr. Abbas Ghorbani**			11:00-14:00
Prof. Nikola Specchio (Italia)	Treatment of status epilepticus	11:00 – 11:30	Wednesday 24 Jan
Dr. Majid Barekatain (Iran)	Future direction in neuropsychology and neuropsychiatry of epilepsy	11:30 – 11:50	
Prof. Fernando Cendes (Brazil)	Neuroimaging of lesional epilepsies	11:50 – 12:20	
Dr. NasimTabrizi (Iran)	Epilepsy and cerebrovascular diseases	12:20 – 12:40	
Dr. Parviz Bahrami (Iran)	Epilepsy and Pregnancy	12:40 – 13:00	
Prof. Nikola Specchio (Italia)	VNS therapy in epilepsy	13:00 – 13:30	
Dr.Vahid Shayegannejad (Iran)	MS & Epilepsy	13:30 – 13:50	
LUNCH & PRAYING		14:00 – 15:00	
Chairs: **Dr. Mohammad Saadatnia - Dr. Helia Hemasian - Dr. Keivan Basiri -** **Dr. Seyed Ali Roudbari**			
Dr. Mohammad Zare (Iran)	New AEDs including cannabinoids	15:00 – 15:20	
Dr. Mohammad Reza Najafi (Iran)	Immunotherapy in treatment of Drug Resistant Epilepsy	15:20 – 15:40	
Dr.Alireza Yarahmadi (Iran)	Bidirectional interactions of sleep and epilepsy.	15:40 -16:00	
Q&A Dr.Alireza Yarahmadi - Dr. Nahid Ashjazadeh – Dr. Mohammad Reza Najafi		16:00 – 16:30	

WORKSHOP

Name of Lecturer	Title	Time	Place
Manager : Dr. Majid Barekatain Mahgol Tavakoli PhD Prof. Dennis Velakoulis	Neuropsychiatry	16:30 -18:00	Hall 2

Name of Lecturer	Title	Time	Place
Manager : Dr. Sohrab Hashemi Fesharaki Dr. Farzad Sina Dr. Aydin Shariatzadeh	EEG	16:40-18:10	Hall 1

Name of Lecturer	Title	Time	Place
Prof. Nicola Specchio	VNS	18:10-19:10	Hall 1

Second Day , Thursday 25 Jan

Name of Lecturer	Title	Time	Date
Morning		08:00 – 08:20	Thursday 25 Jan
Chairs : **Dr. Mohammad Barzegar –Dr. Dariush Savadi Oskouei – Dr.Vahid Shayegannejad , Dr. Alireza Amu Heydari**		8:20 – 10:30	
Dr.Mohammad Reza Nazemzadeh (Iran)	The role of DTI in diagnosis of temporal lobe epilepsy	08:20 – 08:40	
Dr. Abtin Doroudinia (Iran)	Role of FDG PET/CT scan in seizure focus localization in patients with drug resistant epilepsy	08:40 – 09:00	
Prof. Fernando Cendes (Brazil)	Advances in Neuroimaging (MRI) of epileptic patients	09:00 - 09:30	
Dr. Yahya Aghakhani (Canada)	EEG- fMRI in Epilepsy	9:30 – 10:00	
Panel: Imaging Modulator : Dr. Reza Basiratnia Members : Prof. Fernando Cendes - Dr. Yahya Aghakhani– Dr. Ali Hekmatnia		10:00 – 10:30	
Coffee Break&Poster Meeting		10:30 – 11:00	

Program
14th International Epilepsy Congress

Name of Lecturer	Title	Time	Date
Chairs: **Dr. Mohammad Ali Akbarian–Dr. Abbas Noorian –Dr. Mehdi Moghadasi–** **Dr. Mohammad Hossein Harirchian**			
Dr. Sanaz Ahmadi Karvigh (Iran)	Brainstem Seizures	11:00 – 11:20	Thursday 25January
Prof. Iscia Lopes Cendes (Brazil)	Algorithm for drug response in patients with mesial temporal lobe epilepsy based on clinical and genetic information	11:20– 11:50	
Dr. Marjan Asadollahi (Iran)	Immune-mediated epilepsies	11:50 – 12:10	
Dr. Mehran Homam (Iran)	Imitators of Epilepsy	12:10 – 12:30	
Dr. Mahmoud Motamedi (Iran)	Rational polytherapy in epilepsy	12:30 - 12:50	
Prof. Dennis Velakoulis (Australia)	Neuropsychiatric and medical mortaility and morbidity in patients with psychogenic non epileptic seizures	12:50 - 13:20	
Prof. Eugen Trinka (Austria)	Semiology and classification of status epileticus	13:20 – 13:50	
LUNCH & PRAYING		14:00 – 15.00	
Chairs: **Dr. Nahid Beladi Moghadam –Dr. Ahmadreza Foroghi –** **Dr. Babak Zamani – Dr. Akbar Soltanzadeh**		15:00 – 17:00	
Dr. Aliakbar Asadi Pooya (Iran)	Unusual presentations of epilepsy (Ictal crying)	15:00 – 15:20	
Dr. Mohsen PourKakrodi (Iran)	PNES	15:20 – 15:40	
Dr.Mohsen AghaeeHakak (Iran)	Post Traumatic Epilepsy	15:40 – 16:00	
Dr. Saeid Charsouei (Iran)	Epilepsy and Infectious Diseases	16:00 – 16:20	
Dr. Nahid Ashjazadeh (Iran)	PME	16:20 – 16:40	
Panel: Ethics Modulator :Dr. Faribourz Khorvash Members : Dr. Darioush Nasabi Tehrani – Dr. Seyed Jalal Ziyaei Dr.Ali Akbasr Asadi Pooya		16:40 – 17:00	

WORKSHOPS

Name of Lecturer	Title	Time	Place	Date
Dr. Sohrab Hashemi Fesharaki Dr. Seyed Navid Naghibi Ms. Azarakhsh Salami Ms. Maryam Heydari Ms. Maryam Izadi	Nursing care and epilepsy	08:30-10:30	Hall 2	Thursday 25January

Name of Lecturer	Title	Time	Place	Date
Manager : Dr. Yahya Aghakhani Prof. Fernando Cendes Prof. Eugen Trinka	Complicated Case & Co-Morbidities	17:00 – 18:30	Hall 1	Thursday 25January

Hall 2

Chairs : Dr. Mohammad Mehran Poursina , Dr. Seyed Ahmad Sonbolestan, Dr. Tayebeh Abbasioun , Dr. Ahmad Negahi			11:00 – 14:00
Name of Lecturer	**Title**	**Time**	**Date**
Dr. Abbas Ghorbani (Iran)	SUDEP	11:00 – 11:15	Thursday 25January
Dr. Iman Adibi (Iran)	Management of seizures in critically ill patients	11:15 – 11:30	
Dr. Ahmad Chitsaz (Iran)	When does Electroencephalography (EEG) helps to diagnosis in non-epileptic neurological conditions	11:30 – 11:45	
Dr. Reza Azizi Malamiri (Iran)	We should think about continuous spike and wave during sleep in our patients	11:45 – 12:00	
Dr. Seyed Navid Naghibi (Iran)	Endocrine & reproductive Aspects of Epilepsy	12:00 – 12:15	
Dr. Seyed Amir Hejazi (Iran)	Autoimmune Encephalitis: How to Work up?	12:15 – 12:30	
Dr. Ahmad Negahi (Iran)	Epilepsy in Elderly	12:30 – 12:45	
Dr. Hadi Asadpour (Iran)	Sleepwalking; differential diagnosis: (A Case series presentation)	12:45 – 13:00	
Dr. Mohamad Ghazavi (Iran)	Efficacy of levetiracetam in treatment of childhood stuttering	13:00 – 13:15	
Dr. Mohammad Barzegar (Iran)	Diagnostic value of video – EEG monitoring in childhood epilepsy	13:15 – 13:30	
Dr. Zeinab Gharaylou (Iran)	Cognitive function improvement due to changes in brain microstructure following the Bumetanide in refractory TLE	13:30 – 13:45	
Dr. Ali Oghabian	Application of novel diffusion MRI techniques to detect lesions in patients with suspected focal cortical dysplasia	13:45 – 14:00	

Third Day ,Friday26 Jan

Name of Lecturer	Title	Time	Date
Chairs: **Dr. Guive Sharifi-Dr. Bahram Aminmansour- Dr. Houshang Moein-** **Dr. Mohammad Ghodsi-Dr. Masih Sabouri**			
Morning		8:10 – 8:00	
Dr.Ehsan Sherafat Kazemzadeh (Iran)	Case selection and surgical outcome in pediatric epilepsy	8:10 - 8:30	
Dr. Yves Pieter Starrveld (Canada)	Case selection/strategies and indications for evaluation with intracranial recording	8:30 - 8:55	
Dr. Yahya Aghakhani (Canada)	Overview of Focal Cortical Dysplasia	8:55 – 9:20	
Prof. Eugen Trinka (Austria)	New classification of epilepsies, 2017	9:20 - 9:45	
Dr. Yahya Aghakhani (Canada)	Epilepsy Surgery for Drug Resistant Non-lesional Focal Epilepsy	9:45 - 10:10	
Dr. Houshang Moein (Iran)	The result of epilepsy surgery in Isfahan Comprehensive Epilepsy Center	10:10 – 10:30	

AWARD			10:30 – 11:00
Coffee Break			11:00 – 11:30
Name of Lecturer	**Title**	**Time**	**Date**
Chairs: **Dr. Hamideh Mostafaei- Dr. Fatemeh Sedigh Marvasti – Dr. Mohammad Ghofrani – Dr. Zarintaj Keyhandost**			
Dr. Omid Yaghini (Iran)	Epilepsy in neonates and children	11:30 – 11:50	Friday 26 Jan
Dr. Shervin Badv (Iran)	Epileptic encephalopathies of childhood	11:50 – 12:10	
Dr. Elham Rahimian (Iran)	MRI findings in Pediatric seizure	12:10 – 12:30	
Dr. Mahmoud Mohammadi (Iran)	Difficult Cases in Pediatric Epileptology	12:30- 12:50	
Dr. Gholamreza Zamani (Iran)	Personalized medicine approaches in pediatric epilepsy	12:50 -13:10	
Dr.Mohamoud Reza Ashrafi (Iran)	Ketogenic diet in pediatric epilepsy	13:10 -13:30	
Panel : Pediatric Epilepsy Modulator :Dr. Mohammad Ghofrani Members : Dr. Omid Yaghini - Dr. Shervin Badv – Dr. Mohammad Reza Ghazavi Dr. Bahram Yarali – Dr. Mahmoud Mohammadi – Dr. Jafar Nasiri		13:30 – 14:00	
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14th International Epilepsy Congress

MicroRNAs in Epilepsy

Iscia Lopes-Cendes, M.D., Ph.D.
Professor of Medical Genetics. Head, laboratory of Molecular Genetics. Department of Medical Genetics. School of Medical Sciences. University of Campinas – UNICAMP, Campinas, SP, BRAZIL

Recent developments have indicated that a significant proportion of non-coding sequences present in the human genome are actively transcribed as non-coding RNA molecules. These non-coding RNAs may be grouped into different classes, classified according to size and function, and are emerging as key players in the regulation of many biological processes, acting as fine-tuners of gene expression. MicroRNAs are one of these molecules, showing an important role in gene regulation. Evidences in the literature, as revised below, indicate that non-coding RNAs may have critical roles in the molecular mechanisms associated with epilepsy. Hippocampus tissue from patients with mesial temporal lobe epilepsy (MTLE) that undertook temporal lobe resection for the control of seizures had been shown to have a reduction on the overall expression of microRNAs when compared to normal hippocampus from autopsy controls. Moreover, inflammatory pathways are associated with MTLE, and changes in the expression microRNAs involved in the regulation of inflammatory response have been demonstrated in MTLE nervous tissue samples. In this talk I will review the most recent evidence for the involvement of microRNAs in the pathogenesis of epilepsy as well as possible applications of microRNAs as therapeutic tools.

The Complexity of Epilepsy Genetics

Iscia Lopes-Cendes, M.D., Ph.D.
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The first studies addressing the genetic aspects of epilepsy were performed in the 1950 and 1960 using different genetic epidemiology strategies such as twin-studies. Over the last 25 years great process was made in the identification of loci and genes causing many monogenic forms of epilepsy. However, the most common forms, displaying a more complex mode of inheritance are still elusive. In this talk I will discuss the genetic models that fits different forms of epilepsy, from the rare familial cases to the most common, likely polygenic inherited. I will also highlight the different experimental strategies used to identify candidate loci and genes. Finally, I will comment on the most recent discoveries, especially as it relates to practical aspects for clinicians.

Genetic Testing in Epilepsy

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Genetic testing for monogenic disorders has been incorporated in clinical practice for more than a decade; however, recent developments in molecular genetics made it possible to use genetic testing in a genomic fashion eliminating the need for serial testing using expensive and time consuming techniques. With the increase in complexity of genetic testing it is now very important for clinicians to understand the indications and the limitations of genetic testing. In the specific case of epilepsy, due to its complexity, there are a number of factors that should be taken into account when thinking about the clinical indication for genetic testing. In this talk I will discuss basic aspects on how to make decisions about the medical need for genetic testing, as well as all the necessary precautions that should be taken before ordering a genetic test. An overview of the different modalities of genetic tests available will be addressed as well, including the recent introduced genomic testing. In addition, I will discussion the indication of genetic testing in different epilepsy syndromes using examples from case studies.

Algorithm for drug response in patients with mesial temporal lobe epilepsy based on clinical and genetic information

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Even with the many progresses in the pharmacological treatment of patients with epilepsy it is still difficult to predict which patients will respond well to clinical treatment. Many factors can influence the percentage of patients who will be controlled with antiepileptic drugs (AEDs), including clinical and genetic factors. Many studies exploring the contribution of genetic factors to the response to AED treatment in patients with epilepsy have been reported; however, most of them failed to be replicated in subsequent studies. In addition, none of the previously published papers have demonstrated a possible application in clinical practice. We have recently, identified a set of genetic markers which showed to be a better predictor of response to AED treatment in patients with mesial temporal lobe epilepsy (Silva-Alves et al. 2017). In this way, our findings suggest that adding genetic information, can improve the accuracy for predicting which patients with MTLE are likely to be refractory to drug treatment, making it possible to identify patients who may benefit from epilepsy surgery sooner. In this talk I will present our most recent results as well as the bases for future work in this issue.

VNS

Nicola Specchio
Division of Neurology, Department of Neuroscience, Bambino Gesù Children's Hospital, IRCCS, Rome, Italy

Vagus nerve stimulation (VNS) is a worldwide applied technique for the treatment of intractable epilepsy that cannot benefit from resective surgery. Recent clinically-controlled trials have reported a 50% seizure control rate in about 30% of patients'. However, its efficacy seems to vary among teams and the type of patients who can benefit from this technique is so far unknown

This safe, simple, and adjustable technique reduces the number of seizures and multiple publications support its increasing efficacy and effectiveness, with few adverse effects. The goal of the use of VNS would significantly increase whether the efficacy of this procedure and the factors predicting a response, would be known in details. Particularly the question is who are the best candidates for VNS implantation.

VNS is not a cure, and the total elimination of seizures is rare. However, many people who undergo VNS experience a significant (more than 50%) reduction in the frequency of seizures, as well as a decrease in seizure severity. This can greatly improve the quality of life for people with epilepsy.

Cliveland clinic group performed an experimental trial in the kainic acid limbic model of epilepsy in rats treated by VNS stimulation using the same parameters usually used in humans.

The group from Ghent in Belgium have very recently reported the effect of VNS in amygdala-kindled seizures in rats. When left VNS was applied 2s after induction of the kindling stimulus the mean after discharge duration was significantly reduced after a 60 s VNS train compared to the control situation (50% reduction approximately).

Patients with epilepsy uncontrolled by anticonvulsant medications may be candidates for VNS. The definition of medically intractable generally includes a description of an adequate drug trial without unacceptable side effects.

The patient and family should be educated about the nature of the device being implanted. This includes a discussion of the expectations of the patient and the reality that they will likely not be seizure free.

VNS has been investigated in pediatric patients with epileptic encephalopathies, Lennox-Gastaut syndrome, tuberous sclerosis, hypothalamic harmatomas and Landau-Kleffner syndrome.

VNS led to 17% median decrease in seizure frequency after 1 year in a study of 17 patients with epileptic encephalopathies. In patients with Lennox-Gastaut syndrome, median seizure frequency reduction ranging from 52–58% has been reported after 6 months of VNS. After 24 months, Aldenkamp et al. noted only a 20% average seizure frequency reduction in 19 children with Lennox-Gastaut syndrome. Treatment effect was most prominent in the group with the highest mental age at baseline.

Ten pediatric patients with tuberous sclerosis were reviewed in an open-label, retrospective study. Nine patients had at least 50% reduction in seizure frequency, and five achieved seizure frequency decreases that exceeded 90%. Comparison with medically treated tuberous sclerosis patients revealed improved seizure control with VNS.In small series of patients with Landau-Kleffner syndrome and with hypothalamic harmatomas, half of the patients in each of the two series showed improvement in seizure frequency as compared to baseline.

Treatment of status epilepticus

Nicola Specchio
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Children's greater susceptibility than adults to epileptic seizures results from many factors. Earlier maturation of excitatory than inhibitory synapses, increased susceptibility and concentration of receptors for excitatory neurotransmitters, peculiar composition of the receptor subunits resulting in slower and less effective inhibitory responses, all cause the high incidence of SE in the pediatric population. The related morbidity and mortality rates, although lower than in adults, require immediate diagnosis and therapy. The division into focal and generalized, non-convulsive and convulsive SE is applied in children and adolescents, as is the distinction in the three different stages according to the time elapsed since the start of the event and the response to drugs (initial, defined, and refractory SE). In children and adolescents, an "operational definition" is also accepted to allow earlier treatment (starting at 5–10 min). Maintenance and stabilization of vital functions, cessation of convulsions, diagnosis, and initial treatment of potentially "life-threatening" causes are the objectives to be pursued in the management of children with CSE. The need for early pharmacologic intervention stresses the need for action in the prehospital setting, generally using rectal diazepam or buccal midazolam. In hospital, parenteral benzodiazepines are used (lorazepam, diazepam, or midazolam). When first-line drugs fail, sodium phenytoin and phenobarbital should be used. As alternatives to phenobarbital, the following can be considered for treatment of refractory CSE: valproate, levetiracetam, and lacosamide. In cases with refractory CSE, pharmacologic options can be thiopental, midazolam, or propofol in continuous intravenous infusions to suppress electroencephalographic bursts and convulsive activity. These drugs need to be administered in intensive care units to ensure the monitoring and support of vital signs and brain electrical activity.

Advances in Neuroimaging (MRI) of epileptic patients

Prof. Fernando Cendes
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Neuroimaging techniques in epilepsy are essential for the definition of the epileptogenic lesion for diagnosis and surgical decision. However, its application extends to the knowledge of epileptic mechanisms and includes the identification of prognostic features that can help our decisions for the appropriated type of treatment on an individual basis. Structural neuroimaging may be able to identify patients more likely to respond to anti-epileptic drug (AED) treatment and also patients who are better candidates for earlier surgical treatment. In the last decades, quantitative analyses have also improved our knowledge about epileptogenic lesions and networks as well as prognosis of seizure control, cognitive outcome, and comorbidities. New advanced neuroimaging techniques as functional MRI and the development bio-tracers that could be associated with inflammation and specific genetic patterns will add further knowledge in the field of epilepsy and may allow for monitoring epileptogenicity and tissue damage/dysfunction in vivo.

Functional MRI can add important information about the cerebral dysfunctions related to seizures and medication, including those affecting memory and language. Memory encoding fMRI paradigms that activate language areas in both hemispheres have been used for predicting memory decline after surgery for mesial temporal epilepsy with hippocampal sclerosis (MTLE-HS) with mixed results (Sidhu et al 2013; Bonelli et al 2010; Binder et al 2011). However, new methods are improving our knowledge about the relationships between different networks involved in the epileptogenic process and cognitive functions, including language. For example, the presence of a positive fMRI lateralization index within the mesial temporal and frontal lobes associated with postoperative verbal memory decline, with a sensitivity of 87.5%, and specificity of 80% (Sidhu et al 2015); thus, suggesting a stronger engagement of extra-temporal neocortex during memory tasks in patients with bilateral hippocampal dysfunction. Therefore, these subjects cannot maintain their memory scores after temporal lobe resections, especially in the language-dominant hemisphere. This concept is in line with the concept about the network systems involved in memory processes and that MTLE-HS is a network disorder with widespread microstructural brain damage and dysfunction (Alessio et al. 2013; Coan et al. 2013; Blumenfeld 2014).

A fMRI study showed that a complex network including parietal and frontal cortices are involved in verbal memory encoding and retrieval tasks in normal controls and patients with MTLE-HS (Alessio et al. 2013). However, the extension of these activations is more intense and widespread, particularly in the frontal lobes, in patients with left MTLE-HS, suggesting a functional reorganization of verbal memory processing due to the failure of the left hippocampal network system, or perhaps a bilateral limbic dysfunction.

There is also structural MRI evidence that atrophy of gray matter in the cingulate and

orbito-frontal cortices are independently associated with verbal memory performance, suggesting that atrophy and dysfunction of limbic and frontal structures contribute to memory impairment in MTLE-HS (Bonilha et al. 2007).

Studies of quantification of gray matter in MTLE-HS have demonstrated a network of subtle gray matter atrophy beyond the mesial or neocortical temporal structures, including predominantly other limbic areas as the thalamus, but also extra-limbic structures as the frontal lobes (Bonilha L, 2004; Bernasconi 2004; Keller 2007). Although this gray matter damage is more evident in pharmacoresistant MTLE-HS, and correlates with seizure frequency (Coan et al. 2009), there is also evidence of diffuse atrophy in MTLE-HS patients with well-controlled seizures (Bilevicius et al 2010; Labate et al 2008), which may progress even in patients who are seizure-free (Alvim et al 2016). Studies analyzing functional and structural networks have shown diffuse and distinct abnormalities when comparing left and right MTLE-HS patients, which involves the default mode networks (de Campos et al. 2016).

New advanced neuroimaging techniques as functional MRI and the development bio-tracers that could be associated with inflammation and specific genetic patterns will add further knowledge in the field of epilepsy and may allow for monitoring epileptogenicity and tissue damage/dysfunction in vivo, as well as new knowledge about normal brain network (dys)function.

Neuroimaging of lesional epilepsies

Prof. Fernando Cendes
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Appropriate MRI investigation has an important role in the assessment of epilepsy. Specific protocols are required for recognition of epileptogenic lesions, in particular for subtle lesions. In patients with refractory epilepsy and "normal MRI," multimodal imaging techniques are crucial in the definition of the epilepsy etiology. Combining metabolic and functional investigation, such as fluorodeoxyglucose positron emission tomography (FDG-PET), single-photon emission computed tomography (SPECT), diffusion MRI and magnetic resonance spectroscopy (MRS) may be very helpful in difficult cases. Familiarity with the different protocols of imaging studies is required for the optimized investigation of seizure etiology.

Images need to be optimized for the evaluation of features indicating hippocampal pathology. Image orientation is crucial. Coronal slices are essential and need to be obtained on a plane perpendicular to the long axis of the hippocampus guided by a sagittal scout image. The slices need to be thin to allow appreciation of fine details of the different portions of the hippocampal anatomy. Ideally, the slice thickness should be 3mm or less, and never more than 5 mm. To evaluate volume, shape, orientation and internal structure, high-resolution T1-weighted images, particularly with inversion recovery (IR) or another sequence with high contrast between gray and white matter, are essential. T2-weighted images are important to assess the signal intensity qualitatively, either using conventional T2 sequences or, preferably FLAIR (fluid attenuation inversion recovery). FLAIR imaging sequences demonstrated an accuracy of 97% for the demonstration of abnormalities associated with hippocampal sclerosis defined on histopathological examination. The presence and severity of MRI signs of hippocampal sclerosis in both hippocampi may provide useful prognostic information about both postoperative seizure control and memory outcome

MRI epilepsy protocols should include a T1-weighted volumetric acquisition (3D) with an isotropic voxel size of 1mm or less to enable the reconstruction of images in any plane. Studies demonstrated that more sophisticated methods of image reconstruction from 3D acquisitions allow a better evaluation of patients with discrete structural lesions, in particular, focal cortical dysplasia (FCD) where the main findings are cortical thickening, abnormal gyri and of poor delineation of the transition between white and gray matter. The 3D images obtained have the characteristics of a volume which may be handled on a computer workstation to serve various purposes. Among the methods for post-processing and analysis of images with great diagnostic application in epilepsy, are multiplanar and the curvilinear reconstruction.

The application of neuroimaging in epilepsy extends to the knowledge of epileptic mechanisms and includes the identification of prognostic features that can help our decisions for the appropriated type of treatment on an individual basis. Structural neuroimaging may be able to identify patients more likely to respond to anti-epileptic drug (AED) treatment and patients who are better candidates for earlier surgical treatment. In the last decades, quantitative analyses have also improved our knowledge about epileptogenic lesions and networks as well as prognosis of seizure control, cognitive outcome, and comorbidities.

EEG- fMRI in Epilepsy

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Simultaneous functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) is a non-invasive multimodal method for assessment of patients with epilepsy. In this technique scalp or intracranial EEG is recorded inside the MR scanner using MR compatible equipment, and epileptic discharges are considered as the event of interest. Any neuronal activity, including epileptiform discharges, consume oxygen and generate deoxy-hemoglobin (Hb) followed by increase in perfusion of the active area(s), more than needed, causing dilution of deoxy-Hb which can be detected by MRI called Blood-Oxygen-Level Dependent (BOLD) effect. EEG-fMRI with excellent temporal relationship to epileptic events is able to provide valuable information about the hemodynamic changes of areas generating epileptiform discharges and also the other areas involved in the epileptic networks in patients with various form of epileptic syndromes. In recent years, with significant technical improvement, EEG-fMRI has become an important tool in pre-surgical assessment of patients with drug resistant focal epilepsy. A strong and well localized BOLD effect not only can guide electrode implantation for intracranial EEG but also may help to identify the area of brain which is needed to be removed to achieve a good outcome.
Keywords: EEG-fMRI, Epilepsy, BOLD, EEG

Epilepsy Surgery for Drug Resistant Non-lesional Focal Epilepsy

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About one third of patients with focal epilepsy are drug resistant for whom epilepsy surgery is usually considered. Cohort studies of predictors of surgical outcome often report better outcomes in patients with MRI lesions than in those without lesion. Berkovic et al. (1995) found that in patients with lesional temporal lobe epilepsy, 62—80% of patients became seizure-free, compared to 36% of the non-lesional patients. Other studies, including temporal and extratemporal epilepsy surgeries, have reported similar findings (Ferrier et al., 1999; Jeha et al., 2006; Stavem et al., 2004; Wieshmann et al., 2008). A systematic review of the literature by Tellez-Zentino et al (2010) showed the odd ratio of seizure freedom is 2-3 times (ie about 40%) higher for lesional than non-lesional focal epilepsy. However, in the recent years with advances in pre-surgical assessments of patients, a better success rate is not unexpected. Kim et al., (2017) reported 59% of their patients were free of disabling seizures 10 years after a resective epilepsy surgery and 36% were off anti-seizure medications. To have a good surgical outcome a precise localization of the epileptogenic focus is crucial. This could be achieved by comprehensive multimodal pre-surgical evaluations.

Keywords: Epilepsy Surgery, MRI, Surgical Outcome

Overview of Focal Cortical Dysplasia

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Focal cortical dysplasias (FCD) are highly epileptogenic malformations of cortical development. They are a common cause of drug-resistant focal epilepsy in adults and the most common cause in children. According to the ILAE, FCD are divided to three types. The type I consist of isolated areas of dyslamination without any cytologic abnormality. Radial dyslamination (Ia) is characterized by organization of the cortex in microcolumns, defined by the presence of more than 8 neurons aligned in a vertical orientation. Tangential dyslamination (Ib), on the other hand, constitutes a failure to establish the 6- layered horizontal composition of the neocortex. The combination of abnormal cortical architecture in both radial and tangential direction characterizes type Ic. FCD type II are defined as areas of cortical dyslamination with specific cytologic abnormalities: dysmorphic neurons are present in both FCD types IIa and IIb, whereas balloon cells are observed exclusively in type IIb. FCD type III refer to alterations in cortical lamination or cytoarchitectural composition associated with an adjacent lesion such as hippocampal atrophy (IIIa), glial or glioneuronal tumors (IIIb), vascular malformations (IIIc), or other epileptogenic lesions like encephalitis, ischemic injury, and trauma (IIId). This review will cover histological, genetic and radiological features of FCD.
Keywords: Focal Cortical Dysplasia, MRI, Epilepsy, Histological, Genetic

Brainstem seizures

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Although cortical neurons play the main role in the pathogenesis of epileptic seizures, there has long been substantial evidence of the involvement of brainstem structures in epilepsy. Apart from the neuroimaging findings like perfusion and metabolic changes of the upper brainstem and cerebellum during focal and generalized seizures, recent in-vivo animal studies support structural and electrical changes in the brainstem nuclei during seizures. It has been shown that brainstem involvement varies in different seizures that sometimes even have a similar clinical presentation. Sometimes, the brainstem structures contribute to a seizure by relaying the cortical epileptic signals to the effector muscles in the limbs as a minimal role in the process. At times, the epileptic ictal activity spreads to the brainstem nuclei and they start to have epileptic discharges of their own. On the other hand, the idea of a subcortical structure starting an epileptic ictal activity which then ascends to the cortex was entertained for long, more famously in the pathogenesis of absence seizures where, hypothetically the ictal activity starts in the upper pons or thalamus. The brainstem involvement can explain different semiological findings like specific toinc postures in GTCs or alterations of consciousness. However, the most critical role is supposedly the participation in the SUDEP underlying mechanisms. This has led to several studies investigating agents like SSRIs, Adenosine, COX inhibitors to reduce the risk of SUDEP by targeting the brainstem nuclei.

Autoimmune Encephalitis: How to Work up?

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Autoimmune encephalitis (AE) as a new category of immune-mediated disease causes a wide spectrum of clinical presentations, ranging from altered cognition to more complex forms of encephalopathy with refractory seizures in the presence of autoantibodies in the serum and cerebrospinal fluid. The common presentation and mechanisms of this disorder with autoimmune diseases i.e. multiple sclerosis, neuromyelitis optica spectrum disorders as well as paraneoplastic inflammatory disorders of the central nervous system, made it highly topical in neurology. T and B cells as well as numerous and increasing associated autoantibodies, targeting cell-surface synaptic proteins including neurotransmitter receptors (e.g. NMDA receptors) and a secreted protein, LGI1, Anti VGKC and etc. contribute to various aspects of the pathogenesis. Due to its diverse clinical features, which can mimic a variety of other pathologic processes, AE presents a diagnostic challenge to clinicians. The CSF test for the presence of antibodies is important because it is more sensitive and reflects disease activity in many AE, although antibody tests can be negative even in the presence of this disorder. Neuroimaging findings can also be quite variable, but recognizing some characteristic changes i.e. in limbic structures could be very suggestive to the potential diagnosis and applying a prompt and appropriate clinical approach.

Key Words: Autoimmune encephalitis, autoantibody, Neuroimaging.

Immune mediated epilepsies

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Previously various kinds of immune-mediated epilepsies were described in literatures including Hashimoto encephalopathy and Rasmussen's encephalitis. Recently an important cause of immune mediated epilepsies has emerged with the name of autoimmune encephalitis with a growing detection of new auto-antibodies which can manifest with several distinct clinical symptoms, complicating its recognition. The classical presentation of autoimmune encephalitis consists of subacute progressive decrease level of consciousness, often with fluctuations, and altered cognition. Memory, especially retention of new information, may be impaired early in the clinical course. Psychiatric manifestations are common early in the course of disease. These may include psychosis, aggression, inappropriate sexual behaviors, panic attacks, compulsive behaviors, euphoria or fear. Abnormal movements may be the presenting symptom in several types of autoimmune encephalitis. Other neurological symptoms especially cerebellar ataxia could be observed . Seizures are common in autoimmune encephalitis and may be a presenting symptom.

Three groups of antibodies are described in immune-mediated eplepsies. Antibodies to intracellular antigens (paraneoplastic antibodies), antibodies to cell surface epitopes and antibodies to intracellular synaptic proteins.

Antibodies to intracellular antigens have strong association with cancer so called: "paraneoplastic" or "onconeuronal". These antibodies do not seem to be directly pathogenic but, rather, a marker of T-cell mediated immune mechanisms. Response to immunomodulatory treatment tend to be poor.

Intracellular synaptic antigens are important for the function of inhibitory synapses. GAD 65 & amphiphysin are intracellular synaptic antigens. GAD Ab is found in 80% of patients with DM type 1. When examining a patient with DM and encephalitis, it should keep in mind to search for CSF GAD antibody and OCB to confirm the association of GAD Ab to neurological manifestations.

Antibodies to cell surface antigens including NMDA, AMPA, GABA and VGKC receptors antibodies have more pathogenic role and more treatable than intracellular antibodies. Clinical presentations related to each of the mentioned antibodies will describe comprehensively in our presentation.

Ketogenic diet in pediatric epilepsy

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Fasting and prayer have been recommended as treatments for epilepsy since biblical times. The ketogenic diet (KD) is a nonpharmacologic therapy for children with drug resistant epilepsy. The KD using a high fat, low carbohydrate diet was designed in 1924 by Dr. Russell Wilder at the Mayo Clinic, in Rochester. Until 1938, KD was one of the few available treatments for epilepsy, but the development of new AEDs turned attention . Over the past decade the role of the KD in the treatment of drug resistant epilepsy has become more important . In 1994 Charlie Abraham's family begins The Charlie Foundation dedicated for KD . The Charlie Foundation in December 2006 in San Diego , provide practical recommendations to guide management of KD . There are five levels of effective diet for the treatment of epilepsy : The classic KD , Modified KD , Medium-chain triglyceride oil supplement diet , Modified Atkins , Low glycemic index treatment (LGIT) and recently All-liquid, formula based diet . In the classic KD 90% of the energy comes from fat and 10% from protein and carbohydrate . The modified Atkins diet is similar to the classic KD of approximately a 1:1 KD and Max 10-20 gr/day carbohydrate and no limitations on protein, fluids, and calories .The LGIT allows liberalization of total daily carbohydrate intake to approximately 40–60 g/day, but regulates the type of carbohydrate, (those with low glycemic indices <50). The KD using a formula-based powder (Ketocal) is effective, safe, and tolerable .
Key words : KD , Modified Atkins , LGIT ,Children , Drug resistant epilepsy

When to start and when to stop AEDs

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Epilepsy is an important neurological disorder with a prevalence of 0.5% to 0.8 %. Successful treatment and outcome in these patients requires comprehensive knowledge about how and when AED should be started? Which is drug of choice? When and how treatment should be changed? and when treatment can be stopped?.
Treatment is generally initiated after a second seizure. However, consideration should be given to start treatment after a single unprovoked seizure, if factors (such as unequivocal epileptic activity on EEG, structural abnormality in MRI, presence of neurological disorder) put the patient at high risk of seizure recurrence.
One downside of this conception is that it extends the boundaries of epilepsy definition and therefore more people may be treated before when two seizures were needed to diagnose epilepsy. On the plus side, patients receive earlier treatment and may be spared from further seizures and their complications.
Although early treatment prevents seizure consequences, however, it should not be advised without having details in mind. Decision to start treatment is made only in consultation with the informed patient or carer after weighing the unique circumstances posed by the individual.
The ideal objective of treating is of course to induce remission and ultimately to stop medication without significant AEs and weighing risk of recurrence and benefits of elimination of the consequence of therapy, particularly cognitive-behavioral effects of AEDs.
Discontinuation of the treatment is a major challenge and needs to evaluate factors related to favorable post-withdrawal outcome and risk factors for relapse after discontinuation of the antiepileptic drugs.
Keywords: Epilepsy; AED; Recurrence risk factors; Starting of AED; Stopping AED.

Epilepsy and Infectious Diseases

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The commonest etiology for epilepsy is infectious in developing countries. Infections in the central nervous system can cause both acute symptomatic seizures and epilepsy.
The commonest etiologies for bacterial meningitis are meningococus, pneumococcus and haemophilus influenza B. Acute seizures may occur related to fever or to complications .
Plasmodium falciparum and Plasmodium vivax is the most important cause of epileptic seizures in some regions.
Toxoplasmosis is caused by Toxoplasma gondii. Immunocompetent persons with primary infection are usually asymptomatic, but latent infection can occur.
CMV, the commonest fetal viral infection , after 20 weeks gestation can cause malformations of cortical development (including polymycrogyria and schizencephaly), and intracranial calcification in the developing brain. Seizures may have onset in the first month of life, in the first year or rarely later.
Seizures can result from primary cerebral HIV infection, especially in children. In adults, most seizures are cause by related opportunistic central nervous system infections such as toxoplasmosis, cryptococcal meningitis and tuberculomas; or due to secondary neoplastic lesions.
Neurocysticercosis is caused by Taenia solium . The diagnosis depends on supportive clinical history (including exposure history), laboratory results and imaging findings. In most patients, neuroimaging findings are not pathognomonic .
Seizures can occur in meningo-tuberculosis due to cerebral vasculitis and infarction. Seizures with focal features may also occur as a consequence of tuberculomas, identified as ring-enhancing lesions on neuroimaging.
Encephalitis is a recognized complication of infections with a number of viruses. Herpes simplex virus type 1 is the most common viral cause. Affected individuals present with acute encephalopathy and seizures, epilepsy develops in around 50% of cases. Other less common etiologies for viral encephalitis include human herpes virus 6 (associated with acute limbic encephalitis and febrile status epilepticus), influenza B, varicella, measles, mumps and rubella viruses.
Sub-acute sclerosing panencephalitis is a rare progressive chronic encephalitis, seen predominantly in children and young adults as a consequence of chronic measles infection (typically with the initial infection occurring before the age of 2 years). Affected individuals show progressive cognitive deterioration, seizures (myoclonus), ataxia, photosensitivity, and a characteristic EEG (periodic discharges).

Rational polytherapy in epilepsy

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Introduction: Polytherapy is actually the most used therapeutic strategy in difficult to treat patients. At the present time almost twenty five AEDs marketed throughout the world ,tremendous possible combinations are available and the combinations of choice is usually challenging.

Rational polytherapy: At the moment, practice recommendations are usually empirical and decision making should be individualized because no consensus statement is available. Compare to newer AEDs, the Pharmacokinetics of old AEDs are less predictable. The ideal AED combinations should be supra- additive for efficacy and infra- additive for toxicity. It is reasonable to use combinations with potential complementary modes of action. Broad spectrum drugs are also preferred over those AEDs possessing either limited efficacy or similar mechanisms of action. With respect to synergistic aspects of AEDs the available evidence is limited. Strongest evidence is present for the combination of LTG with VPA, VPA with ETS for the absence epilepsy and TPM with LTG for different type of seizures.

In rational polytherapy numerous parameters including the type (s) of seizure (s) features of epileptic syndrome, the pharmacologic and side effects of the AEDs, the efficacy spectrum of AEDs, safety, tolerability and possible paradoxical aggravation,the modes of action and synergistic or additive properties of AEDs, and patient's related factors should be considered

Conclusion: At the present time, the evidence based data respecting AED polytherapy are scarce. Rational polytherapy should consists of the AEDs with a high therapeutic indexes, possessing complementary or different modes of action and minimal potential for toxicity and drug interactions .In this article advantages and disadvantages of polytherapy will be discussed, It's clinical evidence, indications and ideal AED combinations are reviewed

Epilepsy and Pregnancy

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Seizure may injure both the mother and her fetus through several mechanism including trauma, hypoxia and complications of status epilepticus.
The vast majority of women with epilepsy will have a normal pregnancy with a favorable outcome; but there are increased material and fetal risks compared to the general population. Careful planning and management of any pregnancy in a woman with epilepsy is essential to minimize these risks. The reduction of these risks begins preconception planning. The initial visit between the physician and a woman with epilepsy at childbearing age should include a discussion about family planning. Topics should include effective birth control, the importance of planned pregnancies with AED optimization and folic acid supplementation beginning prior to conception, obstetrical complications and teratogenicity of AEDs versus the risk of seizure during pregnancy. The goal is effective control of maternal seizures with the least risk to the fetus.
Avoid entirely Valproate poly-therapy in any combination and particularly with Lamotrigine. The risks are high and outweigh any benefits.

- Seizure deterioration in pregnancy can often be attributed to poor compliance, an inappropriate reduction in AED therapy either by the patient or her physician, a pregnancy-related fall in plasma drug concentration, sleep deprivation, fatigue, hormonal changes or psychological factors. Patients often decide themselves to reduce or strap AED medication as a result of media concerns.
- Women with epileptic seizures should be reassured that they can have happy families with healthy children like any other women. Their pregnancy may carry some definite risks; but these are small and can be minimized through proper management before, during and after pregnancy.

Key word; Pregnancy, epilepsy, AEDs side effects

Psycogenic nonepileptic seizures sensitivity and Specificity of clinical variables in differentiation of seizure versus pseudo seizure

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Introduction: Psychogenic nonepileptic seizures (PNES), or pseudoseizures are paroxysmal episodes that resemble and are often misdiagnosed as epileptic seizures; however, PNES are psychological (i.e., emotional, stress-related) in origin.
Aims:this study performed to identify sensitivity and specificity of clinical findings to differentiate these two attacks
Methods Of Research:the is a section observational study designed among patients complained from seizure admitted in EEG monitoring ward Razavi hospital . clinical findings and behavior of seizure evaluated in all patients.according to EEG recordings and clinical findings the attacks divided in real and pseudo seizures. statistical analysis was performed based on SPSS20. the level of significance was considered less than 5%.
Results:this study performed in 100 patients(44 male 56 female)average age was 26/78+/- 1/.3 years .results showed among many different clinical findings occurence of attack when there is no other person ,amnesia after attack,decrease in the number of attacks after drug prescription, irresistibly to open eyes with command has near 100% sensitivity for true seizures.
Conclusion:according to our results it seems that some clinical aspects could highly differentiate real seizures from non epileptic attacks even if we have no accessibility to EEG monitoring.

Efficacy of levetiracetam in treatment of childhood stuttering

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Background: In fact, stuttering is a kind of speech disorder which affects about 1% of total population. As the origins of this disorder are not obviously diagnosed yet, various remedies have been practiced and among them different medicines have been studied, but unfortunately no significant effective drugs have been recognized yet. As stuttering imposes a great social and mental costs to the patients and their families and finding an effective medicine will help significantly, on this study we have focused on the effects of levetiracetam (LEV) treatment on children suffering from stuttering.
Material and Methods: In this clinical trial study, 30 children aged >3 years (median 3.8 years) with stuttering and abnormal sleep EEG treated by levetiracetam and followed for a minimum period of 6 weeks. The starting dose of 20 mg/kg/day was increased at interval of 1 week by 10 mg/kg/day, if necessary, up to maximum dose of 60 mg/kg/day.
Results: Over all levetiracetam was effective in 70% of patients, decreasing stuttering to at least 50%, three children (10%) became stuttering free, only in one (3.3%) children, an increase in Stuttering was observed. There were statistically significant differences for efficacy in the presence of variables such as age groups, Seizure and Stuttering family history and EEG data. In conclusion, LEV is an effective drug for treatment of childhood stuttering in those that have abnormal sleep EEG
Keywords: Levetiracetam,Childhood,stuttering,treatment

Immunotherapy in treatment of Drug Resistant Epilepsy

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Background: Autoimmune disorders have long been recognized as potential causes of seizures. The report of an autoimmune basis led to the introduction of Immunotherapy (IT) in some Drug-Resistant Epileptic Syndromes (DRES) prompted an intensive search for self antibodies (Abs) in epilepsy. However, accumulating evidence indicates that autoimmune factors may play a bigger role in seizure disorders than previously suspected, often without full features of limbic encephalitis. Patients with such disorders may respond to immunosuppressant therapies. Mayo Clinic researchers have developed a new approach to diagnosing and treating autoimmune epilepsy. In research published in Neurology in 2014, 32 patients at Mayo Clinic with suspected autoimmune epilepsy were given an immunotherapy trial.

Method & Material: The observational retrospective case series included 32 patients with partial seizures. Most (81%) had failed treatment with 2 or more AEDs and 38% had seizure semiologies that were multifocal or changed with time. Patients received immunotherapy with intravenous methylprednisolone, intravenous immune globulin, and combinations of these drugs with plasma pheresis or cyclophosphamide.

Results: Head magnetic resonance imaging was normal in 47% of patients at onset. Electroencephalogram abnormalities included interictal epileptiform discharges in 20 patients, electrographic seizures in 15, and focal slowing in 13.

After a median of 17 months, 81% of patients reported post immunotherapy improvement. The median time from seizure onset to initiating immunotherapy was 4 months for responders and 22 months for non responders ($P<.05$).

Discussion: Clinical and experimental evidence provided evidences for involvement of inflammatory processes in the brain in the etiopathogenesis of seizures. When autoimmune epilepsy is suspected on clinical grounds, the authors suggest cerebrospinal fluid evaluation and comprehensive screening for neural autoantibodies are indicated. Clinical experience suggests that immunotherapy should not be used alone to control seizures, but should be used in combination with antiepileptic drugs to optimize seizure control.

Conclusion: Anti-inflammatory drugs have anticonvulsant efficacy in some cases of drug-refractory epilepsies, suggesting the possibility that chronic inflammation in the brain may be implicated in the pathogenesis of seizures and associated with long-term events.

Traumatic brain injury (TBI) and epilepsy

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Epilepsy is a disorder of brain characterized by enduring predisposition to generate epileptic seizure. TBI is the cause of epilepsy in 5% of patients with epilepsy in general population. Seizures that occur early versus late after TBI have different implications for prognosis and management. The risk of posttraumatic epilepsy is highest within the first 2 years after a brain injury in most patients. However, minority of patients (about 15-20%) may experience their first seizure beyond 2 years. Clinical presentation of seizures in posttraumatic epilepsy is not different from other types of epilepsy with different etiologies (except absence seizures). The clinical manifestations are extremely variable and depend on the cortical areas involved.

The risk factors for posttraumatic epilepsy include age, penetrating injuries, injury severity, multiple contusions and frontal or temporal locations of the lesions. Genetic influences are also another factor in the development of posttraumatic epilepsy.

Trauma produces many structural and physiologic and biochemical damages in the brain. The development of PTE after a latent period is an example of human epileptogenesis, whereby a nonepileptic brain undergoes molecular and cellular changes following a brain insult, which increases its excitability. Parenchymal blood with subsequent hemosiderin deposition is a major risk factor for epilepsy. There are several animal models that explain probable mechanisms of posttraumatic epilepsy. However, the process of epileptogensis that occurs as a result of a brain injury is still not fully understood and remains a prime target for the study and application of antiepileptogenic therapy.

Electroencephalography (EEG) plays a limited role in the evaluation of early posttraumatic seizures. It is also less helpful in predicting recurrence after a first late posttraumatic seizure. Neuroimaging (CT scan and MRI) provide limited prognostic information for predicting development of PTE. However, newer advances MRI sequences are more sensitive to microhemorrhages (susceptibility weighted imaging; SWI) and white matter injury (diffusion tensor imaging; DTI).These newer techniques may have the potential to predict presence of epileptogenesis following TBI.

Patients with moderate to severe head injuries are often medically unstable and seizures may aggravate patient's condition, for these reasons antiepileptic medication is indicated, at least in the earlier phase. Several prospective, randomized, controlled trials have shown that antiepileptic drugs are effective in reducing chance of early seizures but do not prevent development of posttraumatic epilepsy.

Key words: Traumatic Brain Injury (TBI), Posttraumatic Epilepsy (PTE), Antiepileptic Drugs (AEDs), Epileptogenesis

When does Electroencephalography (EEG) helps to diagnosis in non-epileptic neurological conditions

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EEG is a reliable test to assess cerebral function and have value in diagnosis and evaluation of neurotically conditions apart from epilepsy. EEG is most import in patients with impaired consciousness or altered mental state where seizure or non-convulsive status epileptics may be a contributing factor.
When cerebral dysfunction is evident and neuroimaging is normal with EEG we can demonstrate cerebral functional disturbances.
EEG in encephalopathies are similar whether the cause is septic metabolic, toxic, or structural. There is a progressive increase in slow waves activities, the degree of which parallels the severity of brain dysfunction. Triphasic wave (TW) are typically found in metabolic encephalopathies. TW are specific to sever hepatic encephalopathy, but. TW are seen in encephalopathies associated with uremia or electrolyte imbalance, anoxia and intoxication such as lithium and levodopa.
Spike wave epileptic form discharges may occur in any sever encephalopathy such as uremia and hypoglycemia.
In hypoglycemia EEG finding are generalized slow activity focal or lateralized delta rhythmus.
EEG is useful for early detection of dialysis dementia and these may be associated with focal neurological deficits. Periodic sharp waves in EEG can be associated with creutzfeldt- Jakob disease (CJD) , Alzheimer's disease, Lithium intoxicate or herpes simplex encephalitis.
Conclusions: A patient with acute change in a awareness whose EEG shows diphasic waves and diffuse slow activity will usually have a metabolic encephalopathy and early diagnosis and treatment can will be the better outcome and little sequel.
Key words: Electroencephalography- metabolic encephalopathy

Diagnostic Value of Video – EEG monitoring in childhood epilepsy

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Introduction: Prolonged Video – EEG monitoring has been used in evaluation of paroxysmal events. Main indications for this procedure include: determine nature of recurrent spells, classify seizure type or epilepsy syndrome, quantification of seizure frequency and presurgical evaluation of medically refractory epilepsy. It is important to define the diagnostic value of this high-cost and time - consuming procedure. We report our experience in VEM in Tabriz Children Hospital in North – West of IRAN.

Patients and Methods: We respectively reviewed 60 pediatric VEM, Who admitted in on our EMU. The age of patients (31 boys and 29 girls) ranged from 4 months to 20 years (medium age 7.09 year). The mean length of VEM was 23 hours (rang 12 to 72 hours). The indications for VEM were: clarify of habitual episodes (n= 15), classify seizure disorder (n=28) and localization of epileptogenic focus (n=17).

Final event diagnosis, frequency of seizure during VEM and complication were analyzed.

Results: Clinical events were observed in 57 patients (95%). Seizure frequency during VEM ranged from 0 to 100 mean 16.5. In 5 (8.3%) patients the nature of habitual episodes were non-epileptic events .

In 12 (20%) patients final diagnosis were changed with major modification in therapeutic approach.

Only one patient experienced status epilepticus without significant complication.

Conclusion: Video- EEG monitoring established a reliable diagnosis in most patients.

Bidirectional interactions of sleep and epilepsy

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Patients with epilepsy have frequent sleep complaints, and sleep disorders may worsen epilepsy.
Patients with epilepsy frequently have fragmented sleep as well as excessive daytime somnolence.
Sleep can affect seizure occurrence, threshold, and spread, whereas epilepsy can have a profound effect on the sleep-wake cycle and sleep architecture.
Treatment of sleep disorders may improve control of epilepsy. In general, with improvement of seizure control, the regularity of the sleep cycle improves and sleep becomes more consolidated. However, some antiepileptic medications have been associated with insomnia, and others with excessive daytime sleepiness.
Seizures occur in patterns that depend on sleep stage and circadian factors. Tonic and hypermotor seizures more often occur during sleep; clonic and absence seizures while awake.
Integrating the treatment of seizures with knowledge of the chronobiologic pattern may improve treatment.
Distinguishing seizures from NREM parasomnias is sometimes difficult. Nocturnal frontal lobe seizures are often initially misdiagnosed as sleepwalking, sleep terrors, nightmares or a psychiatric problem.
Clustering (multiple events in the same night), stereotypic behaviors, and dystonic posture or versive movements suggest seizures, whereas longer duration and complex behaviors are more common with parasomnias.

Personalized Medicine Approaches In Pediatric Epilepsy

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Epilepsy affects almost 1 percent of population in the world , one -third of these patients continue to experience refractory seizures despite optimum anti-epileptic drug (AED) therapy.
Wide spectrum of reasons are contributed to drug resistance in epilepsy .Genetic and personalized characteristics now can clarify and provide new insights in better understanding into stratification of epilepsy.
SCNIA gene polymorphism reports in concern with drug resistance o sodium channel blockers including carbamazepine and phenytoin is demonstrated.
Multiple seizures prior in patients with Dravet's syndrome is a well-known subject and up to 50% of these patients develop adverse reactions to anticonvulsant medications that affects tolerability and compliance in treatment.
Immune-mediated hypersensitivity reactions to AED therapy, such as toxic epidermal necrosis(TEN) which is the most serious adverse reaction known to be been associated with polymorphisms in the human leucocyte antigen (HLA) complex.
Pharmacogenetic screening for HLA-B*15:02 in Asian people can predict and may prevent carbamazepine-induced Stevens-Johnson syndrome. HLA-A*31:01 is also known as a potential risk marker for all phenotypes of carbamazepine-induced hypersensitivity with applicability in European population and others.
Personalized medicine approach is a new era which needs to be developed in epilepsy .

Keywords: Personalized medicine , epilepsy ,approach, children

Difficult Cases in Pediatric Epileptology

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Epilepsy is not uncommon in Pediatric age group and its incidence is highest in neonatal period and first year of life (about 120 in every 100,000 infants). About 1% of Children below 14 years of age experience at least one afebrile seizure. Basically seizure like disorders are more common than seizure disorders in children and management of these disorders are sometimes tricky. It is noteworthy to rule-out epilepsy like disorders in every child coming to our clinic because of paroxysmal events. In this category, sleep disorders (parasomnias), breath holding attacks, self-gratification disorders and tics are pretty common in pediatric age group.

Other tricky cases in pediatric epileptology are refractory seizures. Affected patients are usually referred to clinics with pharmacoresistant frequent seizures and they are on polytherapy sometimes receiving more than 5 or 6 antiepileptic medications with little if any effects on their frequent and disabling seizures. In these cases we should always consider other treatment modalities such as epilepsy surgery, vagus nerve stimulation as well as ketogenic diet to treat their intractable seizures.

In my talk, I will address some of our cases in practice and discuss on them.

Keywords: pediatric epilepsy, epilepsy like disorders, refractory epilepsy, ketogenic diet, polytherapy, antiepileptic medications.

PNEA

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In different societies, there are different statistics regarding the incidence and prevalence of these diseases in the subsets of diagnosis of differential epilepcies and actual epilepcies, and our beloved Iran is among countries that there is no exact statistics about this.

Naturally, due to the fact that this overlaps in diagnosis of real epilepcy, PNEA perhaps mistakenly identified as real epilepsy and subsequently it can lead to inappropriate use of anticonvulsant medications, Damage caused by the use of this drug and psychological problems and creation of unnecessary financial burden on the health system of that country.

In some cases, obviously real seizures, focal seizures with frontal malformations are mistakenly detected as PNEA, leading to mistakes in the treatment of the patient and the onset of persistent side- effects of epilepsy in the patient.

And so, given the statistics published in the countries that have exact statistics in this topic, the average outbreak has been identified 20% to 30%, that given this, significance of this topic become obvious. The word of false seizure as an alternative word can include the non-cerebral or non-epileptic origin of this process. The equivalent term for PNEA is non-epileptic seizures (NES), which is used in many references. The incidence of NES in the population as a whole is estimated to be between 3% and 9% per 100,000.

My clinical experience in the northwestern region of Iran has estimated the occurrence of this process in this area is more than other places. However, I am currently in the early stages of a thorough review of this issue.

The correct diagnosis is delayed in most of these patients, and some cases of this illness do not have guidelines for diagnosis and treatment.

The best and the most reliable diagnostic method between PNEA and the real seizure is EEG video monitoring and observation of the attack and analysis of brain waves during the attack.

One of the actions that help to differentiate between these two cases is a detailed narration of the patient and specific attention to specific cases in the patient's examination. Among the most commonly reported PNEAs in women, there is a history of using etheric analgesics and the personal abuse of the patient or sexual abuse of her. A history of work-related problems or PTSD is also important in men.

The mean age of the onset of PNEA is higher in men and the use of anticonvulsants is less in men. These patients have more behavioral variation during the incident and the highest frequency is related to Pelvic thrusting and eye drops. (Videos that are related to this should be broadcast).

Often, these attacks are gradual, and non-symmetrical and asynchronous movements are associated with a possible side-to-side head shaking and opisthotonus condition,

and crying and resistance to open eyes, and only the pupil respond to light and targeted movements.

Of the interesting points in distinguishing this is that there is no obvious difference in urinary incontinence or language biting during the attack.

Epileptic seizure episodes are associated with a shorter duration and often associated with injuries during an attack, and most of the time occurs in sleep. Interestingly, in the context of treatment-resistant seizures, most cases with a history of fibromyalgia or chronic pain are co-morbid with PNEA attacks, especially in the case of typical events in the waiting room or in the examination room.

Failure to change heart rate can also be beneficial for PNEA, while in epileptic cases, increasing of heart rate is common.

Patients have specific attacks based on their cultural and geographic characteristics.

I had a patient with a GI sign and Muingel attacks and frequent burrowing that they decided to have surgery for him(her). While the patient signs were consistent with PNEA by provocation and internal neurological studies and the patient was effectively cured by appropriate measures with SSRI and surgical procedures were canceled.

Co-Morbidity in Epilepsy

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Comorbid health conditions are common among people with epilepsy. Proposed explanations for this association include the possibility that first, epilepsy (including its treatment) causes the comorbid condition; second, the comorbid condition (including its treatment) causes epilepsy; or third, a common pathogenic mechanism mediates the co-occurrence of epilepsy and the comorbid condition. It is unlikely that a single explanation will suffice for all of the epilepsy comorbid conditions. Determining the basis of the association between epilepsy and its comorbid conditions has important implications for diagnosis and management. In this paper, we discuss this issue in the context of five common epilepsy comorbid conditions: bone health and fractures, stroke, depression, migraine and attention-deficit hyperactivity disorder.

Bone health

- Bone health problems due to antiepileptic drug adverse effects.
- Compromised bone integrity and falls leads to higher rate of fractures.

Stroke

- Post-stroke epilepsy is the most common cause of epilepsy in the elderly.
- The risk of developing epilepsy after a stroke is increased by 23-fold.
- Cardiovascular abnormalities are common in those who develop epilepsy after stroke.

Depression

- Interictal depression is the most common psychiatric comorbidity.
- The presence of either depression or epilepsy puts one at an increased risk of developing the other.
- Antiepileptic drugs, biochemical factors, seizure-related factors and psychosocial variables contribute to high rates of both disorders.

Migraine

- Shares clinical features with epilepsy.
- Several comorbidities are common to both migraine and depression.
- Genetic link in specific types of epilepsy and migraine have been identified.

Attention-deficit hyperactivity disorder

- Attention-deficit hyperactivity disorder frequently predates seizure onset.
- Abnormalities in lipid metabolism, the norepinephrine system or dopamine transport are possible underlying factors.

Future Direction in Neuropsychology and Neuropsychiatry of Epilepsy

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Applications of neuropsychiatry and clinical neuropsychology for epilepsy and epilepsy surgery have been changed since the case of H.M in 1953. The big five constructs include:

1. The neurobiology of cognitive impairments in Epilepsy, which expands landscape of syndrome-specific neuropsychological impairment;
2. The reciprocal relationships between epilepsy and cognitive comorbidities and their clinical implications;
3. Considering quality of life;
4. Prediction of epilepsy surgery outcome;
5. Iatrogenic stigma and effects of treatment on cognition;

Each of these big five would be under scrutiny to alter our understanding of the epilepsies and their management.
It would be concluded that changes in assessment paradigms, moving from characterization of comorbidities to interventions; increasing development of new measures, terminology and classification, transitioning from clinical seizure features to modifiable risk factors; and neurobehavioral phenotypes will happen in the near future.

Keywords: Epilepsy, Neuropsychiatry, Neuropsychology, Cognition

Endocrine&reproductive Aspects of epilepsy

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Hormones affect seizures, and seizures affect hormonal regulation and secretion.Other than well recognized effect of Thyrotoxicosis, hyponatremia associated with the syndrome of inappropriate antidiuretic hormone secretion (SIADH), and hypoglycemia on lowering seizure thresholds in epileptic patients and triggering de novo situational seizures, more subtle manifestations of hormonal influences on seizures and vice versa may easily be overlooked because they are not usually emphasized In the training of neurologists. Awareness of how different hormones relieve or exacerbate seizures may lead to improvement in the treatment of seizures with the use of adjunctive hormonal therapy. Steroid hormones alter neuronal excitability, and these hormones in turn can be altered by seizures, by epilepsy, and by th pharmacokinetic effects of antiepileptic medications. Steroid hormones that are neurophysiologically active and alter the seizure threshold are known as neuroactive steroids or neurosteroids.

Gender-based differences in AED pharmacokinetics, sex steroid hormones, and reproductive life events raise special issues for women with epilepsy. A prominent precipitation of seizures in association with the menstrual cycle has been termed catamenial epilepsy. This is reported in approximately 55% of women with epilepsy. The most common pattern of clustering of seizures is perimenstrual, typically in the 3 days before and 3 days after onset of the period. Less common patterns are periovulatory (occurring around ovulation) and luteal, in association with inadequate luteal phase cycles. The mechanism of catamenial epilepsy is thought to be related to the opposite effects of estradiol and progesterone on seizure threshold. Estradiol is a proconvulsant, whereas progesterone has an anticonvulsant effect. Progesterone therapy has been suggested as a treatment when catamenial epilepsy is not responsive to standard AEDs.

Reproductive issues are also an important concern of epileptic patients and their families. Both men and women with epilepsy have lower birth rates than the general population and adults with active epilepsy have lower birth rates in comparison to those who no longer have seizures after childhood . Decreased birth rates may be in part secondary psychosocial factors affecting patients with epilepsy such as choosing not to enter into romantic relationships or deciding not to have children .other Reasons offered for this decrease in fertility include menstrual irregularity, the effect of some antiepileptic medications on the gonads, and
an effect of seizures on reproductive hormones.. Additionally, patients with epilepsy have been shown to have increased rate of infertility. Infertility is the failure to conceive after regular intercourse in women who are not using contraception for a duration of 1 year for women <35 years and 6 months for those >35 years

.Unovulatory menstrual cycles are common amoung women with epilepsy and the most common cause of chronic unovulatory cycles inwomen with epilepsy is polycystic ovarian syndrome(PCOS). PCOS is defined as the presence of hyperandrogenism (clinical and/or biochemical), ovarian dysfunction (oligo-anovulation and/or polycystic ovaries), and the exclusion of related disorders. Secondary to likely hypothalamic and pituitary dysregulation, there is elevated LH secretion and an increased ratio of LH to FSH, with produces polycystic follicles that are premature and deficient in aromatase, leading to increased serum androgen levels. The androgen is converted to estrogen by aromatase in the periphery, which feeds back to the pituitary to dysregulate normal LH secretion . In addition to the effect of seizures on the hypothalamic–pituitary–gonadal axis creating an increased risk for PCOS, it has also been shown that patients on valproate are at increased risk for the symptoms associated with PCOS.

Progressive myoclonic epilepsy

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Progressive myoclonic epilepsies (PMEs) are a heterogeneous group of disorders characterized by progressive myoclonus , cognitive impairment and cerebellar ataxia . There are five diseases account for the great majority of PMEs : Unverricht-Lundborg disease (ULD), myoclonic epilepsy with ragged red fibers (MERRF), adult neuronal ceroid-lipofuscinosis (Kufs' disease), Lafora's disease, and sialidosis. Most PMEs are autosomal recessive disorders with late childhood to adolescence onset. Clinically ; tonic-clonic, myoclonic and absence seizures may be present. Myoclonus is often reflex but spontaneous myoclonus or disabling action myoclonus also occurs.

The EEG shows generalized polyspike & spike-and-wave discharges, precipitated by photic stimulation. Background EEG activity becomes progressively slower.

Cerebellar dysfunction is also common; hypotonia, intention tremor, speech and ocular abnormalities, and ataxia variably present.

Treatment of PME is unsatisfactory. However, there are specific treatment for some forms of PMEs such as enzyme replacement therapy in Gaucher's disease type 1. Otherwise, clinicians can offer only symptom therapy with antiepileptic drugs. Valproate sodium (should be avoided in MERRF), Clonazepam, Levetiracetam ,Topiramate and high-dose Piracetam are effective for myoclonic seizures .The prognosis of PME is poor in terms of seizure control; however, the natural history of the individual disorder is vary. In the most devastating disorders" Lafora body disease" there is a progressive neurological leading to a vegetative state , status myoclonus and death within 10 years.

Key Words : myoclonus , epilepsy, cerebellar ataxia .

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Role of FDG PET/CT scan in seizure focus localization in patients with drug resistant epilepsy

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Introduction: Epilepsy is a relatively common health issue and about one third of patients with partial epilepsy do not respond to pharmacotherapy and may benefit from surgical ablation of epileptogenic focus.Identification of structural lesions is vital in the pre-surgical evaluation and brain MRI imaging still fails to reveal any apparent abnormality in approximately 20% of the patients with medically refractory epilepsy. This necessitates use of functional imaging modalities in pre-surgical planning. FDG PET/CT is highly sensitive in localizing epileptogenic foci and is able to provide information complementary to MRI imaging.

Material and Methods: We included 41 patients with refractory epilepsy, referred to PET/CT department in Masih Daneshvari hospital Tehran-Iran. All patients had been extensively evaluated primarily by our neurologist colleagues regarding complete clinical and neurologic exam, EEG and brain MRI. All patients with abnormal brain MRI findings were excluded from this study. We evaluated PET images on ADW 4.5 GE workstation, based on "Expert Visual Analysis". We preferred using "Step 10 Scale" which differentiates areas with more than 10% difference in metabolism with different color. All images were reviewed by two PET/CT expertsblinded to the resultsof neurologic evaluations. Final impression was released based on common consensus. Focal areas with significant decreased metabolic activity compared to adjacent parenchyma were considered as potential epileptogenic foci. Finally our imaging impression was compared with the neurologist reports to find out to what extent the results are congruent.

Results: Twenty-six patients had their seizure focus localized in temporal lobe based of neurologic evaluations which 15 patients had congruent FDG-PET result (58%).Ten patients had their seizure focus localized at frontal lobe based of neurologic evaluations which only 1 patient had congruent FDG-PET result (10%).And finally in other five patients with other patterns of localization on neurologic evaluation, we did not see any congruent FDG-PET result.

Overall in patients with drug-resistant temporal lobe epilepsy (TLE), 58% absolute congruency between neurologic localization and FDG-PET localization was seen.On

the other hand for extra-temporal lobe epilepsy (ETLE) absolute congruency was seen in only 7% of the patients.
Conclusion: FDG-PET scan may be a sensitive diagnostic tool for seizure focus localization in patients with drug-resistant epilepsy. Further works in this regard with more advanced imaging analysis software and quantitative evaluation of the images will increase usefulness of FDG-PET modality to localize seizure focus.
Keywords: PET/CT, Epilepsy, Seizure focus

MRI findings in Pediatric seizure

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Each year approximately 30,000 new cases of pediatric epilepsy are reported. Approximately 25% of these cases are refractory to medical therapy, and patients are often severely debilitated by this disease. In patients with refractory epilepsy, neuroimaging is crucial for precisely identifying epileptogenic foci that are potentially amenable to surgical resection for possible cure. Some, but not all, causes of pediatric epilepsy are detectable with conventional magnetic resonance (MR) imaging. Advances in neuroimaging with use of diffusion tensor images, MR spectroscopy (MRS) and Voxel based morphometry (VBM) have recently improved lesion detection and localization. In this article, we review the MRI findings in the pediatric group of epilepsy in Iran and capability of conventional and advanced neuroimaging in early diagnosis of these cases with various pathologic entities, including focal cortical dysplasia (FCD), tuberous sclerosis, hemimegalencephaly, mesial temporal sclerosis (MTS), neoplasms, Rasmussen encephalitis, perinatal infarction, and Sturge-Weber syndrome. Also we will introduce the latest results of our patients who had done VBM and its results and effects in outcome of pediatric seizure in Iran.

Sleepwalking; differential diagnosis: (A Case series presentation)

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Sleep and epilepsy are common bed fellows and sleep disorders may mimic, cause or be triggered by epilepsy phenomena and vice versa.
Patients with nocturnal frontal lobe epilepsy (NFLE) experience episodes of nocturnal wandering which may be difficult to distinguish from disorders of arousal including sleepwalking. In addition, these patients may report a history of sleepwalking during childhood. On the other hand, the co-existence of other sleep disorders, in particular sleep apnea, a common sleep-related breathing disorder, can increase the frequency of nocturnal seizures due to sleep instability and sleep deprivation. Nocturnal video-polysomnography provides gold standard tool for diagnosis of such condition.
Here, we present a case of NFLE mimicking sleepswalking, also cases of obstructive sleep apnea with different clinical presentation and co-existence conditions including sleepwalking, seizure-like episodes and REM-sleep behavior disorder (RBD). Clinical course and appropriate treatment options are also subjects of discussion.

Ictal crying

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Purpose: To describe a series of patients with ictal crying to estimate its occurrence and characterize the clinical features and the underlying etiology.
Methods: We retrospectively reviewed all the long-term video-EEG reports from Jefferson Comprehensive Epilepsy Center over a 12-year period (2004-2015) for the occurrence of the terms “cry” or “sob” or “weep” in the text body. All the extracted reports were reviewed and patients with at least one documented ictal crying at the epilepsy monitoring unit (EMU) were included in the study.
Results: During the study period, 5133 patients were investigated at our EMU. Thirty-two patients (0.6%) had at least one documented seizure accompanied by crying. Twenty-seven patients (26 women and one man) had psychogenic nonepileptic seizures (PNES) and five patients (0.1%) had epilepsy. Among patients with epileptic ictal crying, four patients had focal epilepsy (two had definite and two had probable frontal lobe epilepsy), while one patient had Lennox-Gastaut syndrome.
Conclusion: Ictal crying is a rare finding among patients evaluated at the EMUs. The most common underlying etiology for ictal crying is PNES. However, ictal crying is not a specific sign for PNES. Epileptic ictal crying is often a rare type of partial seizure in patients with focal epilepsy. Dacrystic seizures do not provide a reasonable clinical value in predicting localization of the epileptogenic zone.
Key words: Clinical; Crying; Epilepsy; Psychogenic; Seizure

Rolandic epilepsy spectrum; we should think about continuous spike and wave during sleep in our patients

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Introduction: In children who present with Rolandic epilepsy, there is a possibility that they might progress toward continuous spike and wave during sleep (CSWS) and the initial anticonvulsive selection such as carbamazepine might speed-up this progression. Some children with Rolandic epilepsy have school difficulties but if these problems progress and other behavioral difficulties added, we definitely should think about the possibility of CSWS and the necessary diagnostic workup in these children is a standard sleep EEG. We also should change our treatment based on the results of sleep EEG.
Case report: I met a 7-year-old girl with the typical presentation of Rolandic epilepsy. Her awake EEG showed the typical Rolandic spikes and because of her parents' insist on initiating a treatment I administered carbamazepine. After a while, her parents worried about her school problems, but they told that before the seizure she was an excellent student. I decided to perform a longterm monitoring (LTM), and unfortunately, her LTM showed diagnostic criteria for electrical status epilepticus in sleep (ESES). I admitted her and aggressively treated her using methylprednisolone pulse and intravenous valproate and high dose Clobazam. Her sleep EEG improved, but her school performance is not acceptable enough still.
Conclusion: I have no idea about her first diagnosis; a child with Rolandic epilepsy that progress to CSWS or a child with CSWS at first. This scenario could be frequent, and we should think about CSWS and perform a standard sleep EEG in every child who presents with Rolandic epilepsy.
Keywords: Rolandic epilepsy, children, Carbamazepine, ESES

Cognitive function improvement due to changes in brain microstructure following the Bumetanide in refractory TLE

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Introduction: Refractory TLE is associated with specific localized hippocampal atrophy and white matter changes extending beyond the temporal lobe. The present study investigated WM structure and memory function in refractory epileptic patients with the hypothesis that large-scale brain networks may be changed after response to treatment.

Materials and Methods: DTI and memory assessment were performed for 12 patients with refractory epilepsy that received Bumetanide for 6 months and 12 healthy controls. Longitudinal study including two evaluations: voxel based analysing by using TBSS and SPM and memory assessment using the Stroop Color/word Test, the N- back test and the spatial recognition test which computerized by Psychopy to detect differences across patients' vs controls, also in patients before and after Bumetanide treatment.

Results: Patients exhibited significantly reduced FA in widespread white matter regions including bilateral corticospinal tract, superior longitudinal fasciculus, corpus callosum, thalamic radiation, temporooccipital connection and cingulate cortex. In memory assessment patients were significantly worse in spatial memory, stroop and n-back test. After 6 month treating Bumetanide and seizure frequency reduction more than 80%, error rate of stroop test reduced significantly, moreover FA significantly increased in the right temporal and parahipocampus in white matter structure.

Conclusion: TLE is associated with widespread abnormalities in cerebral white matter tracts and memory function changes may important consequence of that. Therefore, evaluating the changes of brain microstructure along with memory performance in longitudinal studies may be suitable to evaluate treatment response.

Key words: Temporal Lobe Epilepsy, Bumetanide, Diffusion Tensor Imaging

Application of novel diffusion MRI techniques to detect lesions in patients with suspected focal cortical dysplasia.

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Introduction: Focal cortical dysplasia (FCD) is a malformations of cortical development which is one of the most common causes of refractory epilepsy. FCDs are not easily visible on structural MRI images. The aim of this study was to use of NODDI (Neurite Orientation Dispersion and Density Imaging), DTI (Diffusion tensor imaging) and DKI (Diffusin Kurtosis Imaging) maps including neurite density (ND), orientation dispersion index (ODI), mean diffusivity (MD), fractional anisotropy (FA), mean kurtosis (MK) and axial kurtosis (AK) to show the lesions more clearly.
Materials and Methods: We applied novel diffusion MRI techniques in 9 patients with suspected FCD. Region of Interest (ROI) was drawn on suspected areas and contralateral regions on diffusion maps. Contrast-to-noise ratio (CNR) was characterised for each region. Two-tailed paired t-test was used to compare these techniques in better diagnosis of the lesions.
Results: The mean CNR for the ND across all subjects was 1.84 (standard deviation 0.78). This was significantly greater than the CNR for FA, MD, MK and AK.
Conclusions: The results showed that ND can improve detection of microstructural changes in cortical gray matter in patients with suspected focal cortical dysplasia.
Key words: Neurite Orientation Dispersion and Density Imaging, Diffusion Tensor Imaging, Diffusin Kurtosis Imaging, Focal cortical dysplasia

Epilepsy and cerebrovascular diseases

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Occurrence of seizures following ischemic stroke have been widely known and described. Multiple underlying factors such as cortical involvement, hemorrhagic transformation, infarct extension and severity, treatment protocol and occurrence of early-onset seizures have been suggested. Seizures after intracerebral hemorrhage are also frequently reported. Although the risk factors of recurrent seizures such as hemorrhage volume and location, cortical involvement and the severity of neurological deficits has been postulated, the treatment of choice is still a matter of debate. Seizure is also a common symptom of cerebral venous and sinus thrombosis (CVST). Recent studies have suggested initiation of antiepileptic drugs in patients with acute CVST who have supratentorial lesions and seizures but there is no recommendation regarding prevention of remote post-CVST seizures and duration of treatment. The role of occult cerebrovascular disease as a risk factor of epilepsy in elderly is also among current controversial issues. In this paper the author aimed to discuss about the current controversies in prevention and treatment of seizure and epilepsy following cerebrovascular diseases.
Keywords: seizure, epilepsy, cerebrovascular disease, stroke.

تشنجات نوزادی

دکتر امید یقینی
فوق تخصص نورولوژی کودکان
بیمارستان امام حسین(ع) دانشگاه علوم پزشکی اصفهان

مقدمه :تشنج‌های نوزادی مهمترین و شایعترین نشانه اختلال نورولوژیک در دوره نوزادی می‌باشند و بروز تشنج مخصوصاً در نوزادان نارس از هر دوره دیگر زندگی بیشتر است، برخورد مناسب با این نوع تشنج‌ها مخصوصاً انواعی که قابلیت درمانی را دارند جهت تکامل آینده کودک بسیار مهم است.

انواع تشنج های نوزادی:تشنجات نوزادی از نظر ظاهری به ۵ دسته تقسیم می شود .

۱- کلونیک(فوکال ، مولتی کلونیک)

۲- تونیک

۳- میو کلونیک

۴- اسپاسم

۵- ساتل شامل انحرافات گذرای چشمها – نیستاگموس ناگهانی – حرکات غیر طبیعی دهان – حرکات غیر طبیعی دست ها و پاها به صورت پدال زدن یا پاروزدن و تغییرات فشار خون و یا ضربان قلب .

اتیولوژی : بسیار متنوع است ولی شایعترین آن هایپوکسیک ایسکمیک آسفالوپاتی است و بقیه در دسته های زیر طبقه بندی می شوند .

۱- هایپوکسیک ایسکمیک آنسفالوپاتی ۲- خونریزی های مغزی ۳-اختلالات ساختمانی مغزی
۴- بیماریهای متابولیکی و الکترولیتی ۵-سندرمهای ژنتیکی

۱- هایپوگلسمی ۲- هایپوکلسمی ۳- هایپومنیزیویی ۴- هایپوو هایپزناترمی
۵- تشنجات وابسته به B6تشخیص : مهمترین راه تشخیص معاینه و شرح حال بالینی است که گاهی حتی در مرحله اول تشنج را از غیر تشنج افتراق بدهد. به نظر با توجه به اینکه تشخیص بعضی از انواع تشنج نوزاد جنبه حیاتی در زندگی فعلی و آینده کودک دارند این گونه تشخیصها باید در ابتدا بررسی شوند چون علل قابل درمانی دارند که مهمترین اینها شامل :

در مواردی که این اختلالات الکترو لیتی نبود بررسی‌ها مثل بقیه تشنجات شامل تصویر برداری مغز – نوار مغزی – در مرحله اول و بسته به علائم بالینی ممکن L-P– بررسی اسیدهای امینه سرم – آمونیاک و لاکتات..... نیاز باشد انجام شود .

درمان : مهمترین قسمت، درمان عامل زمینه‌ای در موارد قابل درمان است در غیر این صورت درمانهای ضد تشنج شامل موارد زیر می‌شود .

۱- بنزودیازپینها : کمتر به عنوان خط اول نوزادان به غیر از لورزاپام استفاده می شود ولی میدازولام و دپازیام وریدی و رکتال قابل استفاده است

۲- فنوباربیتال: اغلب موارد خط اول است بسته به شرایط نوزاد متفاوت است در موارد اورژانس به میزان ۲۰ میلی‌گرم بر حسب کیلوگرم در عرض ۲۰ دقیقه و در صورت عدم کنترل تشنج هر بار ۱۰ میلی گرم بر حسب کیلوگرم اضافه شده تا به حداکثر ۴۰ میلی گرم بر حسب کیلوگرم برسد .

۳- فنی توئین یا فوس فنی توئین به صورت وریدی به میزان ۲۰-۱۵ میلی گرم بر حسب کیلوگرم در عرض ۲۰ دقیقه انفوزیون می‌شود

۴- لوتیراستام – توپیرومات – میدازولام و لیدکائین در موارد مقاوم استفاده می شوند.

طول درمان:در مواردی که بعد از ترخیص نواز مغز بیمار غیر طبیعی نباشد می توان داروی ضد تشنج را در عرض ۲ هفته قطع کرد ولی در غیر این صورت ادامه درمان بر اساس شواهد ۱ الی ۲ سال می‌باشد .

Poster Presentations

14th International Epilepsy Congress

Effect of hydro alcoholic extract of Zizphora tenuior L on pentilentetrazol-induced seizures in male mice

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Introduction: The use of herbal medication has increased dramatically in recent times. However, most herbal and complementary medicines are used without specific evidence of benefit from controlled clinical trials. This study was done to evaluate the hydro alcoholic extract of Zizphora tenuior L on pentilentetrazol-induced seizures in male mice.
Materials and Methods: In this experimental study, 50 male mice randomly allocated into control and four experimental groups. Seizures in animals induced by 60 mg/kg/bw of pentilentetrazol (PTZ), interperitoneally. Animals in experimental groups were received 5, 10, 25 and 50 mg/kg/bw of hydro alcoholic extract of Zizphora tenuior L 30 min before each PTZ injection. The animals in control group were received saline, interperitoneally. After treatment, the behavior of animals and mortality rate were recorded.
Results: Seizure threshold of animals significantly increased in experimental groups which were received 25 and 50 mg/kg/bw of Zizphora tenuior L extract in comparision with controls ($P<0.05$). Mortality rate of animals significantly reduced in experimental group which were received 50 mg/kg/bw of Zizphora tenuior L extract in comparision with controls ($P<0.05$).
Conclusions: The hydro-alcoholic extract of Zizphora tenuior L increases seizure threshold in pentilentetrazol-induced seizures mice.
Key words: Zizphora tenuior L, Pentylentetrazole, Seizure threshold, Mouse

Evaluation of Effect of hydro alcoholic extract of Echium amoenum Fisch & Mey on pentilentetrazol-induced seizures in male mice

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Introduction: In spite of present anticonvulsant drugs, researchers need to search for drugs with better efficacy and less side effects. Medicinal plants with various natural components so that different properties are suitable field for investigation. This study was done to evaluate the hydro alcoholic extract of Echium amoenum Fisch & Mey on pentilentetrazol-induced seizures in male mice.
Materials and Methods: In this experimental study, 50 male mice randomly allocated into control and four experimental groups. Seizures in animals induced by 60 mg/kg/bw of pentilentetrazol (PTZ), interperitoneally. Animals in experimental groups were received 5, 10, 25 and 50 mg/kg/bw of hydro alcoholic extract of Echium amoenum Fisch & Mey 30 min before each PTZ injection. The animals in control group were received saline, interperitoneally. After treatment, the behavior of animals and mortality rate were recorded.
Results: Seizure threshold of animals significantly increased in experimental groups which were received 25 and 50 mg/kg/bw of Echium amoenum Fisch & Mey extract in comparision with controls ($P<0.05$). Mortality rate of animals significantly reduced in experimental groups which were received 25 and 50 mg/kg/bw of Echium amoenum Fisch & Mey extract in comparision with controls ($P<0.05$).
Conclusions: The hydro-alcoholic extract of Echium amoenum Fisch & Mey increases seizure threshold in pentilentetrazol-induced seizures mice.
Key words: Echium amoenum Fisch & Mey, Pentylentetrazole, Seizure threshold, Mouse

Effect of hydro alcoholic extract of Bitter Orange on pentilentetrazol-induced seizures in male mice

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Introduction: Epilepsy is a serious neurological condition and pharmacotherapy is not effective for all patients and causes serious adverse effects. Natural products can help develop new therapeutic options for conditions like epilepsy. This study was done to evaluate the hydro alcoholic extract of Bitter orange on pentilentetrazol-induced seizures in male mice.
Materials and Methods: In this experimental study, 50 male mice randomly allocated into control and four experimental groups. Seizures in animals induced by 60 mg/kg/bw of pentilentetrazol (PTZ), interperitoneally. Animals in experimental groups were received 5, 10, 25 and 50 mg/kg/bw of hydro alcoholic extract of Bitter orange 30 min before each PTZ injection. The animals in control group were received saline, interperitoneally. After treatment, the behavior of animals and mortality rate were recorded.
Results: Seizure threshold of animals significantly increased in experimental groups which were received 25 and 50 mg/kg/bw of Bitter orange extract in comparision with controls ($P<0.05$). Mortality rate of animals significantly reduced in experimental groups which were received 25 and 50 mg/kg/bw of Bitter orange extract in comparision with controls ($P<0.05$).
Conclusions: The hydro-alcoholic extract of Bitter orange increases seizure threshold in pentilentetrazol-induced seizures mice.
Key words: Bitter Orange, Pentylentetrazole, Seizure threshold, Mouse

Emotional profile of patients with drug-resistant epilepsy according to clinical variables

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Introduction: Considering the importance of emotional distress in patients with drug-resistant epilepsy, our knowledgein this study Present the relationship clinical variables of epilepsy with emotional distress in these patients.

Materials and Methodos: Thirty five subjects with drug–resistant epilepsy (24 males, age range 20–35 years) Filed under Welfare of Ardebil were recruited for this study. Scale Lvynda To measure the emotional distress was performed. Patients consumed 2 -5 drugs per day. The frequency of seizure was 2 -6 attacks in a recent month. Duration of the disease 9 -29 Year And the age range of the onset of the disease 5-12 reported. All patients experienced the latest seizure attack in the last week before the test was completed.

Results: Results Correlation showed a significant relationship between clinical variables of epilepsy and emotional distress. The correlation ratio, Early onset of epilepsy, Duration of Epilepsy, Seizure frequency and Number of antiepileptic drugs obtained r =- 0/47, r =0/41, r =0/68, r =0/73 Respectively 65% of the total variance of emotional distress is explained by clinical variables.The results of F test showed that linear composition of variables was significant in predicting emotional distress in patients. Also, the early onset of epilepsy and the number of Antiepileptic drugs had a significant predictive role in the level of emotional distress.

Conclusions: Determine the relationship clinical variables of epilepsy with emotional distress in patients with drug-resistant epilepsy can be a positive step in improving the condition of these patients.

Keywords: Patients with drug-resistant epilepsy, clinical variables of epilepsy, emotional distress

Frequency of Seizure in Patients Intoxicated with or without Naloxone

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Introduction: Tramadol is a narcotic-like pain reliever which is used to treat moderate to severe pain. Like poisoning with other opioids, poisoning with tramadol is commonly treated using naloxone. seizure is one of the most important adverse effects of tramadol. The aim of this study was to compare the prevalence of seizure between patients with tramadol overdose who received or did not receive naloxone in Loghman Hakim Hospital, Tehran, Iran.
Materials and Methods: This cross sectional and descriptive study was conducted on 306 patients with tramadol overdose referred to the Loghman hakim Hospital in Tehran, Iran, for 3 year during 2014-2017. Age, gender, receiving naloxone and seizure were documented using a questionnaire. The collected data was analyzed in SPSS.
Results: Tramadol toxicity was more common in men 283 (92%). The mean age was 28±6.2 (mean ± SD) years old. Seizure was observed in 73 persons (24%). Among the 172 subjects who received naloxone, 29% (51 patients) had seizure. The prevalence of seizure in persons who did not receive naloxone was 16% (22 patients).
Conclusions: Using naloxone in treatment of tramadol overdose increases the risk of seizure. Studies with higher sample sizes are recommended.
Key words: Tramadol, Naloxone, Seizure

Anticonvulsant effect of hydro-alcoholic extract of Rosmarinus Officinalis on seizures in pentylenetetrazol-induced kindling model in male mice

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Introduction: Regarding the prevalence of epilepsy and the lack of response of some patients to common antiepileptic drugs, the production of appropriate drugs with less side effects seems to be necessary. The aim of this investigation was to provide a scientific basis for traditional use of R. officinalis in epilepsy.
Materials and Methods: A total of 60 male mice weighing 25 to 30 g were randomly divided into six groups including: 1. pentylenetetrazol
(PTZ), 2. positive control (PTZ and valproate 150 mg/kg, as an anticonvulsant drug), 3 to 5. mice received R. officinalis extract at three doses of 200, 400 and 800 mg/kg, and 6. mixed group which received R. officinalis (200 mg/kg) and valproate (100 mg/kg) intraperitoneal. All groups were kindled by 11 injections of PTZ (35 mg/kg) with an interval of 48 h. In the 12th injection, all groups were tested for PTZ challenge dose (75 mg/kg). The phases of seizure (0-6), threshold and duration of second and fifth phases were observed for 30 min after PTZ injection.
Results: Data analysis showed that R. officinalis could reduce intensity and duration of seizures. In addition, there was no phase 5 following R.
officinalis treatment. Anti-epileptic effect in mix group was not more than the R. officinalis group.
Conclusions: Antiepileptic effect of chronic administration of R. officinalis was established and it was more effective at a dose of 200 mg/kg. Meanwhile, R. officinalis could reduce seizure phases better than valproic acid.
Key words: Rosmarinus officinalis, Pentylenetetrazol, Seizure

Effect of hydro alcoholic extract of Scrophularia striata Boiss on pentilentetrazol-induced seizures in male mice

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Introduction: Nowadays the use of herbal plants due to their low complications attracts the mind of many scientists. This study was done to evaluate the hydro alcoholic extract of Scrophularia striata Boiss on pentilentetrazol-induced seizures in male mice.
Materials and Methods: In this experimental study, 50 male mice randomly allocated into control and four experimental groups. Seizures in animals induced by 60 mg/kg/bw of pentilentetrazol (PTZ), interperitoneally. Animals in experimental groups were received 5, 10, 25 and 50 mg/kg/bw of hydro alcoholic extract of Scrophularia striata Boiss 30 min before each PTZ injection. The animals in control group were received saline, interperitoneally. After treatment, the behavior of animals and mortality rate were recorded.
Results: Seizure threshold of animals significantly increased in experimental groups which were received 25 and 50 mg/kg/bw of Scrophularia striata Boiss extract in comparision with controls ($P<0.05$). Mortality rate of animals significantly reduced in experimental group which were received 50 mg/kg/bw of Scrophularia striata Boiss extract in comparision with controls ($P<0.05$).
Conclusions: The hydro-alcoholic extract of Scrophularia striata Boiss increases seizure threshold in pentilentetrazol-induced seizures mice.
Key words: Scrophularia striata Boiss, Pentylentetrazole, Seizure threshold, Mouse

Caregiver burden in parents of Children with epilepsy

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Background: Given that epilepsy is an unpredictable and often chronic and debilitating disease, it not only affects the individuals but also their caregivers. Thus, having a child with chronic diseases is stressful for all family members, especially primary care providers (in most cases, mothers). Caregiving to the patients with epilepsy faces problems such as the likelihood of recurrence, patient dependence and increased disease burden leading to increased caregiving burden and physical, mental, emotional and social symptoms.

Purpose: The purpose of this study was to determine the relationship between severity of epilepsy with parental care burden.

Materials &Methods: This study was a descriptive correlational study that was conducted in 2016 in Hamadan. The study population included all parents of children 1 to 12 years of age with epilepsy. A sample of 150 patients was selected using convenience sampling method. Data from the Early Childhood Epilepsy Severity Scale (E-Chess)and caregiving burden (including 5 sub-scales, time-dependent caregiving burden, developmental, physical, social and emotional caregiving burden) were collected. Data were analyzed using descriptive analysis of and inferential statistics.

Results: based on the results of the study,average age of first seizures was 3.2 ± 2.8 years and duration of epilepsy was 2.8 ± 2.4 years.The mean and standard deviation of the burden of caring for mothers and fathers, respectively 75.8 ± 1.3 and 50.9 ± 2.5, respectively which indicates that mothers had more caregiver burden. The mean and standard deviation of parental care burden were 63.3 ± 19.3 and parents' caregiving burden was average in 48.8% cases There was a significant correlation between the severity of epilepsy and parental care burden (rs -0.244, $p<0.022$).

Conclusion: due to the high parental care burden, designing appropriate interventions to reduce caregiver burden and improving the quality of life of careers and then seeking to improve the quality of care provided to patients seems necessary.

Keywords: Epilepsy, Children, Parental, Caregiver burden

Epidemiologic study of causes of seizure attacks in patients admitted to emergency of Zahedan city hospital, 2015-2016

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Background: Seizure is one of the most important cause of admission to the emergency department(ED). The admission rate can be decreased by identifying the etiology of seizure which leads to appropriate treatment and elimination of the underlying cause. The purpose of this study is to survey the etiology of seizure in cases admitted to ED.
Methods: This cross-sectional study was conducted on 150 patients with seizure admitted to Zahedan city hospital in 2015-16. Data were collected by a checklist including demographic, familial history, past medical history of seizure, cause and type of seizure, time of occurrence, status seizure and cause of recurrence which was completed for each patient. The data was analyzed by statistical methods in SPSS.16.
Results: Among all of 150 patients 82(54.6%) were male and 68(45.3%) were female. The most common age group was 18-45 years with 114(76%) patients. 74(49.3%) patients had PMH of seizure and 15(10%) patients had positive FH of seizure. The most common cause of seizure was idiopathic epilepsy (47.3%), cerebral vascular lesions (14%), withdrawal and poisoning (6.7%). The other causes were paroxysmal non epileptic seizure, primary and secondary brain tumors, metabolic diseases, trauma each with prevalence of (5.3%). Congenital diseases (3.3%), infections (2.7%), demyelinating diseases (2%) and others (2.7%). The most common type of seizures was generalized tonic-colonic seizure (69%). (55.3%) seizures occurred in 6Am- 6Pm. (4.6%) patients had status seizure. The most prevalent causes of recurrent seizure was related to inadequate drug use.
Conclusions: The most common cause of seizure was idiopathic epilepsy and the next common causes were cerebral vascular lesion and withdrawal. Regular follow up of epileptic patients and eliminating the underlying cause and social abnormality will be effective in decreasing the occurrence of seizure.
Keywords: seizure, epilepsy, cerebral vascular lesions

The Assessment of inflammatory and coagulopathy tests and their correlation with polycystic ovarian syndrome in females on sodium valproate

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Introduction: Etiologic considerations for polycystic ovarian syndrome are not fully understood in patients taking sodium valproate. It would be of great value to know about these matters in order to decrease the adverse effect burden and improve treatment safety in our patients.
Materials and methods: We evaluated 30 female patients 15 to 45 years old aged who take sodium valproate for any reason at least 6 months. These patients evaluated for polycystic ovarian syndrome (PCO), using Rotterdam criteria. Serum level of fibrinogen (as an indicator of coagulation pathway), C - reactive protein (CRP), nitrite (as indicators of inflammatory pathway) and sodium valproate fasting level measured in our patients. We did hormonal assessment in second day of menstrual cycle (serum level of LH, FSH, and Testosterone as indicators of hyperandrogenism. LH and FSH.
Results: The prevalence of PCO in comparison of general population was significantly increased 56.7% and 36.7% in epileptic and migraine patients respectively (Pv≤0.005). 41.7% of them was 35-45 years old aged. 3.3 % of cases showed abnormal changes in Inflammatory and coagulation indicators. There was no correlation between PCO diagnosis and the indicators. As for nitrite there was some differences between patients with and without PCO but it was not significant.
Discussion and Conclusion: Overall PCO prevalence in our patients, as a group of patients taking sodium valproate was 46%. More than half of patients had abnormal menstrual cycle.
The relationship between PCO and biological markers was not significant (Pv>0.05). We need more surveys and cases for this issue.
Key Words: sodium valproate, inflammatory and coagulation indicators, polycystic ovarian syndrome

Advantageous and Disadvantageous herbal remedies in Epilepsy

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Introduction: Epilepsy is the fourth most common neurological disorder in the word. İt affects people of all ages and cultures. 65 million people world wide currently have epilepsy. Sudden changes cause abnormal singnals and temporary changes in sensations, behaviours, motor control, movement and consciousness. İn past centuries before modern seizure medicines were developed, epilepsy treated by various herbs. İn herbal treatments occasionally people and doctors found one that seemed to help, but sometimes they caused unpleasant and dangerous symptoms and side effects.

Methods: in asian scientist (aug.22.2017) , researchers from Hiroshima university have shown docosahexa enoic acid (D.H.A), reduces the frequency of seizures by inducing estrogen production in the brain. According to medical center from NYN langone, 20% of people who consume both drugs and herbs treatments for control seizures. Researchers provided by american chemical society in science daily, 2 february 2010, some herbal medicines may increase seizures in people with epilepsy. According to a 2003 studies, a handful of herbal remedies used in traditional chinese, japanese, indian, medicines have shown anticonvulsant effects.

Finding:

Still there are no randomized, controlled studies to support herbal benefits to reduce seizures. Testing a potential medication in a controlled way in a large number of people is an expensive venture.

Although some herbs might help epilepsy, others may worsen your symtoms and problems.

Results: An increasing market and public interest, herbal treatments have soared in popularity. There seems to be an herb for every ailment.

Advantageous herbs for epilepsy are:

Guava leaf, garlic, ash gourd, holy basil, grape juice, certain vitamins and magnesium rich food, mugword, bacopa leaf, chamomile tea with extraordinary healing and curative properties and active antioxidants, and by calming can prevent seizures.

Disadvantageous herbs for epilepsy are:

Gingko and st.John's wort may interact with antiseizure medications.

Kava, passion flower,valerian, may increase sedation.

Schizandra may cause additional seizures.

Guarana and kola containing ephedra or caffein may worsen seizures.

Conclusion: İf we don't have any treatments for epilepsy, seizures will definitely become worse and more frequent. take consult with your neurologist before using natural remedies .beside using antiepileptic drugs we can use some useful home remedies to reduce the problems.dont use herbal treatments alone.

Avoiding some herbs, because may be dangerous. There's far less evidence supporting natural remedies for epilepsy than conventional medicines. "Natural remedies" don't mean it can't cause harm.

Usage of CISS in Epilepsy Associated with Encephaloceles

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Background: The epilepsy associated with anteriotemporal lobe encephalocele is often difficult to detect and localize because of the deeply seated location of the lesions. The possibility of CISS MRI Sequence for showing these abnormalities was evaluated in such studies. So, the purpose is qualification assessment of CISS Seq in detecting of encephaloceles.
Material and methods: As a review study, 4 related articles from 2009 up to now was founded from Medline database. Availability and accuracy of CISS Seq in detecting of these subtle abnormality associated with epilepsy was studied.
Result: As expected CISS sequence was able to demonstrate the subtle anterioinferior temporal lobe encephalocele, which had confirmed before (pathology teste). At the cost of sacrificed grey-white differentiation, the high contrast between CSF and non-CSF tissue afforded by CISS effectively delineated the contour of the temporal tip, which helped visualize the encephalocele.
Conclusion: Totally, when patients with temporal lobe epilepsy present with a negative 3T MRI and no further localization from other tests, adding CISS to the repeat MRI may be helpful to confirm or exclude a potential anteroinferior temporal lobe encephalocele and presurgical evaluation.
Key words: Epilepsy, Encephalocele, CISS (constructive interference in steady state)

Epilepsy and Multiple sclerosis: is there any correlation?

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Multiple sclerosis (MS) is a common debilitating neurological disorder, with a varying prevalence among different population. It is started by focal demyelination of the brain and/or spinal cord. Epilepsy is also one the common chronic neurological disease with an estimated prevalence of 0.5% in the general population, and is caused by repetitive sudden abnormal electrical discharge in the different parts of the brain.
Both two these disorders are chronic conditions of the central nerves system with well-known comorbidities. Sometimes they are seen together in a patient and thought to be more than what happens by the chance. Despite a good insight about 2 diseases, their comorbidities in one patient has not been fully found.
Over the recent years, new conflicting data has reported about more incidence of the epilepsy in the MS patients compared to the general population. Multiple sclerosis (MS) and epilepsy are two chronic neurological disorders sometimes seen together in a patient and though to be more than what happens by chance.(1, 2)
Although the exact prevalence is not known, in recent population-based surveys, the frequency of epilepsy and seizures in MS patients was shown between 1.5 and 7.8%, while the rate of active epilepsy in MS patients has been reported from 1.0 to 3.2% .(3)
This increased risk of seizures may be due to the effects of inflammation or glial area around demyelinating lesions. The location of the MS plaque seems to be an important factor. Several studies demonstrated seizure can occur at the onset of MS, and with the occurrence of both focal and generalized types.(4)
Key words: epilepsy, multiple sclerosis, correlation

Evaluation of Discontinuation due to adverse reactions in carbamazepine, valproate, phenobarbital and topiramate

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Introduction: Antiepileptic drugs are the mainstream of therapy for epilepsy. However, these drugs are not without side-effects and these adverse reactions may result in non-adherence. In this study, we studied 9427 epileptic patients' data from 2002 to 2017 and assessed adverse effects leading to discontinuation of carbamazepine, valproate, and phenobarbital and topiramate consumption.
Materials and Methods: Data from January 2002 to November 2017 were obtained from the Iranian Neurologic disorders Database (IrND). We extracted patients' characteristics and discontinuation because of adverse reactions (DAR). Data were analyzed using descriptive statistics and chi-square test.
Results: This study showed discontinuation due to adverse reactions rate in carbamazepine, topiramate, valproate and phenobarbital were 9.5%, 7.1%, 5.8% and 1.01% respectively. The main reason for DAR in carbamazepine and phenobarbital consumers was skin rashes. Also, 46% 0f DAR in valproate consumer was due to gastrointestinal complication such as gastritis. In addition, Topiramate therapy chiefly influenced by paresthesia.
Conclusions: The results of the current study revealed carbamazepine therapy could be affected mostly by adverse reaction in comparison with valproate, phenobarbital and topiramate. Also, skin rashes in phenobarbital and carbamazepine and paresthesia in topiramate prescription should be noticed since these may be responsible for non-adherence.
Key words: Epilepsy, Anticonvulsant, adverse effects, Non-adherence, Safety

Lafora disease: A type of progressive myoclonic epilepsy (case report)

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Introduction: Lafora disease is an inherited progressive myoclonus epilepsy. The condition commonly begins in late childhood or adolescence and characterized by generalized tonic-clonic seizures, myoclonus and mental decline.

Case Report: A 21-years-old male patient who was referred to the hospital with myoclonus, drop attack and cognitive and behavioral changes for the last years had ataxia, dysartheria, and frequent myoclonic seizures especially in upper limbs. Microscopic examination of axillary skin biopsy showed lafora inclusion bodies, and then the diagnosis was established.

We also reported A 18-years-old female patient with childhood blurred vision and mental deterioration followed by myolonic seizures with the poorly response to anti-epileptic drugs. The diagnosis of Lafora disease was confirmed by PAS-positive inclusion bodies detected in the axillary sweat gland biopsy.

Conclusions: This report shows that biopsy is important for diagnosis of Lafora disease.

Keywords: Lafora disease, skin biopsies, myoclonic epilepsy.

Compare the effectiveness of the medication methods of Topiramate (TPM), Contingency Management (CM) and the Combined Method on the index of craving in cocaine-dependent patients in abstinence phase

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Compare the effectiveness of the medication methods of Topiramate (TPM), Contingency Management (CM) and the Combin--ed Method on the index of craving in cocaine-dependent patients in abstinence phase

Background: Topiramate is an anticonvulsant drug and an ideal candidate for reducing the craving in people relied on cocaine. However, we can't say anything definitely about the efficacy of it in comparison with psychological treatment. Contingency management is one of the common Therapy in domain of addiction Purpose: the present study aimed to evaluate and compare three medication methods of Topiramate (TPM), Contingency Management (CM) and the Combined Method on the index of craving in cocaine-dependent patients in abstinence phase.

Method: In an experimental study based on the randomized, double-blind and placebo control group design, one hundred (N=100) male (aged 18-34 years old with an average age of 23.7) in the abstinence phase of the cocaine use were randomly selected and were assigned in four groups (n=25) of Topiramate (TPM), Contingency Management (CM) and the Combined Method plus placebo control group. Topiramate treatment, contingency management and combine method of the two kind of treatment was provided for twelve weeks for the experiment groups and the control group only received the placebo. Participants were taken urine test twice a week, with a given threshold of 300 Nanograms per milliliter and indicators of cocaine craving (response rate= 91%) was evaluated in two phases of pre-test and post-test. The collected data was analyzed by parametric tests and two-way analysis of covariance. Also the qualitative data resulted from demographic evaluations were coded and analyzed by instrument of analysis of qualitative data i.e. ATLAS.ti-5.2.

Results: The results showed that all three types of treatment played a significant efficacy in reducing the craving. The mean (95% CI) scores of craving was 12.04 (8.25–15.79, P = 0.05) with TPM, 13.89 (10.48–17.3, P = 0.05) with CM, 10.92 (3.19–16.03, P = 0.01) with Mix and 16.89 (11.03–21.95) with control. Moreover, the highest variance explaining the changes in craving was assigned to the combined treatment ($p<0.01$). Conclusion: The findings of this study, while having applicable aspects in this domain, can be helpful in planning supplementary remedial procedures.

Keywords: Topiramate (TPM), Contingency Management (CM), cocaine craving, Anticonvulsants/adverse effects, pharmacotherapy

Levetiracetam versus phenytoin for seizure prophylaxis in patients with primary brain tumors

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Background: In patients with brain tumors, the choice of antiepileptic medication is guided by tolerability and pharmacokinetic interactions. Phenytoin (PHT) is frequently used to control tumor-related seizures. PHT, however, has many undesirable side effects (SEs) and drug interactions. Levetiracetam (LEV) is a newer antiepileptic drug (AED) with fewer SEs and essentially no drug interactions. This study investigated the significance of prophylactic use of LEV, in comparison with PHT, in this setting.
Methods: In this study, patients with primary brain tumors were randomised to receive LEV, 500 mg every 12 h, or 125 mg PHT every 12 h. Efficacy and tolerability were assessed using structured questionnaires. The primary composite endpoint was the need to discontinue the study drug, add-on of a further antiepileptic treatment, or occurrence of at least 2 seizures with impaired consciousness during 6month follow-up.
Results: Forty patients were randomised to receive LEV (n=20) or PHT (n=20). In the LEV group, 16 patients (80%) were seizure-free. In the PHT group, 12 patients (60%) were seizure-free (p=0.005), suggesting benefit of LEV over PHT. Reported SEs at 6 months was as follows (%LEV/%PHT group): dizziness (0/15), difficulty with coordination (0/30), depression (8/12) lack of energy or strength (20/40), insomnia (40/42), mood instability (8/0).
Conclusions: This study shows that Prophylactic use of LEV in patients with primary brain tumors is recommended because it is safe and significantly reduces the incidence of seizures in this setting.
Keywords: Seizure - Levetiracetam - phenytoin - brain tumors

Seizure in Alzheimer Disease

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Introduction: Ageing is a common risk factor for both Alzheimer disease and seizure. A common pathogenetic basis is proposed for both of them. Presentation of seizure in AD may be as a fluctuation in cognitive abilities. Routine EEG has many limitations in the diagnosis of seizure in AD. Therefore, diagnosis and treatment of seizure in AD deserves more investigations.

Epidemiology: Reported prevalence of seizure in AD varies between 1.5 to 64% in various studies. Some probable risk factors for seizure are as follow:

- Age of onset of AD
- Severity of cognitive decline
- Epileptiform discharges in EEG

Various kinds of seizures in AD:

- Generalized tonic clonic, including focal onset seizures
- Transient epileptic amnesia
- Myoclonic seizures

Proposed mechanisms for seizure in AD:

- Neuronal loss
- Vascular events
- Amyloid plaques
- Chemical changes

Diagnosis: Routine EEG has some limitations in supporting the diagnosis of seizure in AD. One proposed protocol for EEG recording in suspicious cases is 1-hour sleep EEG.

Treatment: Aside from usual indications of AED, some probable indications for these drugs has been proposed by some studies on AD. Probably among the antiepileptic drugs, levetiracetam, lamotrigine, and gabapentin are more appropriate in AD.

Conclusion: Manifestation of seizure in AD may be unusual and misleading. A more careful history taking and EEG recording is needed to detect seizure in these patients. Levetiracetam, lamotrigine and gabapentin are probably the preferred AED.

Key words: Alzheimer disease (AD), Seizure, Risk factors , Antiepileptic drugs(AEDs).

The effect of ketogenic diet in prevention and reduction of catamenial epilepsy

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Introduction: catamenial epilepsy is a subset of refractory seizure with exacerbation at particular times during the menstrual cycle. Menstrually related hormonal fluctuations in estrogen and progesterone and its ratio plays a key role in the pathogenesis. Both anticonvulsive and hormonal therapy controls the severity of the seizure but in some cases it still remains untreatable . In addition patients suffer from different side effects such as weight gain, abnormal uterine bleeding, depression, sexual dysfunction,…
Ketogenic diet is a kind of low carbohydrate diet that was first used in treatment of severe childhood epilepsy. It turns the body metabolism to ketosis and studies suggest that it can has antiepileptic effect on adolescent too.
Search method: we searched in searching engines such as pubmed, google scholar, …by using the key words, antiepileptic, catamenial, neurosteriods, ketogenic diet
Result and Conclusion: The KD is based on high fat, low carbohydrate and adequate protein levels and the production of ketone bodies.different antiepileptic and neuroprotective mechanism has mentioned.The major mechanisms is the increased inhibition or decreased excitation involve modulation of neurotransmitters like GABA and glutamate ,increasing the brain energy metabolism, Modulation of the mitochondrial biogenesis and Antioxidant effect. Progesterone therapy by increasing the level of inhibitory neurotransmitters like GABA is another therapeutic choice but it has some limitations so ketogenic diet may be a good option as a coadjuvant treatment for most refractory epilepsies like catamenial epilepsy.
Key words: ketogenic diet, catamenial epilepsy, anti-epileptic ,progesterone

Heart-rate variability indices as predictors of the response to vagus nerve stimulation in patients with drug-resistant epilepsy

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Background: To assess heart-rate variability (HRV) measures of interictal electrocardiography (ECG) for drug-resistant epilepsy and to relate the findings to the outcome of vagus nerve stimulation (VNS) treatment.

Methods: Time-domain, frequency-domain, and nonlinear analyses were used to analyze preoperative HRV measures in 45 patients with drug-resistant epilepsy who had received VNS implants at the same hospital and 32 healthy age- and sex-matched control subjects. HRV measurements based on ambulatory 24 h ECG recordings were analyzed to identify seizure reduction 1 year after VNS treatment. Responders were defined as having at least 50% seizure reduction 1 year after treatment.

Results: Patients with drug-resistant epilepsy had significantly lower time domain (SDNN, RMSSD, pNN50), frequency domain (VLF, LF, HF, TP), and nonlinear (SD1, SD2) HRV measurements than matched healthy controls. None of the analyzed HRV measures of the responders differed significantly from their controls, whereas those of the nonresponders had significantly lower RMSSD, pNN50, HF, and SD1 than the responders.

Conclusions: The preoperative HRV indices demonstrate that nonresponders have more pronounced impairment of their cardiac autonomic function than the responders. Presurgical HRV measurements representing parasympathetic cardiac control or vagal tone were significantly associated with the responsiveness to VNS. Thus the measurements show promise for predicting the reduction of seizure frequency after VNS treatment.

Keywords: Antiepileptic drug; Autonomic nervous system; Drug-resistant epilepsy; Heart-rate variability; Vagus nerve stimulation

Introducing a new method for prescribing anticonvulsants in pregnant women with the aim of minimizing fetal contact with anticonvulsants

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Introduction: Seizure control in pregnant mothers with using existing anticonvulsants and giving the wider choice to physicians to choose an anticonvulsant drug without affecting the fetus should be a priority in the field of neurology. In fact, the arbitrary deprivation of the drug by the mother, with the assumption that they are teratogenic, and the limited choices of anticonvulsants used during pregnancy, on the other hand, highlights the need for these studies. The possibility of prescribing anticonvulsant directly through lumbar puncture into the cerebrospinal fluid and minimizing exposure of the fetus to the drug should be evaluated in most experimental studies. This goal is evaluable with 3 complementary studies.
Materials and Methods: 1. An Animal Model Study: In this pilot study, an animal with a moderate size that can be lumbar punctured by the veterinarian, is used and the standard dosage of anticonvulsants in the animal is administered into the cerebrospinal fluid by lumbar punctured Needle. Based on the half-life of the drug, 4 peripheral blood samples from the animal at a given time interval (based on the half-life of the drug, the sampling time will be determined) will be taken and the blood level of the anticonvulsants will be measured. 2. An Animal Model Study: In this pilot study, an animal with a moderate size that can be lumbar punctured by the veterinarian, is used after pregnancy. An animal group is lumbar punctured by a veterinarian during the period of organogenesis, and a standard daily dosage based on the weight of the animal is injected into the cerebrospinal fluid through needle and the other group receives anticonvulsant medication via the peripheral blood.3. In the final stage, a study was designed to minimize the penetration of anticonvulsant drug from the cerebrospinal fluid to the peripheral blood, including: a. Anticonvulsant drug binding to neutral nanoparticles with a size larger than those of the blood-brain barrier pores that minimizes the possibility of exiting the anticonvulsant drug from the CNS. b. Anticonvulsant drug attachment to iron nanoparticles and the use of a magnetic field on the head and spine to physically fix the drug within the central nervous system. c. An antidote of anti-convulsant drug that attaches to neutral nano-particles of larger size than the blood brain barrier pores which can not penetrates into the cerebrospinal fluid and also dissolves a leaky anti-convulsant from the cerebrospinal fluid. d. Use of drugs that affect the permeability of the blood-brain barrier and minimize the extravasations of anticonvulsant medication from the cerebrospinal fluid.
Results: The result of the first study will show us which drug will penetrate more from the cerebrospinal fluid into the peripheral blood. The result of the second study will show that administration of anti-convulsant medication via the cerebrospinal

fluid and blood vessels has a different effect on the outcome of pregnancy and the development of fetal malformations. The result of the last study, taking into account the results of the first two studies, will show us the best way to minimize fetal contact with the anti-convulsant medication.

Conclusions: Administration of anticonvulsant drug systemically (oral or intravenous) can not be the only way to prescribe this medication. Our therapeutic goal is not even the entire central nervous system, and only the gray matter of brain is target. Why not direct water on the fire? Carrying out these studies can minimize the fetal side effects of anticonvulsants with local administration (intra cerebrospinal) of the anticonvulsant drug.

Key words: Seizure, Anticonvulsants, Pregnancy, Fetal Side Effect

Study the effect of carbamazepine during the epileptogenesis by dorsal hippocampal kindling on balance and locomotor activity in adult male rats

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Background and aim: Epilepsy is a chronic cerebral disorder associated with recurrently occurring seizures resulting from over activity of brain neurons. Since more than one percent of the world's population is suffering from epilepsy, this disease is recognized as one of the most important neurological disorders in modern medicine. Studies indicate that impairment in balance and motor activity are known as one of the side effects of epilepsy. Therefore, the use of an antiepileptic drug such as carbamazepine can help to improve these disorders. So, in this research, the effect of carbamazepine during epileptogenesis in dorsal hippocampal kindling on balance and motor activity in adult male rats was investigated.

Materials and Methods: In this study, 60 adult male rats were randomly divided into 6 groups: surgical control, methylcellulose (MC), Kindled, carbamazepine (CBZ), kindled-carbamazepine (KCBZ) and the methylcellulose-Kindled (MCK). Animals in the Kindled group stimulate were rapidly kindled by daily stimulation of dorsal hippocampus (12 stimulation per day, 1 ms pulse duration at 50Hz for 3 seconds) in the dorsal hippocampus region(CA1). While animals in the control groups did not receive any stimulation. Animals in the CBZ group received 8 mg of carbamazepine intraperitoneally on the first day after the recovery. The CBZK-group, in addition to receiving 8 mg of carbamazepine on the first day after recovery, received kindling stimulations for 6 days, as the same method with Kindled group. The MCK-group was similar to the CBZK-group with this difference that they received MC instead of CBZ. At the end of kindling stimulation, open field and rotarod tests were respectively used to examine the effect of CBZ on motor activity and balance.

Results: The open field test results showed a significant decrease in the motions and rearing frequency in the CBZK-group compared to the MCK-group ($p < 0.01$). Frequency of rearing and motions in the Kindled group also showed a significant increase compared to the control group ($p < 0.01$). Grooming in the CBZK-group compared to the MCK-group show significant decrease ($p < 0.05$) and in the Kindled group showed a significant increase compared to the control group ($p < 0.05$). In the Rotarod test, the balance in the Kindled group was significantly lower than the control

group ($p < 0.05$) and in the CBZK-group compared to the MCK-group show significant increase ($p < 0.01$).

Conclusion: It seems that Carbamazepine injection during the epileptogenesis by dorsal hippocampal kindling in male rats reduces motor activity but improves balance.

Keywords: Hippocampal Kindling, Carbamazepine, Balance, Motor Activity, Rotarod Test, Open Field Test, Rat.

Topiramate for the treatment of Cocaine craving: a single-center placebo-controlled trial, pilot randomized

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Introduction: Topiramate is an anticonvulsant drug and an ideal candidate for reducing the craving in people relied on cocaine. The present study had done with the purpose of evaluating drug therapy of topiramate.
Materials and Methods: The study was a placebo-controlled, after achieving a period of cocaine abstinence from Sep 15 to Nov 15, 2014, Participants (n=50) were randomized to receive topiramate or identical placebo capsules. Participants dosage ranged between 25-300 mg/day (12 weeks) in escalating doses) 25, 50, 100, 150, 200, 250, 300). In addition, all subjects received brief behavioral compliance enhancement treatment (BBCET). The urine test with assumed threshold of 300 ng/ml had been taken from the participants twice per week and the cocaine craving (response rate= 91%) was evaluated twice in pretest and posttest stages. The data were analyzed by generalized estimating equations (GEE) models. Primary outcome measures included twelve weekly urine drug screens (detection of benzoylecgonine). Secondary outcome measures included cocaine craving.
Results: Topiramate was not better than placebo in reducing cocaine use on the a priori primary outcome measure. But Topiramate was better than placebo in reducing cocaine craving, The mean [95% confidence interval (CI)] scores of cocaine craving was 12.04 (7.36–16.72) with experimental group in Posttest and 16.89 (12.92–20.86) with control (all $P > 0.01$).
Conclusion: The findings of this study, while having applicable aspects in this domain, can be helpful in planning supplementary remedial procedures.
Keywords: Topiramate (TPM), cocaine craving, Anticonvulsants/adverse effects, drug therapy, placebo

New experimental model of epileptic -like convulsions following direct injections of colchicine into the caudate nucleus of the male Wistar rat

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Introduction & Aim: We know that the epileptic seizures with episodes that can vary from brief and nearly undetectable to long periods of vigorous shaking are the result of excessive and abnormal nerve cell activity in the cortex of the brain. However, seizure generation in temporal lobe epilepsy and other forms of epilepsy cannot be fully acquired in clinical studies with humans. So, the use of appropriate animal models is essential. Injection of colchicine, a plant derived alkaloid, exerts specific neurotoxic effects on neurons in the striatum. We aimed to introduce an animal model of epileptic like seizures by intra – caudate (dorsal striatum) injection of colchicine in male Wistar rat.

Material & Methods: Subjects were rats (250-300 g) provided by animal lab at Shahed university. The animals were injected (i.p.) ketamine & xylazine and placed in a stereotaxic apparatus, with the incisor bar set at approximately 3.3 mm below horizontal zero to achieve a flat skull position. The cannula was placed into the dorsal striatum – caudate nucleus (AP: 0.5 mm; L: 3 mm; V: 3.6) according to the atlas of Paxinos. An injection cannula attached to a Hamilton syringe (5 µL) by polyethylene tubing guided colchicine 0.01-25 µg /rat per day for three-five consecutive days. Control group only received saline solution. At the end of each injection the behavioral signs of experiment animals were recorded. The treated brain samples were collected in a solution of 10% formalin. The striatum region was cut coronally into 4 µm slices and they were mounted and stained with Haematoxylin -Eosin. Sections were examined under the light photovideomicroscope and analyzed by Image tool. The possible change in neuronal density or neurons destruction between vehicle and experimental groups was examined by analysis of variance (ANOVA). $P< 0.05$ was considered as significant.

Results: Investigating the behaviors that were monitored from the moment of taking the drug for up to 5 days showed that the %60 of treated rats displayed epilepsy-seizures. The results further demonstrate epileptic like generalized seizures in the animals treated by colchicine intra-dorsal striatal caudate nucleus dose dependently. This seizure is repeated and occurs again, but, neuronal destruction lesion effect was notappeared in the site of injection as compared with the control.

Discussion & Conclusion: Colchicine is a substance that can cause disturbances in

the axoplasmic transmission and make functional defects of the neurons. When ordinary toxic substances such as kainic acid or pentylenetetrazol is injected, the animal experiences a seizure pattern, but it also causes the death of the animal, while the present method, like a physical accident, such as breaking the leg, causes a general seizure without mortality, but is repeatable. Colchicine is a substance which disorder in neural processes and it can be used to create an animal model of epilepsy.

Keywords: Epilepsy, colchicine, dorsal striatum, caudate nucleus, rat

The Epidemiology of Mental Health in Women with Epilepsy

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Introduction : The concept of mental health is related to prevention of mental disorders and maintain healthy life style, furthermore some factors including epilepsy disease may provide impediment to healthy life style. The purpose of this study is the epidemiology of mental health in women with epilepsy.
Method : This study was descriptive, survey research method. The participants were recruited from women with epilepsy who were as a member of Iran epilepsy association. The total population of women with epilepsy in this association were that 251 patients were selected by using convenience sampling method. The SCL-90-R questionnaire was used for this survey. The chi-square test was applied for this study.
Result : This study is indicated that 49.4 % of participants are suffering from at least one mental disorder, the most prevalent disorder is paranoid whereas phobias is allocated the lowest one. There is significant difference between several variables such as low education, unemployment and increasing age with psychological problems. However, there is not any significant difference between marital status and psychological problems.
Conclusion : The mental disorders is markedly prevalent among women with epilepsy, it is essential that paid much attention to mental health status in this group.
Keywords: Mental health, Epilepsy, Epidemiology.

Multimodal Neuroimaging Models For Lateralization Of Temporal Lobe Epilepsy

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Introduction: Temporal lobe epilepsy (TLE) is the most prevalent type of epilepsy with the most successful surgery outcome. The neuroimaging multimodal findings concordant with EEG and neuropsychology help in decision-making prior to the resection of mesial temporal structures. We hypothesize that the development of quantitative TLE lateralization response models using MR volumetry and FLAIR, DTI and SPECT neuroimaging attributes will optimize the selection of surgical candidates and reduce the need for extraoperative electrocorticography (eECoG).

Methods: Neuroimaging features of 138 retrospective TLE patients with Engel class l surgical outcomes were extracted, including the hippocampal volumes, normalized ictal–interictal SPECT and FLAIR intensities, and mean diffusivity, along with the cingulate and forniceal fractional anisotropy (FA). Using logistic function regression, univariate and multivariate models were developed.

Results: The model incorporating all multivariate attributes for 138 TLE cases that had at least one imaging attribute and imputing the missing attributes with the mean values of the corresponding attributes measured on control cohort reached the probability of detection and false alarm of 0.83 and 0.17 for all cases, and 0.90 and 0.10 for the patients who underwent eECoG.

Conclusion: Increased reliability in lateralizing TLE cases using the proposed response model involving the incorporation of the multivariate attributes reinforces the notion that eECoG in a number of cases may be circumvented. The proposed response model can be further generalized by integrating attributes of additional neuroclinical, neurophysiological, neuropsychological, and neuroimaging attributes into the presurgical decision making process.

Structural Connectivity Metrics For Prediction of Surgical Outcomes in Temporal Lobe Epilepsy

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Rationale: Up to 80% of temporal lobe surgical resection comes out with seizure remission in which complete seizure freedom occurs in 41%. There is a body of literature which applies different imaging modalities in investigating seizure related structural dysfunctions. Among all, Diffusion tensor imaging (DTI) is a technique that has been applied in evaluating brain network malfunctions in patients with temporal lobe epilepsy (TLE). It has been shown that neuropsychological deficits in neurological patients correlate better with alterations of DTI features than lesions observed on conventional MRI. We hypothesize that Hippocampus and Thalamus with proven important role in TLE can predict seizure outcome using DTI.
Methods: Ten TLE patients with DTI data were recruited retrospectively. White matter fiber tractography was performed on preoperative DTI data to extract structural connectivity in brain network. A graph theory and machine learning framework were implemented to investigate the association of metrics of region strength and region betweenness with the primary (seizure-free, ILAE 1) and secondary (non-seizure-free, ILAE 2-6) outcomes.
Results: Statistically significant difference ($p < 0.05$) was observed between the two outcome cohorts. Support vector machine (SVM) classifier with linear kernel was able to predict the surgical outcome with 90% accuracy and false classification only for a single case.
Conclusion: Noninvasive methods can have a pivotal impact on the field by providing insight into the prediction of surgical outcome in seizure freedom. Our result suggests that the structural connectivity metrics of DTI may have clinical value for predicting surgical outcome.

Lateralization of Temporal Lobe Epilepsy using MRI Markers

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Introduction: Hippocampal sclerosis (HS) is the most common effect in patients with medically intractable Temporal Lobe Epilepsy (TLE), where the surgical resection is an effective treatment. Multimodal presurgical procedures including Magnetic Resonance Imaging (MRI), Diffusion Tensor Imaging (DTI), Electroencephalography (EEG), and Neuropsychological tests, have provided a significant help in lateralization of seizure foci. Our aim was to lateralize Epileptic foci in TLE patients using structural and microstructural changes reflected in MRI and DTI indices.
Methods: Twenty patients (males:females, 8:12) in the age range of 18-5 (mean±std, 31.94±8.08) were included in this study. Neuroimaging features including hippocampal volumes and FLAIR signal intensities, fractional anisotropy (FA) in posteroinferior cingulum and crus of fornix, and hippocampal mean diffusivity (MD) were extracted. The multidisciplinary decision made for the side of laterality based on scalp EEG, neuropsychological test, and visual inspection of MRI was considered as the gold standard.
Results: Of the 20 TLE patients, 10 cases were lateralized correctly by FA in posteroinferior cingulum (ipsilateral: contralateral, 0.359±0.021: 0.393±0.018), 9 cases by FA in crus of Fornix (ipsilateral: contralateral, 0.363±0.021:0.391±0.017), and 13 cases by MD in hippocampus (ipsilateral: contralateral, 0.152±0.004:0.140±0.002). Volumetry and FLAIR intensity in hippocampus lateralized correctly 10 (ipsilateral:contralateral, 3680.307±195.845: 4411.500±139.023) and 13 (ipsilateral: contralateral, 19874.126±1746.894: 16515.406±1355.331) cases, respectively. There were 4,1,3,1,1 cases of false lateralization by the mentioned markers above, respectively.
Conclusion: This study suggests that the application of proposed lateralization markers can improve the diagnosis on the laterality in TLE patients and help optimize the selection of surgical candidates.
Acknowledgment: The authors acknowledge the technical support of National Brain Mapping Laboratory (NBML) in MRI data acquisition.

The serotonergic effect of tramadol on seizure threshold in mice, the role of 5HT3 receptor

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Background: Epilepsy is one of the most common neurologic disorder, about one percent of the population living with this disorder. Several studies have been conducted to investigate the basic mechanism of this disorder. In such circumstances the study of mechanism of drugs that enhancing or reducing seizures is useful. Tramadol is a drug widely used in medicine. some studies indicate the role of serotonergic receptor in the seizurogenic effect of this drug. Therefor the role 5HT3 receptor investigated.

Materials and Methods: 42 mice included this study. They were divided into 7 groups.The first groupwas received 45 mg/kg/IV tramadol.the next group received 1 unit/gr/IP normal saline initially and after 15 minutes' infusion of45 mg/kg/IV tramadol started. Three different doses of ondansetron (0.4,0.8,1.2 mg/Kg) injectedintraperitoneal and after 15 min infusion of tramadol with the previous command was given. two group taken SR57227 (one group received 10 mg/kg/IP and after 15 minutes'infusion of tramadol with the previous command was started, and the last group receivedSR57227 10 mg/kg/IP and after 15 minutes' ondansetron 0.8 mg/kg/IP(effective dose) injected and after 30 minutes the previous dose of tramadol was infused. The mice controlled for evidence of seizure and dead time.At the end of the data was passed to SPSS19 software and with One Way anova technique seizure threshold was studied in groups.

Results: All ondansetron groups (1.2, 0.8 and 0.4 mg/kg) compared to the tramadol group had higher seizure threshold (clonic and tonic), as well as death and was significant. ($P < 0.001$) SR57227 group compared to tramadol alone hadn't difference but death threshold was decreased ($P<0.01$), but when after agonist antagonist injected (the last group) the effect of antagonist reversed by agonist and seizure & death threshold decreased compared to tramadol group. ($P<0.001$)

Conclusion: this finding confirmed the effect of 5HT3 on seizure induced by tramadol, antagonist significantly increased seizure thresholdinduced by tramadol. Although SR57227 hadn't any significant effect on seizure (tonic, clonic) but reduced death threshold and when given before ondansetron reversed its effect on tramadol induced seizure threshold

Keywords: Seizure, tramadol, ondansetron, SR57227, serotonin, 5HT3

Status epilepticus as the first manifestation of autoimmune encephalitis : case series

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Background: Immune causes for seizures and status epilepticus have been suggested by some studies. Llimbic Encephalitis is frequently associated with hallucinations, seizures, sleep disturbance, but status epilepticus reported in some cases especially with Anti-NMDA antibody. We reported 4 cases with status epilepticus as the first manifestation of limbic encephalitis. Tow of this cases had Anti-NMDA antibody, and two of them had Anti-Gad antibody. After routine examination and laboratory evaluations like CSF analysis, brain imaging, electroencephalogram the paraneoplastic panel was done. With these antibodies positive, these patients are treated with corticosteroids and plasmapheresis in addition to antiepileptic drugs Which was associated with a relative response in these patients. However, significant response was observed with cyclophosphamide in these patients.
Conclusion: Autoimmune encephalitis should be considered in patients with status epilepticus, especially when there is a history of recent behavioural changes and main differential diagnosis of sudden status epilepticus are role outed.

Role of Family history in diagnosis of epilepsy in Iranian patients with epilepsy

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Purpose: Role of family history on epilepsy classifications, etiology and patients' demographics still remains unclear. The aim of this study was to investigate the effect of family history of epilepsy on classification, etiology and timeline of disease.
Methods: 1915 definite patients with epilepsy (873 females and 1042 males) enrolled in this retrospective study. Positive family history and negative family history patients were identified and compared in terms of gender, age, age of epilepsy onset, classification(generalized, partial and unknown) and etiology (Idiopathic, symptomatic and cryptogenic) of epilepsy.
Results: 33.4% of patients (n=1915) had a history of epilepsy in their family. 21.6% had a first-degree relative with epilepsy, and 11.8% had a second-degree epileptic relative. The mean age of epilepsy onset was 21. Positive family history patients showed an earlier age of onset (16 vs. 24; independent-T test, $p<0.001$). Idiopathic, symptomatic and cryptogenic epilepsy were significantly different between the two groups (chi-square test, $p<0.001$). Generalized and unknown types of epilepsy were also significantly different between positive and negative family history patients (chi-square test, $p<0.05$).
Conclusion: Family history has a significant impact on the classification, etiology and timeline of epilepsy. These findings may be affected by the high incidence of consanguineous marriage seen in our population.
Keywords: epilepsy; family history; etiology; classification; age onset; consanguinity

The effect of concurrent administration of hydro-alcoholic extract of Achillea wilhelmsii and lavender on the seizure induced by PTZ kindling in mice

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Background: Considering the anti-inflammatory properties of Achillea wilhelmsii (A) and lavender (B) and also the relationship between inflammation and epilepsy and the use of multi drug therapy, the purpose of this study was to evaluate the effect of concurrent administration of hydro-alcoholic extract of Achillea wilhelmsii and lavender on the seizure induced by PTZ kindling in mice.
Methods: In this experimental study,32 mices were randomly divided into four equal groups. The four groups received injections of pentylenetetrazol (PTZ) Until the Kindling. In fully kindled animals of groups 1-4, extract in (A200, 200L), (A200, 100L), (A100, 100L) and (A100, 200L)mg/kg (30 min before PTZ injection) was injected intraperitoneal, respectively. stage 2 latency (S2L), stage 4 latency (S4L) and Stage 5 Duration (S5D) were recorded and compared with related control groups (the same animals that had received saline 1 day before). For Data analysis was used from ANOVA and Tukey test at significance level of $p < 0/05$.
Results: When was delivered extract S5D and S4L significantly decreased and increased respectively in (A200, L200)($p<0.001$), (A200,L100)($p<0.001$), (A100,L200)($p<0.01$) mg/kg group animals relative to saline injection. It also S2L parameter significantly increased only in groups (A200,L200)($p<0.01$) and (A200,L100)($p<0.05$) mg/kg.
Conclusion: The results showed that hydro-alcoholic extracts of Achillea wilhelmsii and lavender reduces the intensity of PTZ-induced seizure. Also, the anti-seizure effects of Achillea wilhelmsii are stronger than lavender.
Keywords: epilepsy, PTZ, anti-inflammatory, Achillea wilhelmsii extract, lavender extract, mice.

Cesarean delivery may increase the risk of mesial temporal lobe epilepsy

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Introduction: In light of the association between infection and increased risk of some types of epilepsy on the one hand and existing clinical and epidemiological data regarding cesarean section as a risk factor for infection on the other the study of mode of delivery has the potential to significantly contribute to the further investigation of perinatal risk factors in patients with mesial temporal lobe epilepsy (MTLE) due to hippocampal sclerosis (HS). Therefore, in this study we aimed to shed a light on the role of mode of delivery on clinical and paraclinical findings of patients with MTLE-HS.
Materials and Methods: In this cross-sectional study, we enrolled 200 patients with refractory MTLE who were referred to Ayatollah Kashani hospital for long-term video electroencephalogram (EEG) monitoring. Demographic data of the patients, in particular mode of delivery were collected through direct interview with the neurologists.
Results: Our findings revealed that cesarean section (CS) is significantly associated with earlier age at onset of MTLE-HS (P=0.03). However, there were no significant differences between MTLE-HS patients with natural vaginal delivery (NVD) and MTLE-HS patients with CS with respect to the frequency and duration of seizure (P>0.05).
Conclusion: Our results suggest that those born by vaginal delivery are at a lower risk of subsequent MTLE-HS. However, mode of delivery appears to be unimportant in relation to clinical characteristics of patients with MTLE-HS. These preliminary findings will need to be established in a much larger and preferably prospective study.
Keywords: Mesial temporal lobe epilepsy, mode of delivery, cesarean section.

Risk factors for early onset of focal cortical dysplasia

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Malformations of cortical development are a frequent cause of symptomatic epilepsy in infancy and early childhood and the third most frequent finding in adults undergoing epilepsy neurosurgery. In this study, we aimed to investigate risk factors for earlier age at onset of focal cortical dysplasia (FCD).
In this retrospective study, we enrolled 40 patients with FCD who were referred to Ayatollah Kashani hospital for long-term video electroencephalogram (EEG) monitoring. Demographic data of the patients including mode of delivery, central nervous system (CNS) infection, history of febrile seizure, and perinatal complications were collected through direct interview with the neurologists.
Patients with cesarean section had a lower age at onset of FCD compared to those with natural vaginal delivery (P=0.03). Furthermore, age at onset was significantly lower in patient with head trauma in comparison with patients without history of head trauma (P=0.002). However, family history of epilepsy, history of febrile seizure, CNS infection, and perinatal complications did not affect age at onset in patients with FCD (P<0.05).
Our findings suggest that those born by vaginal delivery are at a lower risk of subsequent FCD. In a similar way, past history of head trauma is associated with early onset of FCD. However, mode of delivery appears to be unimportant in relation to clinical characteristics of patients with FCD. Further much larger and preferably prospective studies will be required to establish these variables as risk factors for earlier onset of FCD.
Keywords: Focal cortical dysplasia, mode of delivery, head trauma.

Lamotrigine skin reaction and HLA typing

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Introduction: Epilepsy is one of the most neurologic diseases. Nearly all of epileptic patients need to antiepileptic treatment. The antiepileptic drugs have a lot of side effects. One the most important of them is skin reactions. The skin reactions are seen with often antiepileptic drugs, but some of them these reactions are more and serious. Lamotrigine is a new antiepileptic drugs with sever skin reactions, especially SJS/TEN. In this study we evaluated the skin reactions after lamotrigine use in epileptic patients and association with HLA typing.
Methods: This cross-sectional association study was performed on patients aged 25 to 50 years who suffered epilepsy under-treated with lamotrigine. Based on the appearance of significant skin reactions, the patients were categorized into two groups with and without these reactions.
Results: In total 106 patients (50 male and 56 female) were assessed. Of those, 36 were categorized as the group with lamotrigine-induced skin side-effects as the case group and 70 as the group without these side effects as the control. Of 31 HLA antigens assessed in our survey, the frequencies of HLA-B38 and HLA-B40 were different across the two groups with significant higher frequency of skin side effects in the case group when compared to the control group.
Conclusion: Specifically in Iranians, confirming the expression of each HLA-B40 and HLA-B38 can predict the increased likelihood of lamotrigine-induced skin lesions in patients who were treated with this drug.
Keywords: epilepsy, lamotrigine, HLA-B38, LHA-B40, Skin lesion,

بررسی تاثیر آموزش خود مراقبتی برمیزان آگاهی و نحوه عملکرد بیماران صرعی بستری در ۶ ماهه اول سال ۹۶ در بیمارستان امیرالمومنین (ع) گناوه

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مقدمه: صرع در واقع مجموعه‌ای از سندرم هاست که با حملات تشنجی تکرار شونده و بدون علت تحریک کننده مشخص می‌گردد. سندرم‌های صرعی توسط الگوهای اختصاصی بالینی نظیر سن آغاز، تاریخچه و نیز سابقه خانوادگی وقوع حملات تشنجی طبقه‌بندی می‌شود. صرع حدود ۳٪ از افراد در مراحل مختلف زندگی را تحت تاثیر قرار می دهد.بعضی محققان، مراقبت از صرع را برای بزرگسالان بخاطر عدم تاثیر مورد انتقاد قرار می‌دهند. و هدف از این مطالعه بررسی تاثیر آموزش خود مراقبتی و مداخلات آموزش به مددجو در مبتلایان به صرع بستری در بخش داخلی بیمارستان امیرالمومنین (ع) گناوه می‌باشد.

مواد و روش کار: این مطالعه بصورت مقطعی در ۶ ماهه اول سال ۹۶ انجام شد.کلیه بیماران با تشخیص صرع بستری در بخش داخلی مطالعه شدند. جمع آوری داده‌های مطالعه در دو مرحله انجام گردید. مرحله اول براساس فرم ارزیابی اولیه بیمار، شرح حال متخصص نرولوژی و پرسشنامه محقق که درآن دموگرافیک و میزان آگاهی و نحوه عملکرد بیمار مبتلا به صرع و مداخله پرستار آموزش مددجو در خصوص آموزش به بیمار بصورت چهره به چهره و در مرحله دوم مطالعه هنگام ترخیص میزان آگاهی از خود مراقبتی و نحوه عملکرد آنان ارزیابی شد و داده ها با نرم افزار **spss** تجزیه و تحلیل آماری گردید.

یافته‌ها: یافته های تحقیق حاکی از آن است که ۸۵ بیمار مبتلا به صرع در بیمارستان بستری شدند.از نظر شیوع سنی بیشترین فراوانی نسبی مربوط به سن زیر ۵ ساله در کودکان و دربزرگسالان بالای ۵۰ سال و کمترین فراوانی به افراد بین ۱۱ تا ۱۹ سال بود. شایع ترین علت صرع قطع دارو و مصرف نامناسب داروها ، تروما به سر و مشکلات متابولیک بود. در بررسی نمرات آگاهی و عملکرد قبل و بعد از آموزش خود مراقبتی ، اختلاف معنادار وجود داشت.مداخله پرستار آموزش سلامت در شناخت از بیماری ، تاثیر کنترل صرع با مصرف به موقع داروها در برنامه آموزش مددجو تاثیربسزایی در نحوه عملکرد بیماران هنگام ترخیص داشت.

نتیجه‌گیری: نتایج پژوهش نشان داد که از آنجایی که بیماری صرع نوعی اختلال بلند مدت به شمار می‌آید، آموزش خود مراقبتی از بروز آسیب دیدگی در بیماران صرعی و سازگاری با وضعیت موجود روانی و نحوه عملکرد آنان و هم چنین افزایش آگاهی بیمار از شناخت بیماری صرع و داروهای کنترل کننده آن از بستری شدن مجدد بیماران پیشگیری می نماید.

کلمات کلیدی: بیماری صرع ، خود مراقبتی ، پرستار

مقایسه کارآیی و عوارض جانبی لواتیراستام وریدی و والپرات سدیم وریدی در کنترل تشنج های استاتوس اپی لپتیکوس کودکان

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مقدمه و هدف : صرع پایدار یا status epilepticus که به حمله صرعی گفته می شود که بیش از بیست دقیقه طول می‌کشد و یا دو حمله یا بیشتر رخ بدهد بدون این که هوشیاری شخص بین هر یک از این حملات به وضعیت طبیعی برگردد، از اورژانس های طب کودکان محسوب می شود که کنترل سریع تشنجات سبب پیشگیری از مرگ و میرو و معلولیت‌های بعدی می‌شود.. این مطالعه به منظور مقایسه کارآیی و عوارض جانبی لواتیراستام وریدی و والپرات سدیم وریدی در کنترل استاتوس اپی لپتیکوس کودکان صورت گرفت .

روش تحقیق: در یک مطالعه نیمه تجربی، پرونده طبی تمام کودکانی که از مهر ۱۳۹۴تا مهر ۱۳۹۶ به علت استاتوس اپی لپتیکوس در بخش مراقبت های ویژه کودکان بیمارستان شهید صدوقی یزد بستری شده بودند و جهت کنترل تشنج تحت درمان با لواتیراستام وریدی یا والپرات سدیم وریدی قرار گرفته بودند، بررسی شد.

یافته‌های پژوهشی : پرونده طبی ۱۶دختر و۱۲ پسربا میانگین سنی۰/۸±۳/۲سال بررسی شد که ۱۱ کودک تحت درمان با لواتیراستام وریدی و ۱۷ کودک تحت درمان با والپرات سدیم وریدی قرار گرفته بودند.

تشنج ها در ۶۴ درصد از کودکان درمان شده با لواتیراستام (هفت کودک) و ۵۰ درصد از کودکان درمان شده با والپرات سدیم (هشت کودک)درمان شد و کارآیی لواتیراستام در کنترل تشنج استاتوس بیش از والپرات سدیم وریدی بود . (P= ۰/۰۳)

دوز متوسط لواتیراستام در کنترل تشنج های استاتوس اپی لپتیکوس ۳۷ mg/ kg و دوز متوسط والپرات سدیم در کنترل تشنجها ۲۸ mg/ kg بود.

هیچ مورد عارضه پاراکلینیکی قابل توجه در دو گروه مشاهده نشد. درگروه لواتیراستام یک کودک آژیتاسیون داشت و یک کودک نیاز به لوله‌گذاری داخل تراشه پیدا کرد. درگروه والپرات دو نفر افزایش آنزیم های کبدی بیش از دو برابرداشتند و چهار بیمار نیز اینتوبه شدند که گروه لواتیراستام کمتر نیاز به لوله گذاری داخل تراشه پیدا کردند. (P= ۰/۰۱)

میانگین تعداد روزهای بستری دربخش مراقبت های ویژه درگروه لواتیراستام ۳/۶ روز و در گروه والپرات سدیم ۸/۱ روز بود که روزهای بستری دربخش مراقبت های ویژه در گروه لواتیراستام کمتر بود .(P= ۰/۰۱)

نتیجه گیری: به نظر می رسد که کارآیی لواتیراستام وریدی در کنترل تشنج های استاتوس اپی لپتیکوس کودکان بیش از والپرات سدیم می باشد و عوارض جانبی کمتری نیز دارد و لذا از لواتیراستام داخل وریدی در درمان استاتوس اپی‌لپتیکوس بالاخص در شرایطی که با مشکل نداشتن امکانات مراقبت دقیق تنفسی و لوله‌گذاری داخل تراشه روبرو هستیم، می توان بهره برد .

کلمات کلیدی: استاتوس اپی‌لپتیکوس، کودکان ، لواتیراستام وریدی ، والپرات سدیم وریدی

رژیم کتوژنیک در درمان صرع مقاوم در دوران کودکی

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مقدمه و اهداف : رژیم کتوژنیک، رژیمی متشکل از چربی بالا، پروتئین کافی و کربوهیدرات بسیار کم در کنترل تشنجات کودکان مبتلا به صرع مقاوم به دارو، موثر بوده است. مطالعه حاضر به منظور بررسی اثر بخشی بالینی و ایمنی رژیم غذایی کتوژنیک (KD)، در بیماران مبتلا به صرع مقاوم به دارو، در دوران کودکی انجام یافت.

روش اجرا: ۳۰ کودک مبتلا به صرع با محدوده سنی ۲ تا ۱۵ سال، که تشنجات بیمار با استفاده از دو داروی ضد تشنجی خط اول، حداقل به مدت شش ماه کنترل نشده و بیمار به طور متوسط یک حمله تشنج در ماه داشت، وارد مطالعه شده و رژیم غذایی کتوژنیک دریافت کردند. در مدت ۶ تا ۱۲ ماه پیگیری، اثربخشی رژیم، تعداد و شدت تشنجات و عوارض رژیم بر اساس گزارش والدین، electroencephalograms (EEG) و آزمایشات بالینی و تن‌سنجی مورد بررسی قرار گرفت.

یافته‌ها: رژیم کتوژنیک در ۲ بیمار با توقف کامل تشنجات خاتمه یافته و در ۷ بیمار با کاهش تشنج بیشتر از ۹۰٪ تعدیل شد. ۱۲ کودک با کاهش تشنجات بین ۵۰٪ تا ۹۰٪، در رژیم غذایی باقی ماندند. ۲ بیمار به دلیل سنگ کلیه و ۳ بیمار به علت عدم تحمل رژیم از مطالعه خارج شدند. ۴ بیمار هیچ پاسخ مساعدی به رژیم غذایی نشان ندادند.

نتیجه گیری: رژیم کتوژنیک یک درمان موثر و ایمن برای کنترل تشنجات در کودکان مبتلا به صرع مقاوم به درمان می باشد.

کلمات کلیدی : صرع، رژیم کتوژنیک، رژیم درمانی، تشنج پایدار

بررسی اپیدمولوژی اختلالات تشنجی(صرع) در ماموریتهای درون شهری فوریتهای پزشکی شهرستان گناوه در نیمه اول سال ۹۶

محمود رضایی[۱]، مینا فروردین [۲]، مرجان فروردین [۳]

۱.کارشناس پرستاری.تکنسین فوریتهای پزشکی

۲.کارشناس مامایی

۳.کارشناس پرستاری

آدرس: دانشگاه علوم پزشکی بوشهر. مرکز فوریتهای پزشکی

مقدمه: صرع نوعی بیماریست که در آن اختلالات فعالیت الکتریکی طبیعی مغز موجب بروز حمله‌های تشنجی عود کننده یا دوره‌های کوتاه مدتی از تغییر سطح هوشیاری می‌شود. اگر چه عوامل مختلفی به میزان بوز وشیوع حمله‌های تشنجی تاثیر میگذارد ولی حدود ۵الی ۱۰ درصد مردم حداقل ذچار یک حمله تشنجی می‌شوند. هدف از این مقاله بررسی اپیدمیولوژی ماموریت درون شهری واحد فوریتهای پزشکی گناوه در امدادرسانی به بیماران مبتلا به اختلالات تشنجی (صرع) می باشد.

روش کار: یک روش توصیفی تحلیلی، گذشته نگر از۳۴۳ ماموریت انجام شده در نیمه اول سال ۹۶توسط واحد فوریتهای پزشکی شهرستان است که اطلاعات در فرم خاص ثبت وتوسط تیم پژوهش مورد تجزیه وتحلیل قرار گرفت.

یافته ها: اطلاعات بدست آمده از ۳۴۳ ماموریت انجام شده ،۳۳/۱۴٪مربوط به اختلالات تشنجی بوده است .۵۸٪مذکر ۴۰٪مونث و۲٪جنسیت نوشته نشده بود.از نظر سنی بالترین ۶۵ ساله وکمترین ۱۵ماهی است.۵۴٪متقاضیان با سابقه اختلات تشنجی ،۳۳٪برای اولین بار دچار حمله تشنجی شده اند و ۱۱٪آن سایر موارد، بدنبال بیماری دیگر حمله تشنجی را تجربه کرده اند.

نتیجه گیری: اختلالات تشنجی باعث ایجاداضطراب در بیمار، خانواده وحتی پرسنل فوریتهای پزشکی میشود.هرچند از نقطه نظر پزشکی ،بیشتر این موارد نیاز به کنترل راه هوایی ،پیشگیری از ایجاد آسیب به بیمار دارندولی آموزش مراقبتهای اولیه ویژه خانواده، ارجاع به پزشک در صورت اولین حمله تشنجی یا تکرار آن در سطحی متفاوت می تواند به بیمار با حمله تشنجی کمک نماید.

کلمات کلیدی: اختلالات تشنجی، فوریتهای پزشکی، آموزش

بررسی اپیدمیولوژی اختلالت تشنجی (صرع) در مادران پرخطرمعرفی شده شبکه بهداشت و درمان به بیمارستان امیرالمومنین (ع) شهرستان گناوه نیمه اول سال۹۶

مینا فروردین[1]، فاطمه معین گربکان[2]، مرجان فروردین [3]

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۲.کارشناش بهداشت و روان
۳.کارشناس پرستاری. سوپروایزر بالینی
دانشگاه علوم پزشکی بوشهر. شبکه بهداشت و درمان شهرستان گناوه

مقدمه: صرع با شیوعی ۱تا۲٪کل جمعیت ،حدوداًاز هر ۲۰۰مورد بارداری یک مورد دیده می‌شود. اختلالت تشنجی دومین اختلال شایع جدی در بیماران عصبی بارداری را تشکیل می‌شود. که هم سیر بیماری و هم نوزاد را تحت تاثیر قرار می‌دهد. اگرچه اغلب خانمهای مبتلا حامگی بدون حادثه را پشت سر می‌گذرانند، ولی اثرات حامگی روی فرکانس حملات می‌تواند متغیر باشد. هدف از این مقاله بررسی اپیدمیولوژی زنان باردار مبتلا به اختلالات تشنجی در نیمه اولسال ۹۶در شهرستان گناوه می‌باشد.

روش کار: یک روش توصیفی، تحلیلی، گذشته نگر از مادران پرخطر مراکز بهداشتی درمانی گناوه که در هنگام مراجعه به بیمارستان نیازمند به مراقبت‌های خاص می باشندکه در طی این مدت ۲۳۴نفر معرفی شدند. موارد پرخطر شامل:بیماری قلبی، تنفسی، اختلالت تشنجی، صرع، فشارخون و سابقه اکلامپسی و... است.

یافته ها: اطلاعات بدست آمده نشان میدهد که مادران با سابقه اختلالات تشنجی در جایگاه خاصی قرار دارند و۵٪ و مادران با سابقه پره اکلامپسی واکلامپسی نیز ۸٪، فشارخون حاملگی ۹/۱٪از آنان را تشکیل می‌دهند.

نتیجه گیری: مادران با اختلالات تشنجی ونوزادان آنها جزء گروه پرخطرهستندوعوارض مادری نظیر خونریزی، تشنج و... وعوارض جنینی ونوزادی، نارسی، تاخیر در رشد و تشنج و... می‌باشد. آموزش پرسنل مراکز بهداشتی در راستای آموزش به مددجو وهم چنین آموزش و آمادگی پرسنل بیمارستان در انجام مراقبتهای ویژه از مادر و نوزاد در برنامه‌های آموزش بیمارستان قرار گیردتا از عوارض یاد شده بتوان پیشگیری نمود.

کلمات کلیدی: اختلالات تشنجی،مادران باردار ،مراقبتهای ویژه

رابطه پردازش هیجانی و ایده پردازی خودکشی با نارسایی های شناختی در بیماران مبتلا به صرع و افراد غیر مبتلا

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۳. استاد بیماری های مغز و اعصاب دانشگاه علوم پزشکی شهید بهشتی بیمارستان لقمان حکیم

مقدمه: صرع شایع ترین اختلال نورولوژیک مزمن در جهان است. افراد مبتلا به صرع در معرض خطر قابل توجهی از مشکلات شناختی، نابهنجاری های رفتاری و مشکلاتی در تجربه موقعیت‌های عادی روزانه هستند.

هدف: پژوهش حاضر با هدف مقایسه پردازش هیجانی و ایده پردازی خودکشی با نارسایی‌های شناختی در بیماران مبتلا به صرع با افراد غیر مبتلا انجام شد.

روش: این مطالعه بر روی ۶۰ نفر از افراد مبتلا به صرع عضو انجمن صرع ایران و ۶۰ نفر غیرمبتلا به عنوان گروه مقایسه انجام شد.

یافته‌ها: نتایج نشان داد پردازش هیجانی اثر معناداری را در سطح ۰/۰۰۱ دارد که قادر به پیش‌بینی نارسایی‌های شناختی می باشد.

نتیجه گیری: یافته ها نشان داد که پردازش هیجانی قادر است نارسایی‌های شناختی را در بیماران مبتلا به صرع به‌طور معناداری پیش بینی کند. همچنین ایده‌پردازی خودکشی قادر به پیش بینی نارسایی‌های شناختی در بیماران مبتلا به صرع نیست.

واژه های کلیدی: ایده پردازی خودکشی، بیماران مبتلا به صرع، پردازش هیجانی، نارسایی های شناختی

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