

Study confirms impact of weather variations on migraine

Researchers show clear relationship between meteorological variations and migraine by correlating weather data with clinical data acquired from emergency care

BUDAPEST, HUNGARY, July 4, 2023 /EINPresswire.com/ -- Weather variations do have an impact on a subgroup of migraine, as confirmed by a [retrospective study presented at EAN 2023](#), the 9th Annual Congress of the European Academy of Neurology (EAN) in Budapest, Hungary.

Researchers at the Headache Center of Policlinico Gemelli Hospital in Rome, Italy, collected the clinical data of 1,742 patients who presented to the emergency department (ED) with migraine with or without aura (127 vs. 1,615) between March 2010 and March 2012. They then correlated the clinical data with the weather data from the Italian National Weather Service over the same period, using Spearman's correlation coefficients.

The team found out that a subgroup of migraineurs is highly sensitive to variations of meteorological factors, and that the number of ED admissions were directly correlated with the increase in temperature compared to the previous day.

Admissions were also directly correlated with the humidity level two days before the attack, and inversely correlated with the atmospheric pressure two days before, explained Dr Costanza Sottani, a neurologist at Policlinico Gemelli Hospital.

"The absolute value of modifications of temperature is not so important, but the modification itself is," she said. "Migraine attacks correlated with an increase in temperature two days before admission to the ED. The fact that it happens throughout two years mostly in the same way reflects the fact that it is not about absolute values or specific degrees, but really about the sudden changes."

Sottani and her colleagues hypothesised that any variation of weather parameters may interfere with neuronal excitability of the trigeminal-vascular system directly, or with structures correlated to it, facilitating the onset of attacks.

"Alternatively, it could be possible that quantitative variations of trigger factors may enhance the response of migraineurs to environmental stimuli," she added.

Confirming a myth

Migraine, a relapsing, remittent pleomorphic disorder characterised by recurrent attacks, may be triggered, or precipitated by several factors. Several clinical studies have considered the relationship between migraine or other forms of primary headaches and environmental factors such as weather conditions.

These studies have attempted to find correlations between documented migraine attacks and weather, focusing on variables such as barometric changes, lightning, temperature, and precipitation.

The aim of the Italian study was to confirm the influence of meteorological parameters on migraine attacks over two years, one of the longest time frames ever studied in migraine.

“About half of migraineurs identified changes in weather conditions as a trigger for the headache onset or as a cause of worsening of ongoing headache symptoms,” she said. “Many of our patients complain that the weather has an impact on their headaches or the frequency of the attacks. Some patients claim that they are “better than the weatherman” in forecasting. So, we actually wanted to confirm a ‘myth’, which other studies before had theorised and in part confirmed.”

The fact that patients visited the emergency department is particularly important because these patients suffer from a chronic pain disorder, which is usually managed in a non-emergency setting, she emphasised. “Visiting the emergency department could mean that patients are having a particularly severe attack or an attack that presents with different characteristics,” she said. “It could also mean that their regular medications aren’t working. Both these situations are remarkable from a clinical point of view.”

While the study only focused on weather conditions, it is reasonable to think that global warming might have a negative impact on migraine and headache disorders in general, as well as neurological conditions, she pointed out.

“A recent article published in Neurology showed that temperature extremes and variability are both associated with stroke incidence and severity, migraine headaches, hospitalisation in patients with dementia, and multiple sclerosis exacerbations,” she said.

The Italian team did not identify a specific phenotype among migraineurs, but the vast majority of patients were women (1,052 vs. 563 men), with a median age of 37 years, reflecting the general prevalence of migraine worldwide.

The study also confirms the prevalence of migraine without aura and with aura in the general population, with 1,615 and 127 patients, respectively.

Members of the press who wish to view the full presentation of the study may request press access to congress - onsite or virtual. A full copy of all abstracts from the congress is publicly available [here](#).

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