Migraine in Childhood and Adolescence: What is the Possible Role of Emotions and Relationships?

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Editorial

The International Classification of Headache Disorders lists several types of headaches [1]. Among primary headaches, migraine, tension-type headache and trigeminal autonomic cephalalgias are included. However, the distinction between migraine and tension-type headache, especially in children, is not always easy and the same subject can sometimes or periodically experience migraine and tension-type headache attacks. Therefore, several authors have supported the hypothesis of the existence of a pathogenic continuum affirming that migraine and tension-type headache may reflect dimensions of severity within the same headache construct [2].

Although the underlying mechanisms are not fully known, the hypothesis of migraine as a disorder caused by a neurovascular dysfunction is nowadays the most accepted. According to it, subjects presenting with neurovascular dysfunction would be more vulnerable to various factors that can determine the onset of migraine attacks. These can later reoccur due to a lowering of the “migraine threshold” or due to very intense or frequent triggers.

The migraine threshold is influenced by a genetic predisposition as well as by the effect of environmental factors that can trigger or facilitate the attacks such as psychological factors, hormones, diet, drugs and others (sleep deprivation, fatigue) [3]. These factors can all act as triggers and this can partly explain the extreme variability of the clinical presentation over time.

Thus, migraine is today considered a complex neurological disorder of higher mental functions and pain control mechanism without structural lesions. Specifically, causative mechanisms are represented by genetic predisposition, cortical hyperexcitability, habituation deficits and cognitive dysfunctions, instability of the autonomic nervous system and of the neurons energy supply [3].

So far, much is known about the biological basis of migraine in adulthood, adolescence and childhood.

More complex and undefined is the relationship between migraine and emotional states and affects. Overall, scientific literature based on evidence-based medicine criteria gives little emphasis and importance to this crucial aspect. The majority of studies have indeed considered migraine in children and adolescents as a paroxysmal phenomenon with a purely biological basis akin to other neurological disorders such as epilepsy. In line with this, studies on migraine treatment and pharmacotherapy reflect only a biological perception of the disorder [4].

Also methodologically refined population based studies, e.g. the one conducted by Sillampa et al. [5], although identifying the presence of significantly higher levels of total, internalizing, and somatic symptoms, as well as social and family problems, in children with migraine compared to those without headache, concluded that “only a minority of children with migraine or tension-type headache have high levels of psychiatric symptoms”. Also studies specifically focused on psychiatric comorbidity supported the same conclusion. For example, in a recent systematic review Bruijn et al. [6] found a strong evidence for the positive correlation between migraine and internalizing disorders, but explained this association as “a consequence of the nature of the disease rather than a sign of psychological dysfunctioning” and concluded that “children with migraine at referral to a specialist do not exhibit more psychological dysfunctioning and (to a lesser extent) do not exhibit more psychiatric comorbidity compared with healthy controls”.

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Nevertheless, several data give rise to an opposite point of view regarding the importance of the pathogenic role played by psychopathology in childhood and adolescence migraine. Also in Brujin’s study [6], children suffering from migraine have more somatic complaints and exhibit internalizing behavior than healthy children. Of note, internalizing behaviors represent the core feature of emotional disorders, a category that is similar and overlaps with the old concept of neurosis that constitutes the starting point for an in-depth comprehension of non-severe childhood psychopathology.

Several authors have analyzed this topic and showed in controlled clinical studies that in children and adolescents suffering from migraine the prevalence of several psychiatric disorders is significantly higher than in healthy controls: oppositional defiant disorders and conduct disorders [7], internalizing disorders (33%), specifically anxiety and depression [8-10]. In a recent meta-analysis, by applying rigorous criteria we also demonstrated that patients with migraine and tension headache showed significantly more psychopathological symptoms than healthy controls, although the difference was significantly more marked in the area of Internalizing disorders; furthermore, no differences emerged between migraine and TTH [11].

The same findings can be derived from population-based studies. Antila et al. [5] in a study in 1135 Finnish children found the presence of important difficulties in family functioning, social relationships and a significant increase in internalizing and total behavioral problems (28.8%) in migraine children.

Fearon and Hotopf [12] in a cohort study in 17,414 children found that children with frequent headache had an increased risk of recurrent episodes of headache or migraine, multiple physical symptoms (OR 1.75) and psychiatric morbidity (OR 1.41) in adulthood. The authors suggested that somatic symptoms in childhood such as frequent headache and migraine can be explained as “signs of an underlying psychosocial adversity”. Likewise Cahill [13] in a large and rigorous longitudinal study in a cohort of children born in Dunedin (New Zealand) reported that 9 and 15 years old subjects with high levels of stress and anxiety had a 2-3 times increased risk of later developing migraine or migraine plus tension-type headache.

The author concluded that these results gives further support to the idea that “migraine should represent a subtype of headache of particular interest for psychiatrists” and that they highlight the significant association “between stress, personality traits, psychiatric disorders and migraine”.

Marmorstein [14] in a sample drawn from the Minnesota Twin Family Study, a community-based study of adolescents and their families (n=674, 17-year-old female adolescents and their biological parents) found that “parental depression, antisocial behaviour and drug dependence were associated with offspring migraine”.

Furthermore, looking at the data related to the effectiveness of therapies for idiopathic headaches (migraine included) of childhood and adolescence, several meta-analyses show that psychological therapies are significantly effective. As Eccleston [15] stated, “there is good evidence that psychological treatments, in particular relaxation techniques and cognitive-behavioral therapies are efficacious in reducing chronic headache frequency and severity in children and adolescents” and the author clearly affirms that migraine is among the headache types studied. A similar result is shown also by Trautmann’s meta-analysis [16].

Contrary to that, in children and adolescents, pharmacotherapy alone does not seem to be very effective compared to placebo. In fact, only one drug is approved by the FDA for migraine prevention in childhood and 4 randomized-control trials have shown inconclusive and inconsistent results [17-20].

In conclusion, based on a literature review we can sustain that there is a certain association between migraine and psychiatric disorders.

The delay and resistance observed in the neuropsychiatric and pediatric literature in accepting the evidence of an association between migraine and psychopathology is probably linked to the kind of approach used with these patients.

It is impossible to understand all fundamental components of the disorder using only a neurological and pediatric approach that gives space only to the somatic component.

It is necessary to use a synergic, clinical and multi-disciplinary approach that include also a psychological-psychiatric expertise in order to understand the universality and repetitiveness of the mechanisms that lead to the unconscious transduction of psychological pain into somatic pain [21-23].

Migraine in children and adolescents, although not representing an actual psychiatric disorder, is constantly and invariably included in the category of psychosomatic phenomena where psychological factors play a crucial part.

Very often if a child and his family are observed with a specific expertise, intense familiar conflicts, an history of adverse life-events such as parents’ separations and/or divorce characterized by tensions, severe family fights and excessive parental expectancies emerge. Specific personality traits are also frequently seen in the child: Adultification of the children that appear hyper-responsible and take on a protective role towards their parents; rigid and normative personality with a very strict attitude towards themselves [23, 24]. Other authors have underlined the presence of a poor or reduced empathy and ability to get in contact and psychologically handle feelings and emotions [25, 26]. These latter are not perceived by the patient that frequently reveal the tendency to deny all difficulties, tensions, hostilities and negative emotions [21-24, 27]. Well-known authors, such as Kandel and Marty have always stressed the constant bidirectional interaction between mind and brain [28, 29].

Despite the literature data that are now available on the relationship between emotions and somatic pain, several complex questions remain still open. In particular, the nature of the connection between migraine and psychopathology in children and adolescents and what kind of diagnostic and therapeutic approach could be the most appropriate with this very complex patients.
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