The Prognosis of Migraine

Studies suggest four non-exclusive patterns for the long-term prognosis of migraine. Some migraine sufferers become symptom-free for prolonged periods of time (Clinical Remission). Others continue to have headaches with fewer or less typical migraine features, resembling tension-type headaches, rather than full-blown migraine (Partial Clinical Remission). Migraine attacks may continue over many years without major changes in frequency, severity or symptom profile (Persistence). Finally, in some, migraine attack frequency and disability may increase over time (Migraine Progression).

Defining Migraine Progression or Transformation

We emphasize that progression or transformation should be understood as the potential for evolution to a different form. Migraine does not inexorably progress like the neurodegenerative diseases. Furthermore, chronic migraine (CM) may also remit to an episodic form.

Progression or transformation of migraine is subdivided in three potentially overlapping forms. Typically, transformation refers to increases in attack frequency over time leading to CM; this process, termed clinical transformation, occurs in about 3% of episodic migraine sufferers in the population over the course of a year.

A less discussed and characterized issue is the physiological transformation of migraine, manifested through alterations in nociceptive thresholds (allodynia) and alterations in pain pathways (e.g., central sensitization). Allodynia refers to normally non-painful stimuli being perceived as painful. This state often develops after having migraine attacks for many years. Patients with allodynia during a migraine attack complain about not being able to comb their hair or to have a ponytail, shave or take a warm shower, etc. Allodynia, per se, seems to be a risk factor for clinical transformation.

Finally, in some individuals, definitive brain lesions including stroke and deep white matter lesions emerge; this process of anatomic transformation, particularly stroke, is sometimes considered a complication of migraine and is rare.

Risk Factors for Migraine Progression

There are two categories of risk factors for migraine transformation: non-modifiable and modifiable. Non-modifiable risk factors include age, female gender, white race, low educational level,
socioeconomic status and genetic factors. In contrast, addressing modifiable factors may, at least theoretically, decrease the rate of migraine progression and increase the rate of remission. *Modifiable risk factors* include:

- **Attack Frequency:** The chances of developing CM increase proportionally to the number of headaches within the past year.
- **Obesity:** Obese individuals have odds of developing CM from 2 to 5 times higher than migraine patients of normal weight.
- **Acute Medication Overuse:** Excessive use of acute medication has been traditionally considered a risk factor for poor migraine prognosis. Longitudinal evidence suggests that the risk is higher for compounds containing butalbital and opioids. The increased risk is seen if these medications are used five days per month.
- **Caffeine Overuse:** Individuals with incident CM in population based studies were more likely to be high caffeine consumers before the development of CM compared to patients with episodic headaches.
- **Snoring and Sleep Apnea:** Patients with incident CM in the population were also more likely to be habitual or daily snorers than control subjects.
- **Psychiatric Comorbidity and Stressful Life Events:** Individuals with migraine and depression, or facing major changes in life develop CM at a rate 2 to 3 times higher than control subjects.

**Conclusion**

Migraine progression is just one - and probably the least common - possible outcomes of migraine. However, being the most disabling, modifiable risk factors for migraine progression should be assessed in clinical practice. While we await clinical trials regarding the benefits of intervention in the prevention of CM, several interventions are justifiable based on their other established benefits. They include the important effort to decrease headache frequency. Monitoring the body mass index and encouraging maintenance of normal body weight is good practice in patients with and without migraine. Avoiding overuse of medications and caffeine is desirable apart from its potential benefit in preventing progression. Sleep problems should be investigated and treated. Psychiatric comorbidities should be identified and addressed. For these interventions, the possibility of preventing progression may motivate clinicians to offer good care and patients to engage in the treatment plan.

**References**

