Migraine is a common disorder and as old as mankind. A migraine attack leads to pulsating, throbbing, often unilateral head pain with distinctive accompanying symptoms. During an attack, patients are usually unable to continue working due to the disabling intense pain and accompanying symptoms, such as photo- and phonophobia, nausea and vomiting. Clearly, therefore, the impact of an acute migraine attack is severe. The past twenty-five years have seen an increasing amount of scientific research into the pathophysiology of this painful condition.

The migraine attack begins before the pain starts. Today, scientific research is focusing on the days leading up to the next attack. Migraine patients, by perceiving subtle sensory and emotional states during the two days prior to an attack, are often able to predict its onset. Often they report feelings of tiredness and lethargy; they have difficulty concentrating and they yawn frequently.

There are thus numerous indicators of an imminent painful migraine attack. Were we able to recognise these signs, we could maybe employ therapeutic strategies to stop the migraine attack before the pain develops.

Several migraine researchers have contributed to this monographic section of Functional Neurology, which examines this issue.

Gabriella Buzzi and co-workers review the literature and describe a number of premonitory symptoms. The authors stress the importance, for the designing of adequate therapeutic approaches, of accurate recording of premonitory symptoms.

Paolo Rossi and co-workers conclude that premonitory symptoms, an often neglected area of migraine research, may be used as a phenotypical markers to identify subgroups of migraine patients.

Peter Kropp and Wolf-Dieter Gerber, in a study on slow cortical potentials, show a pronounced CNV negativity in the two days prior to an attack, reflecting an altered state of cortical information processing. If patients could identify these altered states, pre-emptive therapeutic strategies could be employed.

Judit Áfra describes a study of habituation and intensity dependence of auditory cortical potentials, which tend to normalize just before and during the attack. She concludes that this may reflect an increase in central serotonergic activity.

Massimiliano Valeriani reviews studies on laser evoked potentials (LEPs) in migraine, which increase during the migraine attack. This may be due, in migraineurs, to a hypervigilance to painful stimulation. LEP studies may help to test the effectiveness and mechanism of action of pharmacological treatments for the migraine attack.

Bartolini and co-workers review papers on cerebral blood flow changes during the migraine attack and during the interictal period. The BOLD imaging technique in fMRI studies, in particular, may help to clarify cortical haemodynamics in the peri-ictal period.

In conclusion, the migraine attack begins before the pain starts. If the pain-free phase of the migraine attack could be identified, novel therapeutic strategies could be employed in order to prevent the migraine pain from developing.