TheNational

Hot-headed

Laura Dixon

Last Updated: March 16. 2009 8:30AM UAE / March 16. 2009 4:30AM GMT

It's someting migraine sufferers have suspected for years: medical researchers have announced results that show migraines really can be triggered by the weather.

MIgraines are severely painful headaches cause nausea, vomiting and sensitivity to light and sound. Paulo Vecina / The National

In a report published in this month's issue of Neurology, researchers at the Beth Israel Deaconess Medical Center in Boston revealed for the first time how weather and air pollution affect headache pain. Their study of 7,000 patients found that hot weather brings on migraines, and showed specifically that for every 5°C that temperature increases, there is a 7.5 per cent increase in risk of severe headache.

The study examined air pollution and weather against the time and date of the patients' visits to the ER department of the hospital from May 2000 to December 2007, and compared the results for the 7,000 patients who were diagnosed with migraine, tension headache or unspecified headache. Researchers looked at the air temperature, barometric pressure, humidity and air pollution during the three days before the patient's hospital visit to see what role they played in triggering serious headaches.

"We chose to monitor an ER department rather than a general practice surgery because we needed to get an exact time for the onset of the headache, and couldn't tell that from clinic visits," explained Kenneth Mukamal, the study's first author and a doctor in the Division of General Medicine and Primary Care at BIDMC. Temperature changes were based on the general Boston area rather than precisely where the patient lived, or the precise environment where they work, but gave a good indication of general weather patterns.

Results showed that of all the environmental factors, air temperature in the 24 hours prior to the patient's hospital visit was most closely associated with headache symptoms. Lower barometric pressure 48 to 72 hours prior to the patient's visit also appeared to trigger headaches to a lesser degree, and air pollutants made no apparent difference.

"Certainly our results are consistent with the idea that severe headaches can be triggered by external factors," says Mukamal. "These findings help tell us that the environment around us does affect our health and, in terms of headaches, may be impacting many, many people on a daily basis."

He even goes so far as to suggest that greater environmental responsibility should be taken to avoid the risk of migraine in the future. As our planet heats up, more of us will suffer this debilitating condition.

"On a population basis, we need to be concerned about incremental temperature rises anyhow," he said, "and should advocate for responsible environmental management. The annual cost attributed to migraines is estimated at $17 billion (Dh62.5 billion), millions of people are adversely affected and the public health implications may be enormous."

According to the WHO, headaches are the most common nervous system disorder in the world, with migraines affecting up to eight per cent of men and 18 per cent of women worldwide. These severely painful headaches cause nausea, vomiting and sensitivity to light and sound. They are two to three times more common in women than men, primarily because they can be hormonally driven; they often run in families and affect the 35-45 age group the most, although anyone can get them from puberty onwards.

There are two key types of migraine, those with aura and those without. About 10 per cent of migraine sufferers have auras, which can take several different forms, and warn the sufferer of an imminent attack. They might feel tired, thirsty, hungry, euphoric or excited, or they might see flashing lights or zigzag lines before their eyes, or experience numbness or dizziness. In extreme cases, loss of speech or partial paralysis can occur, all symptoms created by the nervous system. Non-aura migraines are distinct from tension or severe headaches because they come on suddenly with severe pain to the head, usually to just one side, plus sensitivity to light, sound and or smell. Moving makes the pain worse.

Migraines are set off by triggers, which include chocolate, cheese and other foods, stress, hormones, and dehydration. And, although it hasn't been proved in a large-scale test before, migraine sufferers have often said that changes in weather can affect their migraine patterns; now it looks like the anecdotal evidence has been proved right.

Peter Goadsby, professor of Neurology at the University of California, San Francisco and UCL-Institute of Neurology in London, is a migraine expert and welcomed the research.

"It reinforces the effect of weather change in triggering migraine that has been shown in previous studies," he said. The research didn't have any other impact on how neurologists understand how our brains function in hot weather.

"We know, for example, that temperature affects multiple sclerosis, but there is no clear link as yet to explain the temperature finding in headaches," he said. And while dehydration plays a role in triggering migraines, he said that it wasn't the only reason for the rise in the problem during hot weather, suggesting that something more subtle is happening.

Recent research from the US has also shown that being obese puts you at greater risk of migraines: a large-scale study of 22,000 people by Drexel University College of Medicine in Philadelphia last month revealed that those deemed to be abdominally obese by either body fat content or body mass index were more likely to report migraines or serious headaches. Naturally, losing weight was a key recommendation in controlling the problem.

And with obesity a growing problem in the Gulf states as well as internationally, not to mention concerns over rising temperatures and climate change, migraine sufferers will naturally be concerned that they will have more frequent attacks.

Unfortunately for sufferers, there's nothing you can do to control the weather. Doctors suggest that taking pills before you get a migraine, on the assumption that a temperature rise will bring one on, is a bad idea, so other than losing weight if you're at risk of obesity, what can you do to lower your risk of migraine?

Keeping cool, drinking plenty of water and avoiding other triggers such as rich foods, and carrying the correct drugs for your treatment when you know it's going to be hot are the key recommendations. Mukamal recommends that headache patients sit down with their doctors to identify the triggers that lead to their headache symptoms, adding that even though the weather can't be altered, doctors might be able to prescribe medication that can be administered to help avert the onset of weather-related headaches.

The American Center for Psychiatry and Neurology in Khalidiya, has a neurological specialist, Dr Deeb Maxwell Kayed, who is an expert in migraine treatment. The clinic offers a range of treatments for migraine, from drugs to biofeedback therapy. This painless, drug-free therapy is one of the newer therapies on offer for migraine and tension headache sufferers. It monitors bodily functions like heart rate, blood pressure and muscle tension. Research has shown that by monitoring them and feeding them back to the patient, the patient can gain voluntary control of them. So by knowing that you are tensing muscles and have high blood pressure, you can start finding ways to release the tension and lower blood pressure, for example, and the pain can be relieved.

Acupuncture is another alternative treatment said to be effective for migraine relief, although evidence has not yet been found to prove it conclusively, while in Dubai, Unicare plastic surgery clinic offers Botox as a solution, suggesting that the paralysis of the facial muscles can aid migraine sufferers, although this too has yet to be proven.

In more new migraine research, last week it was found that migraines significantly raise the risk of a stroke during pregnancy. A team from Wake Forest University in North Carolina, USA, analysed nearly 34,000 pregnancies from 2000 to 2003 and found that women who suffered with migraines were more likely to have a stroke during pregnancy. The risk is still incredibly low however, at four per 100,000. Research professor Cheryl Bushnell also said that many pre-pregnancy migraine sufferers find the condition improves with pregnancy, so it can have a positive effect too.

Migraine sufferers are also three times more likely to get a blood clot in a vein and twice as likely to suffer from heart disease as non-sufferers. There is some good news however: migraine sufferers are 30 per cent less likely to get breast cancer, according to research published last year by the Fred Hutchinson Cancer Research Center in Seattle, a result believed to be associated to the hormone oestrogen that stimulates hormonal migraines and possibly breast cancer. Further research is being conducted on the subject.