

# Intractable Chronic Migraine in Adolescent: Multidisciplinary Approach

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## Abstract

Chronic migraine is a severe neurological disorder characterized by the presence of headache for 15 or more days/ month, for more than three months. Pain, on at least eight days/month, has the features of migraine. Pain is often intense, disabling and resistant to the usual treatments. Other disorders such as photophobia, nausea-vomiting, diarrhea, sleep and mood disorders can be found in combination with chronic migraine pain. The long-lasting migraine pain may be favored by the presence of factors such as hormonal changes in the menstrual period, or states of anxiety, stress, mood deflection, or overuse of symptomatic drugs with rebound effect.

We report the case of a 14 year-old female patient, with positive familiarity for migraine, which was brought to our observation for the presence of chronic headache with daily frequency migraine-like attacks, highly disabling and resistant to pharmacotherapy. During the hospitalization, a wash-out of the pharmacotherapy was performed, associated with the autogenous training, muscular relaxation exercises, psychological support and introduction of Lamotrigine for prophylactic therapy. Our patient showed a considerable amelioration with this multidisciplinary approach.

## Introduction

Migraine is a primary headache, with prevalent onset in juvenile age, highly disabling and affecting approximately 12% of the general population (in pediatric age: from 3% in younger school-age children to 15 - 20% in older adolescents with 0.2-0.5% of chronic migraine). [1,2] Epidemiological studies have highlighted its high prevalence and significant social and economic importance. Migraine is the most common cause in the world of pain in school-age children and it has been noted that its prevalence grows in tandem with the child's age. [3] The fluctuation of hormonal parameters may have a role in the onset of the disease. In fact, below the pubertal era it is more common in the male, above it becomes more common in the female gender, as well as in the adult. Migraine can seriously affect quality of life, school or work attendance, study performance and even socialization with peers in children [4-6]. For all these reasons its social impact is enormous. Migraine is the seventh-highest cause of disability worldwide [7-8].

Chronic migraine usually affects people with history of migraine that, from episodic, becomes progressively more frequent until becoming chronic. With the increase in frequency we often witness the change in the typical characteristics of migraine; therefore the headache can also simulate characteristics of tension headache. In Table 1, diagnostic criteria for chronic migraine, according to International Classification of Headache Disorders, 3rd edition.

## Case report

We report the case of a 14 year-old female patient, with positive familiarity for migraine, which was brought to our observation for the presence of chronic headache with daily frequency, highly disabling migrainous attacks and resistant to pharmacotherapy. She described states of anxiety and sudden changes in mood. We evaluated recent, remote, physiological and family history of the patient and performed objective and neurological examination, psychological and pedagogical evaluation. Our group of work analyzed blood samples and electroencephalographic and neuroradiological investigations.

In family history we found that the parents were not consanguineous and we reported familiarity for migraine, for type I diabetes mellitus and for undefined thyroid disease. Our patient was born from the first pregnancy of two (first: 19 year old male, in apparent good condition). Normodecourse pregnancy not associated with alcohol intake or smoking habit. No reported trauma or intake of drugs or substances with potential damaging effects on gestation.

**Table 1:** Diagnostic criteria for Chronic Migraine [9].

- A. Headache (migraine-like or tension-type-like<sup>1</sup>) on 15 days/month for >3 months, and fulfilling criteria B and C
- B. Occurring in a patient who has had at least five attacks fulfilling criteria B–D for 1.1 Migraine without aura and/or criteria B and C for 1.2 Migraine with aura
- C. On 8 days/month for >3 months, fulfilling any of the following 2:
1. criteria C and D for 1.1 Migraine without aura
  2. criteria B and C for 1.2 Migraine with aura
  3. believed by the patient to be migraine at onset and relieved by a triptan or ergot derivative
- D. Not better accounted for by another ICHD-3 diagnosis

Frequently the patient with chronic migraine can become drug-resistant and is induced to take a large amount of over-the-counter pain medication. This factor can aggravate the pathology, in a vicious circle. The debate is still open about considering this situation as a pathology in its own right (called MOH, headache overuse of drugs) or not [10].

Here we report an interesting case study of an adolescent suffering from chronic migraine, refractory to several usual pharmacological therapies, symptomatic as prophylaxis, with good response to a multidisciplinary approach.

Pregnancy carried out at term with caesarean section. Weight at birth: 4000 grams. Apgar score: 9/10. Good cardiorespiratory adaptation to extrauterine life. She reported healthy nutrition but characterized by capriciousness, regular sleep-wake rhythm although sometimes her sleep was disturbed due to the headache.

The patient appears to be vaccinated according with Italian law. Her psychomotor development was reported in the standard for timing and methods of acquisition. At the time of hospitalization, she showed an excellent academic performance but poor social integration in the group of schoolmates. Headache appeared about two years ago, with severe exacerbation of the symptoms in the 12 months prior to admission to hospital, with an increase in frequency and intensity of the seizures. Pain was described as a multi-weekly or daily, pulsating, located in the temporo-parietal regions, monolaterally or sometimes bilaterally, associated with nausea, vomiting, photophobia, phonophobia. The symptomatology was strongly disabling for the patient, limited in the activities of daily life and often forced to be absent from school. The patient did not describe any symptomatology due to the presence of aura. In association with the headache, the girl showed a clear deflection of mood. Eight months before admission, for about 4 months, she had been treated with Betamethasone and Amitriptyline at another hospital. This therapy did not lead to the remission of symptoms and, due to the onset of side effects such as irritability and manifestations of skin hypersensitivity, was suspended. Therapy based on administration of Pizotifen and then Flunarizine was tried but stopped for occurrence of side effect like drowsiness and for poor benefits, and replaced by a different therapy with Topiramate 75 mg daily, Naproxen 500 mg x 2 times a day and short cycles with steroids. Headache, however, was also refractory to this therapy, with the increase in frequency and intensity of seizures, which forced the patient to abuse of analgesics when needed in the last period. Non-pharmacological treatment was not administered.

At the time of admission at our headache center the patient fulfilled the diagnostic criteria for chronic migraine. At the physical examination we observed: skin and mucous membranes without anomalies, normotransmitted vesicular murmur, eupnoic breath. Non-painful abdomen on superficial and deep palpation, on all quadrants. The neuropsychiatric evaluation revealed: suffering aspect for the migraine symptomatology, although the patient was oriented

in spatio-temporal parameters. Isochoric, isocyclic, normoreactive to photostimulus pupils. No deficit of muscular strength. Not anomalies of balance and coordination. Normal reflexes without apparent asymmetries. No sign of meningeal irritation. Deflection of mood with distrust in the possibility of healing from pain. The psychopedagogical evaluation highlighted cognitive abilities in the norm, considerable anxiety, emotional difficulties and mood deflection that can be correlated both to the phase of development undergone and to the presence of long-lasting pain symptomatology.

The blood tests highlighted: ammonium and lactate in the standard; normal blood count, electrolytes, transaminases, creatine kinase, chemical-physical examination of the urine without anomalies; inflammatory indices and thyroid function in the norm. The virological study performed on the blood did not show any possible infectious cause for the symptoms. The electroencephalogram showed a pattern free of electrical anomalies, characterized by the constant attenuation of electrical activity in the occipital regions, due to the patient's inability to achieve adequate psychosensory relaxation. Visual evoked potentials (VEP) and eye examination revealed nothing unusual. For the completion of the diagnostic procedure brain MRI was performed, which did not show morphological and structural anomalies of the brain. In this phase we have highlighted a remarkable anxious state. It was not possible to infuse intravenous corticosteroids, rejected by the parents. In consideration of the long persistence of the pain, the therapeutic approach was modified and it was decided to perform the wash-out, with suspension of all the drugs administered to the patient. In this phase, our patient was supported through the implementation of relaxation techniques such as autogenic training and through the support of the psychologists present in our operative unit. After the washout period, the patient was given treatment with Lamotrigine 50 mg, magnesium supplement and Delorazepam 0.5 mg per day. With this therapy we obtained a considerable amelioration. In the following evaluations, at 15 and 30 days after discharge, the occurrence of migraine crises has not been reported.

## Conclusion

Chronic migraine is a pathological condition extremely difficult to decipher and even more difficult to treat; it is under-diagnosed and under-treated. This is true in adults but also and especially in

children because of their inability to describe their symptoms in a comprehensive manner. Long-lasting migraine pain generally involves severe reduction in quality of life. Frequently it is associated with comorbidity, like depression and anxiety, which added to the persistence of intense pain, induce the patient to overuse of over-the-counter analgesic drugs. This favors the persistence of the symptomatology. In case of drug abuse, it becomes essential to carry out a wash-out treatment, as the common therapies lose effectiveness. However the response to therapy is not constant in all patients, with wide inter-individual variability. Furthermore, in children it is not possible to administer some drugs due to age, side effects, lack of consent from the parents. In our experience, described in this case report, we obtained a good amelioration with a multidisciplinary approach, based on pharmacological wash-out (supported by psychological support, relaxation practices such as autogenic training and muscular relaxation exercises) and with the administration of Lamotrigine. Lamotrigine in most of the studies in the literature was more effective in preventing migraine with aura than migraine without aura [11-13]. However, there is scientific evidence of its possible efficacy in migraine without aura [14]. In addition, this drug may be useful for its well-known antidepressant and mood-stabilizing action. In conclusion, in an insidious and difficult to treat pathology such as chronic migraine, we suggest the possibility of considering Lamotrigine as a possible therapeutic choice after the failure of first-line therapies or if it is impossible to use them.

## References

1. Poyrazoğlu HG, Kumandas S, Canpolat M, Gümüş H, Elmali F, Kara A, et al. The prevalence of migraine and tension-type headache among schoolchildren in Kayseri, Turkey: an evaluation of sensitivity and specificity using multivariate analysis. *J Child Neurol* 2015; 30: 889-895.
2. Lewis D. Pediatric migraine. *Neurol Clin* 2009; 27: 481-501.
3. Split W, Neuman W. Epidemiology of migraine among students from randomly selected secondary schools in Lodz. *Headache* 1999; 39: 494-501.
4. Powers SW, Patton SR, Hommel KA, Hershey AD. Quality of life in paediatric migraine: characterization of age-related effects using PedsQL 4.0. *Cephalalgia* 2004; 24: 120-127.
5. Kashikar-Zuck S, Zafar M, Barnett KA, Aylward BS, Strotman D, Slater SK, et al. Quality of life and emotional functioning in youth with chronic migraine and juvenile fibromyalgia. *Clin J Pain* 2013; 29: 1066-1072.
6. Vannatta K, Getzoff EA, Gilman DK, Noll RB, Gerhardt CA, Powers SW, et al. Friendships and social interactions of school-aged children with migraine. *Cephalalgia* 2008; 28: 734-743.
7. Steiner TJ, Stovner LJ, Birbeck GL. Migraine: the seventh disabler. *Headache* 2013; 53: 227-229.
8. Papetti L, Spalice A, Nicita F, Paolino MC, Castaldo R, Iannetti P, et al. Migraine treatment in developmental age: guidelines update. *J Headache Pain* 2010; 11: 267-276.
9. Headache Classification Committee of the International Headache Society (IHS). *The International Classification of Headache Disorders, 3rd edition*. *Cephalalgia* 2018; 38: 1-211.
10. Negro A, Martelletti P. Chronic migraine plus medication overuse headache: two entities or not? *J Headache Pain* 2011; 12: 593-601.
11. Steiner TJ, Findley LJ, Yuen AWC. Lamotrigine versus placebo in the prophylaxis of migraine with and without aura. *Cephalalgia* 1997; 17:109-112.
12. D'Andrea G, Granella F, Cadaldini M, Manzoni GC. Effectiveness of lamotrigine in the prophylaxis of migraine with aura: an open pilot study. *Cephalalgia* 1999; 19: 64-66.
13. Lampl C, Buzath A, Klinger D, Neumann K. Lamotrigine in the prophylactic treatment of migraine aura - a pilot study. *Cephalalgia* 1999; 19: 58-63.
14. Mirzaei MGR, Azimian M, Moezzi M, Vameghi R, Rafeian-kopaei M. Effect of Lamotrigine on Prophylaxis of Pediatric Classic Migraine. *Iran J Child Neuro* 2009; 3: 35-38.