

HEADACHE DISORDERS**Migraine, Celiac Disease and Intestinal Microbiota**Hakim Rahmoune, MD^{1,2*} and Nada Boutrid, MD^{1,2}¹Pediatrics Department, Setif University Hospital; Setif-1 University, Algeria²Genetic & Nutritional Diseases Laboratory; Setif-1 University, Algeria

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Investigators from four European tertiary care hospitals (in Paris, France; Milan, Udine and Perugia, Italy) performed a case-control study of children and adolescents aged 6 to 17 years diagnosed with primary headaches in the emergency department by a pediatric neurologist using the validated ICHD-3 criteria. They enrolled 648 controls and 424 cases (257 patients with migraine and 167 with tension-type headache). Investigators masked to a patient's group allocation diagnosed functional gastrointestinal disorders using the Rome III diagnostic criteria. Eighty-three (32%) children and adolescents in the migraine group were diagnosed with functional gastrointestinal disorders compared with 118 (18%) in the control group ($p < 0.0001$). Multivariable logistic regression showed a significant association between migraine and three gastrointestinal disorders: functional dyspepsia, irritable bowel syndrome and abdominal migraine. The authors concluded that correct recognition would have an impact on the diagnosis and therapeutic management of these pediatric gastrointestinal disorders. [1]

COMMENTARY. This well conducted multicenter trial included all functional gastrointestinal disorders defined according to ROME III criteria. However, among digestive afflictions, celiac disease (CD) deserves particular attention. CD patients may exhibit a myriad of extra-intestinal symptoms, which includes neurological symptoms such as migraine. Studies report a high frequency of migraines in patients with CD and vice versa, and describe the beneficial effect of a gluten-free diet in these cases [2]. Also, the prevalence of CD among children with irritable bowel syndrome (IBS) is reported to be 4 times higher than among the general pediatric population [3]. Using the Rome III diagnostic criteria of functional gastrointestinal disorders would help to distinguish CD from the broad pool of IBS, with a potential consequent relief of migraine upon initiation of the appropriate diet.

On the other hand, recent findings regarding the role of the gastrointestinal microbiota in the gut-brain axis suggests that an unbalanced gut flora (i.e. dysbiosis) can be associated with neurological diseases like migraine. Enhanced pro-inflammatory immune responses have been reported with intestinal disorders associated with dysbiosis

and increased intestinal permeability (just like IBS and celiac disease) as well as in migraine patients [4]. Evidence suggests that alterations in gut microbiota could be a potent mediator in migraine [5]; this might explain, at least partly, the current study results. We are, definitely, what we eat!

Disclosures

The author(s) have declared that no competing interests exist.

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