

## Neurology & Psychiatry Abstracts

### Causes and associated factors of headaches among 5 to 15-year-old children referring to neurology clinics in Kashan, Iran

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**Background:** Headache is a common neurologic problem in children and adolescents. It is divided into primary and secondary types. Primary headaches include migraine and tension-types and comprise the majority of headaches. We aimed to detect the causes of headaches and their associations with demographic variables among children.

**Methods:** This cross-sectional study was performed on 5-15 year-old children with headaches who presented to pediatric neurology clinic of Kashan, Iran from March 2010 to April 2012. Diagnosis of headache was according to International Classification of Headache Disorders. Data regarding type of headaches, age, gender, pain severity, aura, family history, and sleep disorders were collected.

**Findings:** One hundred fourteen children (44 male and 70 female) with headaches enrolled in the study. Types of headaches comprised of 67 cases of migraine, 38 cases of tension-type headache, 2 cases of cluster headache and 7 cases of secondary headache. Pulsating headache, family history of headache, insomnia and pain severity had higher prevalence in migrainous patients.

**Conclusion:** Physicians should extend their information about primary and secondary headaches. Sleep disturbances and family history of headaches were most important factors associated with migraine headache.

**Keywords:** Migraine, Tension-Type Headache, Children, Prevalence

### Acute flaccid paralysis (AFP) among under 15 year old children in Iran 2004-2013, the most common causes

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**Background:** Poliomyelitis is an acute viral infection which ranges in severity from a nonspecific illness to paralysis with permanent disability. In 1988 the World Health Assembly adopted a resolution to eradicate polio. To achieve poliomyelitis eradication, the World Health Organization recommends that countries conduct surveillance for cases of acute flaccid paralysis (AFP). The AFP case definition is: "all cases of acute flaccid paralysis, including Guillain-Barré Syndrome, among children aged less than 15 years and all cases of suspected poliomyelitis among persons of any age." This syndromic reporting strategy, is not only a key strategy for global poliomyelitis eradication, but also gives a precise figure of the most common causes of acute flaccid paralysis. The principal AFP surveillance components are: a) reporting: it should be on time, including zero reports. B) Sensitivity of surveillance: at least 2 cases of non-poliomyelitis AFP should be detected annually per 100000 population aged

less than 15 years. C) case investigation: all AFP cases should have a full clinical and virological investigation with having adequate stool specimens, ie: two stool specimens, collected at least 24 hours apart, within 14 days after the onset of paralysis, all virological studies on AFP cases must be performed in a laboratory accredited by the Global Poliomyelitis Laboratory Network. D) Follow-up: AFP cases should have a follow-up examination for residual paralysis at 60 days after the onset of paralysis.

**Methods:** This study was descriptive and cross-sectional. All the hospitals, private clinics, physiotherapy and rehabilitation units and public health care centers all over the country were included in the sampling frame. Data compiled in EPI-6 and descriptive statistics, were used for analysis.

**Findings:** During 2004-2013, total number of 5571 cases has been reported through AFP surveillance system. Number and percent of Guillain-Barre syndrome were 244(%65) in 2004, 237(%60) in 2005, 248(%50) in 2006, 297(%52/8) in 2007, 333(%59/4) in 2008, 309 (%56/4) in 2009, 322(%51/6) in 2010, 307(%51/8) in 2011, 321(%46/6) in 2012 and 292(%41/2) in 2013. The most common causes of AFP other than Guillain-Barre syndrome were synovitis-tenosynovitis (%3) and arthritis(%2) in 2004, arthritis and ataxia(%2 for each one) in 2005, arthritis(%5) and ataxia(%2) in 2006, myositis-polymyositis and arthritis (%2 for each one) in 2007, arthritis, myositis-poly myositis, ADEM and ataxia (%2 for each one) in 2008, arthritis and ataxia(%3 for each one) in 2009, arthritis(%7), synovitis-tenosynovitis and viral infection (%4/5 for each one) in 2010, arthritis(%7/5) and myositis polymyositis(%6) in 2011, synovitis-tenosynovitis (%9) and arthritis(%6) in 2012, arthritis(%10) and synovitis-tenosynovitis (%7) in 2013. Guillain-Barre syndrome was the most common cause of AFP during 2004-2013(%52/2).

**Conclusion:** This study reveals that Guillain-Barre syndrome and arthritis are the leading causes of Acute Flaccid paralysis among under 5 year old children. All cases of Acute Flaccid paralysis including Guillain-Barre syndrome should be notified immediately to the nearest health center.

**Keywords:** Acute Flaccid Paralysis, Polio Eradication, AFP Surveillance System

### Cerebellar atrophy: an easy and hard problem in pediatric neurology practice

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Cerebellar atrophy and or hypoplasia and from the broadly view, midbrain-hindbrain malformations are one of the controversial manifestations among patients referred to pediatric neurology clinics. In most situations, when a clinician reach to the sign of "Cerebellar Atrophy" during the course of diagnostic process in a patient with various neurologic problems, he or she feels a deadlock to achieve the final diagnosis of the patient. It is a fact. Cerebellar atrophy is a non-specific sign in neuroimaging and can be seen in association with different acquired and genetic

disorders. Several systems are designed for classification of disorders that are associated with cerebellar atrophy and or hypoplasia. The main axis of these systems is specific involvement patterns in neuroimaging, but it is faced with some difficulties. In some cases we can't accurately differentiate cerebellar atrophy from hypoplasia (Non-progressive congenital ataxia) and in another cases it may be atrophy superimposed on cerebellar hypoplasia during the clinical course of the disease (Congenital disorders of glycosylation). In order to solve this problem, Barkovich provided a new classification for midbrain-hindbrain malformations based on neuroembriology, developmental biology, molecular genetic information in addition of neuroimaging findings. Of course, this classification system is flexible and with recognizing of new malformations can be changed. It seems that this system is comprehensive in theory, but there is a need for other classifications of cerebellar atrophy in practice that to be more tangible for pediatric neurologists and make them an easier way to final diagnosis of a child with cerebellar atrophy.

**Keywords:** Cerebellum, Atrophy, Hypoplasia, Differential Diagnosis

### A survey on Guillain-Barre syndrome among under 15 year old children in Iran 2004-2013

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**Background:** Guillain-Barre syndrome is a postinfectious polyneuropathy involving mainly motor nerves. The paralysis usually follows a nonspecific viral infection by about 10 days. Weakness usually begins in the lower extremities and progressively involves the trunk, the upper limbs, and finally the bulbar muscles. Proximal and distal muscles are involved relatively symmetrically, but asymmetry is found in 9% of patients. The onset is gradual and progresses over days or weeks. Bulbar involvement occurs in about half of cases. Respiratory insufficiency and death can result.

**Methods:** This study was descriptive and cross-sectional. Data gathering was through AFP (Acute Flaccid paralysis) surveillance system which is the surveillance strategy for poliomyelitis eradication. The World Health Organization recommends that countries conduct surveillance for AFP cases. The AFP case definition is: "all cases of acute flaccid paralysis, including Guillain-Barre Syndrome, among children aged less than 15 years and all cases of suspected poliomyelitis among persons of any age." All the hospitals, private clinics, physiotherapy and rehabilitation units and public health care centers all over the country were included in the sampling frame. Data compiled in EPI-6 and descriptive statistics, were used for analysis.

**Findings:** In this study 2910 cases of 5571 AFP cases (%52/2) were classified as Guillain-Barre syndrome. 1595 cases(%54/8) were male and 1315 cases(%45/2) were female. 117 cases(%4/02) were under 1 year old, 890 (%30/5) were 1-2 years old, 629(%21/9) were 3-4 year old and 1264(%43/4) were 5 year old or more. 933 cases (%32/06 ) were febrile at the onset of paralysis. Occurrence of paralysis was 695(%23/8) in winter, 794(%27/2) in spring, 689(%23/6) in summer and 731(%25/1) in autumn. Paralysis was asymmetric in 555(%19/07) of cases and

symmetric in 2355(%80/9) of cases. The progression of paralysis was rapid (less than 4 days) in 2307 (%79/2) of cases. Follow-up after 60 days revealed that 1955(%67) of cases were completely recovered, paralysis remained in 874(%30) of cases, 34 cases (%1) were lost during follow-up and 47 (%2) of them died.

**Conclusion:** This study reveals that Guillain-Barre syndrome is the leading cause of Acute Flaccid paralysis among under 15 year old children. So, all cases of Guillain-Barre syndrome should be notified immediately to the nearest health center.

**Keywords:** Guillain-Barre Syndrome, Acute Flaccid Paralysis, Paralysis

### Iron status and iron deficiency anemia in patients with febrile seizure

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**Background:** Febrile seizure is the most common form of seizure and iron deficiency is the most prevalent nutritional deficiency in children. Given the contradictory results of different studies, the objective of this study was to determine the iron status and iron deficiency anemia in patients with febrile seizure.

**Methods:** This case-control study was conducted on 50 children with febrile seizure and 50 children with febrile illness but not seizure as a control group with age range of 6-72 months. Both groups were identical in terms of age and gender. After obtaining demographic information , complete blood cells count, red blood cell indices and serum ferritin were performed for all patients.

**Findings:** The average age of patients in the case and control groups was  $25.28 \pm 17.26$  and  $26.12 \pm 20.04$  months, respectively. The gender ratio and the average temperature were similar in both groups. Mean values of hemoglobin, hematocrit, mean cell volume, mean cell hemoglobin, plasma ferritin and serum iron levels in patients with febrile seizure were lower than the control group, but this difference was not statistically significant. The number of patients suffered from iron deficiency anemia in the case and control groups, were 22 (44%) and 18 (36%), respectively.

**Conclusion:** Considering the lack of significant differences between the case and control groups in terms of iron status and anemia prevalence, it is suggested that careful evaluation of anemia and red blood cell indices in such patients should be done only based on clinical and nutritional history of each patient.

**Keywords:** Febrile Seizure, Children, Anemia, Iron Deficiency

### Performing safe lumbar puncture in children

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Lumbar puncture (LP) plays a critical role in both pediatric medical diagnosis and treatment today. An accurate physical neurologic assessment will be a vital part in the medical decision making process about whether an LP should be performed. LP is used to obtain a sample of

cerebro-spinal fluid (CSF) to aid in the diagnosis of infectious, inflammatory, oncologic, and metabolic processes. Therapeutic indications include the delivery of chemotherapy, antibiotics, and anesthetic agents. Increased intracranial pressure (ICP) with pseudotumor cerebri and after hemorrhage or meningitis can be effectively treated with repeated LP without shunting in some children. Diagnostic LP indications include suspicion of meningitis, in a child younger than 12 months with febrile convulsion, for measurements of antibody titers in subacute sclerosing panencephalitis, measles, rubella, and progressive rubella panencephalitis, suspected subarachnoid hemorrhage, pseudotumor cerebri, lead encephalopathy, diagnosis of CNS neoplasia, and some neurologic conditions (eg, normal pressure hydrocephalus, Guillain-Barré syndrome). Contraindications to LP can be absolute or relative. Increased ICP is an absolute contraindication. For patients with a bleeding diathesis or cardiopulmonary instability, the contraindications are relative to the importance of CSF results for immediate management decisions. Normal CT scan brain does not mean it is safe to do LP. Clinical signs, not a CT scan brain, are the best indicators of when to or when not to do LP. The most common complication of LP is headache. Other complications are backache or spasms in the lower back or thighs, transient voiding problems, seizures, slight rise in temperature, bleeding, shock, infection, transtentorial or cisternal herniation ("coning"), spinal/epidural abscess, epidermoid tumor, herniation of nerve roots and cerebral herniation (the most serious complication). Knowledge of the contraindications, the pertinent anatomy, and the methods to minimize the risk of complications are necessary for the safe and efficient performance of the procedure. Risks, although rare, can be substantial and even potentially life-threatening.

**Keywords:** lumbar Puncture, Children, Indications, Contraindication

### Evaluation of serum zinc level in pediatric first unprovoked afebrile seizure

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**Background:** Seizure is one of the most common pediatric neurology problems which occurs in 4-10% of children in the first 16 years of their life. Zinc level has an important role on level of Gamma-amino-butyric acid (GABA) as the main inhibitory neurotransmitter of brain and decrease of serum zinc level might be responsible for pathogenesis of seizure. The purpose of this study was to evaluate blood zinc level of children with first unprovoked seizure (FUS).

**Methods:** In a cross-sectional study, blood zinc level of 1-14 year old admitted children with FUS to Shahid Sadoughi Hospital from December 2012 to May 2013 was measured by coupled plasma mass spectrometry within the first 2 hours after the first seizure attack and Zinc plasma level of less than 70 µg/dL was considered as zinc deficiency.

**Findings:** Forty girls and 56 boys with mean age of  $8.35 \pm 2.47$  years were evaluated that 36 children of them had partial seizure. Serum zinc level was lower in girls than in boys ( $88.12 \pm 9.07$  g/dl g/dl vs.  $112.2 \pm 15.45$  g/dl,  $p < 0.01$ ). 23 children (24%) of children with FUS had zinc deficiency and zinc deficiency was more frequent in partial seizure than in generalized seizure (31% vs. 19%,  $p < 0.03$ ).

**Conclusion:** Zinc deficiency may trigger first unprovoked

seizure occurrence and blood zinc level assessment might be useful in evaluation of children with FUS and zinc sulfate supplementation might be considered as an effective and safe drug in prevention of seizure occurrence.

**Keywords:** Seizure, first unprovoked seizure, zinc, zinc deficiency

### Symptoms in ADHD

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**Background:** Studies show that children with ADHD tend to have abnormal functioning with special symptoms. ADHD has three subgroups, their symptoms can be different. Symptoms can confuse specialists. We decided to detect symptoms in children with ADHD and their subgroups.

**Methods:** 60 children (5 – 12 Y) with ADHD in a referral clinic were participated in this research. Swan questionnaire was used for detecting symptoms. In this questionnaire symptoms detected and subgroup was diagnosed.

**Findings:** Ignores details; makes careless mistakes were the most symptoms in inattentive type (85%). Restlessness was the most symptoms in hyperactive type (92%).

**Conclusion:** Symptoms in ADHD are crucial for treatment and rehabilitation, detecting them can help us for treatment plan.

**Keywords:** ADHD, Inattentive Type, Hyperactive Type

### Validity & reliability determination of Parents Evaluation of Developmental Status (PEDS) in 4-60 months old children in Tehran city

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**Background:** This research was designed to identify the validity and reliability of Parents Evaluation of Developmental Status, a developmental screening questionnaire, in 4-60 months old children in Tehran city.

**Methods:** At first a precise translation of the questionnaire was done by the research team and then the Persian version was back translated by three English language experts, who were unfamiliar with the PEDS. The back translated version was compared with the original version. Next the content validity of the finalized Persian version was verified by three pediatricians familiar with child development and also by reviewing relevant books and journals. Then, test was performed on 648 children ranging from 4 to 60 months old, in four health care clinics, in north, south, east and west regions of Tehran city. In order to determine the agreement coefficient, these children were also evaluated by ASQ at the same time. Available sampling was used until the desired sample number was achieved. Test-retest methods (by 2-3 weeks interval) and Cronbach's  $\alpha$  were used in order to determine reliability of the test. Because there was no developmental gold standard diagnostic test accessible, the Kappa agreement coefficient between PEDS and ASQ, another developmental screening questionnaire was estimated. The data was analyzed by SPSS software.

**Findings:** All of the questions in PEDS had content validity and there was no need to change them. The total Cronbach's  $\alpha$  coefficient was 0.63. By considering the low items number of PEDS, the estimated value was acceptable. The Cronbach's  $\alpha$  coefficient of test-retest was 0.87 that is good ( $P < 0.001$ ). The estimated Kappa measure agreement between PEDS and ASQ was 0.30 ( $P < 0.001$ ), because the large sample size and similarity of the result of screening in 71.5%, it is possible to conclude that this measure is acceptable. Developmental disorders were observed in 23.1% of children (4.6% delayed and 18.5% questionable) who were examined by PEDS, and in 26.4% of children who were examined by ASQ (14.7% delayed and 11.7% questionable).

**Conclusion:** This research showed that PEDS has a good content validity and reliability and can be used for developmental screening of children in Tehran city. Because the test is brief, using it can lead to saving time and resources.

**Keywords:** Development, Developmental Delay, PEDS, Screening, ASQ

### EEG in pediatric migraine

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**Background:** Migraine is a disabling illness that causes absence from school and affects the quality of life. It has been stated that headache may represent an epileptic event. EEG abnormality is a prominent finding in children with migraine. This study evaluates specific electroencephalogram abnormalities in pediatric migraine. **Methods:** The evaluation of a child with headache begins with a thorough medical history and complete physical and neurologic examination. One of the key questions for the bedside clinician is when to perform further diagnostic studies. Extensive review concludes that the role of further ancillary diagnostic studies, specifically EEG and neuroimaging, is limited.

**Findings:** Comparing EEG abnormalities in different types of migraine revealed that there is an association between them. There was also a significant difference between EEG abnormalities in different types of aura. Migraine type was associated with the patient's age.

**Conclusion:** Study disclosed migraine as a common problem in children with abnormalities present in approximately 11-25% of the patients. Migraine and abnormal EEG findings are significantly associated.

**Keywords:** Abnormal EEG, Children, Epilepsy, Headache, Migraine, Relationship

### Aicardi-Goutieres syndrome, misdiagnosis as TORCH infections: a case report and review of literature

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**Background:** Aicardi-Goutieres syndrome (AGS) is a genetic early onset encephalopathy with prominently abnormal neurologic findings besides systemic presentations. Systemic signs and fever can be at clinical onset and be mistaken as encephalitis or meningitis,

followed by psychomotor retardation, and signs of neurological impairment. Microcephaly, trunk hypotonia, and extrapyramidal signs have been developed in the first year of life. The most common finding is cerebral calcifications that overlap with TORCH infection, but some evidences like normal auditory function, normal retinal examination and bilateral symmetric white matter involvement are against the diagnosis of TORCH in these patients. Neuroradiological evaluations revealed the triad of cerebral atrophy, basal ganglia calcifications and leukodystrophy. Another evident marker of the disease is cerebral spinal fluid analysis that revealed lymphocytosis and elevated interferon and neopterin level without any infectious processes. Missense mutations in five genes (TREX1, RNASEH2A, RNASEH2B, RNASEH2C and SAMHD1) on a recessive basis are confirmed in the pathogenesis of cases with AGS and have been detected in 90% of affected individuals.

**Case presentation:** We reported a 5 month old girl with neurodevelopmental delay, intractable epilepsy and microcephaly. Molecular study revealed a homozygous mutation in RNASEH2A gene as R186W, that confirmed the diagnosis of RNASEH2A-related Aicardi-Goutieres syndrome. This is the first case report of this syndrome from Iran.

**Keywords:** Aicardi-Goutieres syndrome, TORCH, Cerebral Calcification, Encephalopathy

### A report of Guillain-Barré syndrome with myalgia and mild weakness

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We report a rare case that revealed severe myalgia as the chief complaint that is not mentioned in the list of frequent symptoms of Guillain Barré. Guillain-Barré syndrome (GBS) is an acute inflammatory demyelinating polyneuropathy (AIDP). Required features for diagnosis of GBS are progressive motor weakness of more than one limb and areflexia.

**Case presentation:** We report an 11-year old boy who was referred to the emergency department with complaints of generalized body pain and gait problem. It seems that if myalgias are the chief complaint and weakness is mentioned as a less important symptom, clinicians should consider GBS after ruling out other reasons for myalgia especially inflammatory myositis.

**Keywords:** Guillain-Barré Syndrome, Myalgia, Weakness, Children

### Promotion of standard care levels in children with neuromuscular disorders

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**Background:** Standard care guidelines provides access to best practice consensus recommendations to for patients with NMD. The purpose of these recommendations is to provide a framework for recognizing early manifestations,



possible complications and designing optimum treatment across different specialties with a coordinated multidisciplinary team. Despite recent advances in the molecular pathogenesis of NMD, this improvements has not been matched by similar development in the care for these patients. Variations in medical practice together with differences in family and governmental resources in different part of worlds have resulted in variable clinical outcomes. In addition these guidelines need revision based on new advances in our understandings in concern with both diagnostic and clinical care strategies in each area of recommendations. At present International Standard of Care Committees of Treat NMD for Congenital Muscular Dystrophy (2009), SMA (2005) and DMD (2010) have published their consensus on care recommendations in areas of diagnosis, neurology, pulmonology, orthopedics, rehabilitation, gastroenterology, nutrition, speech, oral care, cardiology, and palliative care. However, the need to promote and improve these levels concomitant with new advances is necessary. Here, we present new suggestions that can be discussed in committees dealing with these standards. 1- Next generation sequencing (NGS-NMD panel) designed for different NMD has provided more accurate and rapid method omitting the need for biopsies that are not always yielding. In addition, prenatal diagnosis, drug selection in some case such as congenital Myasthenia and genetic drugs based on genetic defect (as in DMD research drugs) have been made possible. 2- In area of pulmonology with introduction of nasal Intermittent mechanical ventilation (NIMV), patient quality of life can be improved with early preventive guidelines that can prevent pulmonary hypertension, sleep apnea, atelectasis, chest deformity and its impact on patients survival. Recommendation criteria for implementation of INMV need to be discussed in this committee. 3- More emphasis on preventive measures on scoliosis and chest deformity can prevent early pulmonary hypertension and consequent cardiopulmonary decompensation. 4- In Cardiology area, now early prophylactic cardiotonic drugs (Captopril, Enalapril) can prevent dilated cardiomyopathies in those NMD with cardiac involvements (DMD...). 5- Improvement of Quality of life is also another issue that needs to be discussed.

**Keywords:** Neuromuscular Disorders, Standard Cares, Promotion

### The relationship between iron deficiency and febrile convulsion

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**Background:** Febrile seizure is among the most common convulsion disorders in children, which strikes 2% to 5% of children between 3 to 60 months of age. Some studies have reported that iron deficiency could be a risk factor for febrile seizure. The present study was conducted to compare the rate of iron deficiency anemia in febrile children with and without seizure.

**Methods:** This case-control study evaluated 200 children aged 6-60 month in two 100 person groups (febrile seizure and febrile without convulsion) in Kashan. The CBC diff, serum iron and TIBC were done for all of participants. Diagnosis of iron deficiency anemia based on mentioned

tests.

**Findings:** No significant differences were found in two groups regarding to the age, gender, and the disease causing the fever. The presence of iron deficiency anemia was 45% in the convulsion group and 22% in the group with fever without convulsion. The Chi Square test indicated a significant difference between two groups.

**Conclusion:** The findings suggest that a considerable percentage of children having febrile seizure suffer from iron-deficiency anemia and low serum iron. This means the low serum iron and presence of anemia can serve as a reinforcing factor for the febrile seizure in children.

**Keywords:** Iron Deficiency Anemia, Iron Deficiency, Fever, Febrile Seizure, Children

### Lennox-Gastaut Syndrome

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Lennox-Gastaut Syndrome (LGS) is one of the well-known epileptic syndromes of childhood (peak age incidence of 3-5 years). Triad of mixed type of seizures (atypical absence, atonic and myoclonic), 1.5 to 2 cycle per second spike or sharp-wave pattern in EEG, and mental retardation is diagnostic for this syndrome. It could be seen in two types of idiopathic and symptomatic (40% and 60% respectively). In prognostic point of view, both types especially symptomatic type is accompanied by poor prognosis. Because phacomatosis are one of the most common etiologies, every child with LGS should be thoroughly have a dermatologic examination. Although the main electrographic feature of the syndrome is 1.5 to 2 CPS sharp or spike-wave pattern, but other EEG patterns such as generalized paroxysmal fast activity (GPFA) could be seen in this epileptic syndrome. Many children with LGS are reluctant to any kind of treatment. Sodium valproate and benzodiazepines are the most common first line medications. In my talk I will address to my experience dealing with the affected children in Iran, UK and Canada.

**Keywords:** Lennox Gastaut, Epilepsy, Children, EEG, GPFA, Myoclonic Seizures

### Diffuse dermal melanocytosis

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Dermal melanocytosis (DM) is described as the presence of ectopic melanocytes in the dermis and could be a normal cutaneous finding. Mongolian spots are blue or slate-gray macular lesions occurring most commonly in the sacral area but also found over posterior thighs, legs, back, and shoulders. However, diffuse DM or extensive Mongolian spots must be considered as an early sign of neurometabolic diseases, in particular lysosomal storage disorders. Mongolian spots usually fade during the first few years of life, but they occasionally persist. Those associated with inborn error of metabolism error of metabolism present no sign of resolution and may also become heavier in their colors. The most common lysosomal storage disease associated with generalized Mongolian spots are Hurler syndrome followed by GM1 gangliosidosis type 1.

An association with Niemann-Pick disease, Hunter syndrome, mannosidosis, MPS VI and sandhoff disease was also reported.

**Keywords:** Demal melanocytosis, Mongolian spot, Lysosomal Diseases

### Effect of parental gender and education on quality of life in paediatric epilepsy; results of an outpatient cross sectional study

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**Background:** Epilepsy in children can affect different aspects of their life. In developing countries family plays an important role in the quality of life (QOL) and general health (GH) of paediatric epilepsy patients. Different factors may affect QOL of epileptic children and studying these factors can help parents and health care providers to plan a better life for these patients. In this study, parental factors that may affect QOL of paediatric epilepsy patients were assessed in an outpatient setting.

**Methods:** A cross-sectional survey of outpatient paediatric epilepsy patients (n=106, 61 M, 45 F, age  $10.3 \pm 0.2$ ) was carried out using US quality of life in childhood epilepsy (QOLCH) and Seizure Severity Questionnaire (SSQ). Patients with progressive neurodegenerative disorders, severe to profound mental retardation and visual/hearing impairment were excluded from the study. Basic demographic data, seizure type, frequency, severity and other characteristics and social life of patients were recorded. Relevant data were graded using Likert scale and analysed.

**Findings:** Complex Partial Seizure (CPS) was the most common type of seizure among patients (n=37, 34.9%); followed by Generalized Tonic-clonic Seizure (GTCS, n=20, 18.9%). There was no significant difference between QOL and GH of patients with different types of seizures. Total QOL in male patients with masters level of education in father was significantly different from those whose father's level of education was high school ( $4 \pm 0.25$  v/s  $3.08 \pm 0.12$ ). However, father's education had no significant impact on QOL of female patients. Total QOL in male patients with a 10th grade school level of education in mother was significantly different from those whose mother level of education was 12th grade and BSc ( $3.02 \pm 0.13$  v/s  $3.8 \pm 0.2$  and  $3.64 \pm 0.2$ ). Total GH in male patients with a high school level of education in mother was significantly different from those whose mother's level of education was BSc ( $3.19 \pm 0.12$  v/s  $2.09 \pm 0.28$ ). However, mother's level of education had no significant impact on GH of female patients. Total GH in male patients with MSc level of education in father was significantly different from those whose father's level of education was high school ( $3.03 \pm 0.16$  v/s  $2.17 \pm 0.4$ ). Father's level of education had no significant impact on GH of female patients. The GH and QOL in patients significantly correlated with each other in both male ( $r=0.49$ ) and female ( $r=0.43$ ) patients. These two factors were totally correlated with each other also ( $r=0.46$ ).

**Conclusion:** Parental level of education plays important role in quality of life and general health of epilepsy patients. Special training programs are suggested for better life of paediatric epilepsy patients.

**Keywords:** Paediatric Epilepsy, Quality of Life, General Health, Parental Education

### Speech and language development of IVF Children

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**Background:** Since in the process of Assisted Reproductive Techniques (ART) such as (Intra Cytoplasmic Sperm Injection) ICSI and IVF (Invitro Fertilization), human intervention and laboratory conditions may affect fetal development, whatever the used method is aggressive, disorders are more likely to occur in children. In addition to the progress and the promotion of assisted reproductive therapies, physical, behavioral, speech and language development of the children born through these methods is of particular importance. The current study aimed to compare the spoken language skill in a pair of IVF twins, a pair of fraternal twins and two singleton children.

**Methods:** The participants of the study were selected randomly from the kindergartens of Tehran City. All of the children were Farsi-speaking females and they were four years old. In this study, the valid and reliable Test of Language Development (TOLD) was used. For studying the spoken language, skills of sentence combining, picture vocabulary, word ordering, generals, grammatic comprehension, and malapropisms were analyzed.

**Findings:** The results of the study showed that no significant differences among scores of the composite quotients of three groups including IVF twins, fraternal twins and two singleton children in the compound subtest of spoken language were found and IVF infants scored slightly lower than control children. Obtained scores for the three groups were (110 and 102), (121 and 108) and (116 and 120) respectively.

**Conclusion:** It seems that IVF children are not at great risk of speech and language development delay.

**Keywords:** Speech and language development, IVF twins, fraternal twins, singleton children, spoken language

### Diagnostic value of urine mucus test in childhood masturbation among children below 12 years, a case-control study from Iran

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**Background:** Childhood masturbation (CM) considered a variant of normal sexual behavior; however, it is commonly misdiagnosed for epilepsy and movement disorders leading to extensive investigations in these children. Sparse literature is available with most of them being case reports or series. As the first study from Iran, we analyzed a large population of infants and children with CM in a case-control study and evaluated the value of mucus in urine analysis as an alternative diagnostic tool for CM.

**Methods:** A total of 623 patients referred to pediatric neurology clinics of Imam Khomeini University Hospital for evaluation of seizure or movement disorders were studied from June 2008 to September 2011. 359 cases were found to have masturbatory behavior (case group) and the rest (264) were assigned to the control group. The two groups were well-matched for age and gender. CM was

diagnosed by direct observation during hospitalization. Collected data included demographic characteristics, a detailed history, complete clinical and neuro developmental examination, laboratory findings (particularly urine analysis) and EEGs. Sensitivity, specificity, negative and positive predictive values of mucus in urine test were reported.

**Findings:** Age of the patients with CM was <12 years (peak; 3-4) and girl to boy ratio was 0.7:0.1. Mucus in urine was positive in 357 of the 359 patients (99.44%) in the case group and 22 of the 264 patients (8.3%) in the control group ( $P<0.001$ ). A significant correlation was found between the presence of mucus in urine and masturbatory behaviors ( $p<0.001$ ,  $K=0.742$ ). The sensitivity, specificity, positive and negative predictive value of mucus in urine analysis for diagnosis of childhood masturbation was 99.33%, 75.38%, 79.15% and 99.18%, respectively.

**Conclusion:** Our findings suggest that the presence of mucus in urine can be used as an alternative laboratory test in CM in children below 12 years even in infants ( $\leq 24$  months). Further studies are needed to confirm the results.

**Keywords:** Childhood Masturbation, Mucus, Urine

### Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III)

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The Bayley Scales of Infant Development (Bayley-III) are recognised internationally as one of the most comprehensive tools to assess children from as young as one month old. With Bayley-III, it is possible to obtain detailed information even from non-verbal children as to their functioning. Children are assessed in the five key developmental domains of cognition, language, social-emotional, motor and adaptive behaviour. Three scales administered with child interaction; cognitive, motor, language. Two scales conducted with parent questionnaires; social-emotional, adaptive behavior. Bayley-III identifies infant and toddler strengths and competencies, as well as their weakness. It also provides a valid and reliable measure of a child's abilities, in addition to giving comparison data for children with high-incidence

clinical diagnoses. Growth scores can be used to chart intervention progress, and it's useful in program evaluation, ongoing monitoring of progress and outcome measurement.

**Subscales Domains:**

**Adaptive Behavior:** Communication, community use, functional pre-academics, home living, health and safety, leisure, self-care, Self-direction, social, motor

**Cognitive:** Sensorimotor development, exploration and manipulation, object relatedness, concept formation, memory, habituation, visual acuity, visual preference, object permanence, plus other aspects of cognitive processing.

**Language:** Expressive communication: assesses preverbal communications such as: babbling, gesturing, joint referencing, turn taking, vocabulary development such as naming objects, pictures, and actions, Morpho-syntactic development such as use of two-word utterances and use of plurals and verb tense.

**Receptive communication:** Assesses preverbal behaviors and vocabulary development such as: the ability to identify objects and pictures that are referenced, vocabulary related to morphological development such as pronouns and prepositions, understanding of morphological markers such as plurals and tense markings.

**Motor:** Fine motor: Fine motor skills associated with: prehension, perceptual-motor integration, motor planning, motor speed. Items measure age-appropriate skills including: visual tracking, reaching, object manipulation, grasping, children's quality of movement, functional hand skills, responses to tactile information (sensory integration) Gross motor: Items assess: static positioning (e.g. head control, sitting, standing), dynamic movement including locomotion (crawling, walking, running, jumping, walking up and down stairs), quality of movement (coordination when standing up, walking, kicking), balance, motor planning, perceptual-motor integration (e.g. imitating postures).

**Social-Emotional:** Developed by Stanley Greenspan, M.D., one of the world's leading experts in child development. Determines the mastery of early capacities of social-emotional growth, monitors healthy social and emotional functioning, monitors progress in early intervention programs, detects deficits or problems with developmental social-emotional capacities.

**Keywords:** Development, Bayley-III, Adaptive Behavior, Language, Motor skill