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**INTRACRANIAL HYPERTENSION IN INFANCY: IDIOPATHIC INTRACRANIAL HYPERTENSION OR SECONDARY PSEUDOTUMOR CEREBRI SYNDROME**

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**Introduction:** The Pseudotumor cerebri syndrome may be primary (idiopathic intracranial hypertension) or secondary cause. It is important to recognize that patients with a secondary cause and papilledema may be indistinguishable from those with IIH. In addition to advising the secondary cause, these patients frequently require treatments used for IIH in to prevent blindness.

**Objective:** Describe a group of patients with diagnosis of benign intracranial hypertension and the associated conditions which can define an idiopathic intracranial hypertension or secondary pseudotumor cerebri in this entity.

**Materials and methods:** Retrospective analysis of clinical charts. All patients 18 years old or younger between March 2005 and March 2013 with benign intracranial hypertension who met Dandy Modified Criteria were included.

**Results:** 16 patients were included (6 female). Headache (14/16), diplopia (4/16) and tinnitus (3/16) were the more frequent symptoms reported. Associated conditions were present in ten patients (62,5%). LLA preB (2/16), drugs (6/16), morbid obesity (1/16), renal failure (1/16).

No associated conditions were found in 6 patients. Just one patient presented recidivism. Only one patient lost visual acuteness.

**Conclusion:** IIH in infancy is a diagnosis of exclusion. In our experience 62, 5% of children had associated conditions. In pediatric population with IIH a complete evaluation is suggest so associated conditions can be excluded.

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**ACUTE HEADACHE AT THE EMERGENCY DEPARTMENT OF A PEDIATRIC HOSPITAL**


**Objectives:** To assess the etiologies of headache seen at an emergency department, to determine the warning signs and symptoms of serious pathology, and to evaluate the usefulness of CT scan.

**Material and methods:** Records of the emergency department between June 1, 2010 and May 31, 2011 were reviewed. Headache was the chief complaint in 341 patients. To assess outcome, clinical history, neuroophthalmological and neurological findings, vestibular disturbances, and hemiparesis. Brain CT scan was performed in 102 children and abnormalities were found in eight: Shunt dysfunction in five, CNS tumors in two, and an arachnoid cyst in one.

**Conclusions:** The majority of children presenting at the emergency department because of headache do not have serious underlying pathology. A detailed neurologic examination will identify those patients who are at risk of serious pathology and that require imaging studies.

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**A POSSIBLE RELATION OF METHYLENETETRAHYDROFOLATEREDUCTASE (MTHFR) GENE POLYMORPHISMS 677T/1298C TO MIGRAINE IN BOYS AND GIRLS.**

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**Introduction:** Women have been found to have a higher risk for migraine. The pathogenesis of migraine is known to be related to the presence of genetic polymorphisms of MTHFR mutations c677T>C and c1298A>C. The aim of the study is to examine the role of two MTHFR polymorphisms as risk factors for pediatric migraine and examine the differences between genders.

**Methods:** 47 patients (M=16, F=31) with migraine diagnosed according to the International Classification of Headache Disorders were randomly selected. The mean age of the study group was 13.4 yrs (SD=3.5). The control group (M=150, F=150) consisted of population-based healthy people ages 18-30. DNA testing for MTHFR 677C>T, 1298A>C mutations were performed. MTHFR genotypes were determined by PCR using specific primers.

**Results:** Amongst patients with aura, girls had higher frequency for c1298A>C and c677T>C mutations than boys: 46.6% vs 20% and 26.7% vs 13.3% respectively. In the patients’ group without aura, girls also had higher frequency for mutation of c677T>C than boys, 33.3% vs 16.7% respectively. Comparing the overall migraine group with controls, we also found higher frequency for mutations in women with migraine (54.8% vs 48% for 1298A>C; 58.1% vs 40% for 677C>T).

**Conclusion:** Our study shows that girls have a higher frequency for migraine than boys. We found that girls with migraine (with aura and without aura) have increased frequency of c677T>C mutation. The present result indicate a possible contribution of MTHFR gene polymorphisms to migraine headache generation in children.

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**CHRONIC AND RECURRENT VERTIGO AND DIZZINESS IN CHILDREN AND ADOLESCENTS**

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**Introduction:** Vertigo and dizziness are most bothersome in disorders causing chronic or recurrent complaints. Migraine related vertigo is one of the most frequent causes of vertigo and dizziness in childhood and adolescence. Pediatric neurologists need to be familiarized also with the rare diagnosis, which might be missed by general pediatricians.

**Methods:** A retrospective analysis on 132 patient with chronic (>3 month) and recurrent (> 3 attacks) vertigo/dizziness who presented to a referral vertigo center in a 1, 5 year period (demographics, medical history, neuroophthalmoental and neurological findings, vestibular testing, diagnosis).

**Results:** Mean age of patients was 12, 7 ± 2 years (range 1, 4 - 18, 8 years, 60% female). Most frequent diagnosis was migraine (33%), followed by somatoform vertigo (24%) and peripheral vertigo (benign paroxysmal positioning vertigo, unilateral or bilateral failure, Ménière’s disease, 16%). Less frequent diagnoses were cerebellar ataxia (6%), orthostatic dysregulation (6%) and vestibular paroxysmia (5%). Headache was present in 60% of all patients and in76% with migraine related vertigo. Rotational vertigo was described by 51%. Permanent dizziness was complained in 24%. Vertigo or dizziness in patients with migraine last less than 1 hour in 54% of attacks.

**Conclusion:** Migraine is the most common cause of recurrent vertigo and dizziness in childhood and adolescence. Somatoform vertigo ranks second, followed by different forms of peripheral vertigo. Headache is the most prevalent accompanying symptom. An accurate medical history taking and careful physical examination are most relevant to make the correct diagnosis.

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**PREVALENCE OF HEADACHE AMONG ADOLESCENTS IN NORTHERN ISRAEL**

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**Objective:** To estimate the prevalence of headache among adolescents in Northern Israel.

**Introduction:** Headache accounted for 0.63% of the consultations with a similar sex ratio. Extracranial infections were found in 34.7% of the patients and headache was isolated (headache without etiology that does not recur within the following 6 months) in 21%. Headaches associated with an underlying disease accounted for 17.8% of all cases. Hydrocephalus was observed in 33.8% of these patients. The events were considered as primary headaches in 14.7%. Fever and vomiting were seen related to both benign and more serious pathology. Symptoms associated with intracranial disorders were: ataxia, papilledema, sensory disturbances, and hemiparesis. Brain CT scan was performed in 102 children and abnormalities were found in eight: Shunt dysfunction in five, CNS tumors in two, and an arachnoid cyst in one.

**Conclusions:** The majority of children presenting at the emergency department because of headache do not have serious underlying pathology. A detailed neurologic examination will identify those patients who are at risk of serious pathology and that require imaging studies.

**P229**

**PREVALENCE OF HEADACHE AMONG ADOLESCENTS IN NORTHERN ISRAEL**

Jacob Genizi, Isaac Sigou, NogahKerem, El Shahar. Pediatric Neurology Unit, Bnai Zion Medical Center, Bruce Rappaport School of Medicine, Technion, Haifa Israel

**Objective:** To estimate the prevalence of headache among adolescents in Northern Israel.
**Methods**: A self-administered, anonymous questionnaire was presented to 2,088 tenth grade students attending 19 high-schoo...п; 2) Jeonju Public Health Center, Sun Jun Kim 1, Sun Young Yoo 1, Kyeoung Sook Kim 2. 1) Chonbuk National used. Propranolol. Analgesics and triptans were adequately and successfully were 29 prophylaxis using Ca blockers, anti depressants, Valproate, and cerebrospinal fluid, 1 with moyamoya disease. The treatment options with migraine. Brain MRI were done for 31 patients, and we have findings based on ICHD-II were 33 migraines (75%) in which 14 females, mean age was 11.8 ± 3.1 ranging from 4 to 17.3 years of age. In migraineurs, there were 12 with positive family history, and 19 (58.8%) were males and the others (41.2%) were females, mean age was 11.8 ± 3.1 ranging from 4 to 17.3 years of age. Final diagnoses based on ICHD-II were 33 migraines (75%) in which 14 with aura. In migraineurs, there were 12 with positive family history, of this 9 whose mothers have migraine. There were 8 with orthostatic dysregulation (OD), of this 7 were associated with migraine. We have 6 patients with psychosomatic headache, of this 5 were associated with migraine. Brain MRI were done for 31 patients, and we have found 4 secondary headache patients, including 3 with decrease of cerebrospinal fluid, 1 with moyamoya disease. The treatment options were 29 prophylaxis using Ca blockers, anti depressants, Valproate, and Propranolol. Analgesics and triptans were adequately and successfully used.

**Conclusion**: Our data suggests that occipital nerve block were safe and effective treatment for the children with occipital neuralgia.

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**THE EVALUATION OF PROPHYLACTIC TREATMENT OF THE CHILDREN WITH MIGRAINE BY USING PEDMIDAS SCORE**

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**OBJECTIVES:** Migraine is a significant problem and childhood migraine can significantly impair a child’s quality of life. The aim of this study is to evaluate the efficacy of prophylactic treatments of our patients diagnosed as migraine by using Pediatric Migraine Disability Assessment and Score (PedMIDAS).

**METHODS:** Children with migraine aged between 6-17 years were followed-up at least 6 months and PedMIDAS questionnaire were applied at 0, 3 and 6 months.

**RESULTS:** The changes between PedMIDAS scores of 0-3 month, 0-6 month vs 3-6 month of patients who were given prophylactic therapy were significantly higher than the patients who did not receive any therapy. The changes between PedMIDAS scores of 0-3 months were 21.1±11±14.68 days in topiramate group, 9.0±9.30 days in flunarizine group and 26.8±11.89 days in propranolol group. The changes between PedMIDAS scores of 0-3 months were significantly higher in topiramate and propranolol groups than flunarizine group (p<0.05). The number of days on analgesics treatment significantly decreased in the patients who used topiramate and propranolol treatments than flunarizine group (p<0.05). The number of days on analgesics treatment significantly decreased in the patients who used topiramate and propranolol treatments than flunarizine group (p<0.05). The number of days on analgesics treatment significantly decreased in the patients who used topiramate and propranolol treatments than flunarizine group (p<0.05).

**CONCLUSIONS:** PedMIDAS scoring system was observed to be useful when evaluating the efficacy of pharmacological agents used in the prophylactic therapy of pediatric migraine. Topiramate and propranolol therapies were shown to lower the PedMIDAS scores better than flunarizine therapy.

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**TOPIRAMATE FOR MIGRAINE HEADACHES IN A PEDIATRIC POPULATION**

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**Introduction:** Migraine is the most frequent primary headache in pediatric population. Migraine incidence increases with age, affecting 11% of children between 5 and 15 years. Up to 25% of patients require preventive treatment due to high frequency, severity or repercussions of episodes. Topiramate has proven effective for migraine.

**Objective:** Assess response and safety of Topiramate for migraine in a pediatric population.

**Methods:** Prospective study between 04/01/2008 to 10/31/2013 at the Headache group, Pediatric Neurology Department, Pereira Rossell Children’s Hospital, Montevideo, Uruguay. We included children up to 15 years old with migraine, classified according to the International Classification of Headaches Disorders, 2nd Edition. Topiramate was introduced in patients with 3 or more episodes per month. We started with 0.5mg/kg/day, increasing dose to 1mg/kg/day, maximum 2mg/ kg/day or 100mg/day. Effectiveness was considered when a 50% or more reduction in episodes occurred. Adverse effects were assessed by questionnaire to patients and their family.

**Results:** 190 patients with primary headaches consulted in this period, 121 (63.9%) had migraine. In the migraine group 59% (n=72) were girls, mean age was 9.63 years. 58 patients (48%) were treated with Topiramate, 60% (n=36) were girls and mean age was 9.74 years. Topiramate reduced episodes in 89.6% (n=52) of patients. In 2 patients there was no response to treatment and in 6 patients treatment was discontinued due to worsening of headaches or secondary effects (gastrointestinal, fatigue, muscular weakness) Secondary effects disappeared after treatment discontinuation.

**Conclusions:** Topiramate is effective and secure for migraine preventive treatment.

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**HEADACHES ASSOCIATED WITH BILATERAL CHOROID PLEXUS XANTHOGANULOMAS - ARE THEY ALWAYS BENIGN? CASE REPORT AND LITERATURE REVIEW**

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**Introduction:** Xanthogranulomas of the choroid plexus (CPXG) are benign tumors which are most often found incidentally at autopsy. They have been reported in 1-4.7% of all autopsies. They are more common in the elderly populations and are very rare in children. Here we report a 4 year old boy with unusual headaches, bilateral CPXG and complete symptom-resolution after M1-guided laser ablation (MGLA).

**Methods:** Case Report and Literature Review.

**Case Description:** A 4 year-old, previously healthy boy presented to clinic with headaches progressing from a few times a week to 3-4 times daily over the course of several months. They were exacerbated by sleep and lying supine. Lying with an elevated head decreased the severity but not the frequency of the headaches. They were intermittently associated with “blurred vision” but no photo/phonophobia or nausea. NSAIDS provided minimal pain relief. Neurological examination, including fundoscopy, was normal. Magnetic resonance imaging of the brain revealed bilateral CPXG. Lumbar puncture showed normal opening pressures and magnetic resonance venography was negative. The patient underwent stereotactic MGLA of the CPXG resulting in a decrease in the size of the CPXG and complete resolution of his headaches.

**Conclusion/Discussion:** Xanthogranulomas of the choroid plexus may present with unusual headaches in childhood and require detailed assessments and investigations. Intermittent positional obstruction of CSF flow and changes in CSF secretion may not be reflected in CSF pressure measurements. Clinical history is essential for guidance of therapy. MGLA proved to be a safe and effective treatment modality.

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**OPHTHALMOPLAGIC MIGRAINE: IS IT A RECURRENT 3RD CRANIAL NERVE NEUROPATHY?**

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**Background:** Ophthalmoplegic migraine (OM) is an uncommon type of headache, reclassified under cranial neuralgias in 2004. The International Classification of Headache Disorders defined OM as at least 2 attacks of “migraine-like” headache followed within 4 days by III, IV and/or VI cranial nerve (CN) palsy.

**Aim:** To describe clinical and neuroimaging findings of two adolescents with OM and review the literature on OM in pediatrics.

**Methods:** Retrospective review of clinical records and all cases of OM published since 2004.

**Results:** **Case 1:** A 13-year-old female, with previous migraine, had two episodes of OM at 10 and 13 years of age. She developed ocular pain and complete left third CN palsy. Brain MRI showed third CN enhancement. She was put on prednisone with complete recovery. **Case 2:** A 15-year-old female with a history of migraine had two attacks of hemicranial headache, ocular pain, eyelid ptosis, and diplopia with spontaneous full recovery. MRI showed left third CN enhancement. Twenty-one cases have been reported. OM onset ranged from 9 months to 16 years and 56% had a history of headache. MRI showed third CN gadolinium enhancement in 69% of cases and in only one the fourth CN was involved. At follow-up imaging, 17% of cases had third CN thickening without enhancement.
**Conclusion:** OM is a rare condition in pediatrics. Brain MRI with third CN enhancement confirmed the diagnosis. The physiopathology remains unknown. A recurrent demyelinating cranial neuropathy has recently gained favor based on MRI findings but vascular/inflammatory mechanisms also has been considered.