

PEDIATRIC NEUROLOGY BRIEFS

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HEADACHE DISORDERS

RELATION OF TRIGGER FACTORS TO MIGRAINE WITH AURA

Researchers from the University of Copenhagen, Denmark studied the relation between natural trigger factors and migraine with aura (MA) in 27 patients who reported that bright or flickering light or strenuous exercise would trigger their attacks. Patients were provoked by photic stimulation, strenuous exercise, or a combination of these two factors. Three patients (11%) reported attacks of MA following provocation. An additional 3 patients reported migraine without aura (MO) attacks. Following exercise, 17% developed an aura, 4 out of 12 patients reported migraine (1 MA, 3 MO) headaches, while no patients developed attacks following photic stimulation alone. Patients were exhausted after the exercise and 5 developed nausea, 2 vomited, and 6 complained of dizziness. Light stimulation, especially low frequency of 1-5 Hz, was considered unpleasant but was well tolerated. (Hougaard A, Amin F, Hauge AW, Ashina M, Olesen J. Provocation of migraine with aura using natural trigger factors. **Neurology** 2013 Jan 29;80(5):428-31). (Respond: Dr Olesen. jeol@regionh.dk).

COMMENT. In an editorial (Goadsby PJ, Silberstein SD. **Neurology** 2013 Jan 29;80(5):424-5), the trigger effect of exercise demonstrated in the present study is considered small (10%) compared to that of nitroglycerin infusion that induces migraine and premonitory symptoms in 75% of patients. (Iversen H. Human migraine models. **Cephalalgia** 2001 Sep;21(7):781-5). Food triggers or sensitivities, frequently discussed in the migraine literature (Egger J, Carter CM, Wilson J, et al. **Lancet** 1983 Oct 15;2(8355):865-9) (Millichap JG, Yee MM. **Pediatr Neurol** 2003 Jan;28(1):9-15), have variable effects or mechanisms. As an example, ingredients in chocolate implicated in the mechanism of dietary-triggered migraine include phenylethylamine, theobromine, caffeine, and catechin. These chemicals may initiate a headache by alteration of cerebral

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blood flow and release of norepinephrine from sympathetic nerve cells. (Martin VT, et al. **Med Clin North Am** 2001 Jul;85(4):911-41). Alternatively, a chocolate trigger may be explained by a premonitory food craving; and chocolate is consumed because of a response to a migraine attack and not a cause. Also, an urge to exercise may represent a premonitory symptom of migraine. The classic advice to avoid suspect triggers may be incorrect, and the migraineur should instead, be advised to become habituated to the provocative factor. (Martin PR. Managing headache triggers: think 'coping' not 'avoidance.' **Cephalalgia** 2010 May;30(5):634-7). Indeed, some adult patients advised to avoid chocolate and red wine would rather suffer an occasional migraine.

DEMYELINATING DISORDERS

LONG-TERM OUTCOME OF PEDIATRIC-ONSET MS

Researchers at University Hospital of Wales, Cardiff; and University of Bristol, UK studied the clinical features and disability in pediatric-onset multiple sclerosis (POMS) in a population-based cohort with long-term follow-up, and compared to a cohort of patients with adult-onset (AOMS) disease. Of 2068 patients identified with MS since 1985, 111 (5.4%) had POMS and in 110, disease onset was relapsing. Age of onset ranged from 4 to 17 years (mean, 15 years). Initial most frequent manifestations were motor in 52.8% and optic neuritis in 26.4%. No significant differences in sex ratio, familial recurrence, relapse rate, ethnicity or clinical symptoms at presentation were identified between POMS and AOMS. Compared to AOMS, POMS cases had a longer interval to second relapse (5 vs 2.6 years, $p=0.04$), less common primary progressive disease (0.9% vs 8.5%, $p=0.003$), longer time to develop secondary progressive disease (32 vs 18 years, $p=0.0001$), and longer to reach disability milestones ($p<0.0001$). Incomplete recovery from initial event was significantly associated with a shorter time to reach disability milestones ($p=0.01$). Patients with POMS become disabled at a younger age and have a poorer age-related prognosis than AOMS cases. (Harding KE, Liang K, Cossburn MD, et al. Long-term outcome of paediatric-onset multiple sclerosis: a population-based study. **J Neurol Neurosurg Psychiatry** 2013 Feb;84(2):141-7). (Respond: Professor Neil C Robertson, Institute of Psychological Medicine and Clinical Neuroscience, Cardiff University, University Hospital of Wales, Heath Park, Cardiff, CF14 4XN, UK. E-mail: robertsonnp@cardiff.ac.uk).

COMMENT. While prognosis of POMS appears more benign than that of AOMS in early disease, later stages of the disease are similar to AOMS and lead to an earlier disability.

FIBRONECTIN AGGREGATION AND REMYELINATION IN MS

Researchers at Universities of Groningen and Amsterdam, The Netherlands, and Universities of Cambridge and Edinburgh, UK examined the expression of the extracellular matrix molecule fibronectin on demyelinating injury and how this affects remyelination by oligodendrocytes progenitors. In lesions undergoing remyelination, fibronectin expression was transiently increased in demyelinated areas and declined as remyelination proceeded. In chronically demyelinated MS lesions, fibronectin expression