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Letter to the Editor

Barometric Pressure Changes can only be Identified as a Trigger for Migraine Attacks Once all other Triggers have been Ruled Out

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Letter to the Editor

We read with interest the article by Kimoto *et al.* on a prospective study investigating the influence of atmospheric pressure on the frequency of migraine attacks in 28 migraine patients living within a 10 km radius of the Utsunomiya Local Meteorological Station ^[1]. The study concluded that changes in atmospheric pressure can worsen migraine attacks ^[1]. While it provides valuable insights, it requires further discussion.

First, the conclusions drawn are not sufficiently substantiated ^[1]. The sample size was too small to draw general conclusions, and only a few confounding factors (menstruation, anxiety, certain foods, the common cold) were included in the analysis ^[1]. Since there are numerous other triggers for migraine, it cannot be ruled out that a migraine attack was caused not by changes in atmospheric pressure, but by another trigger. Migraine triggers not included in the analysis include stress, lunar phases, irregular sleep, red wine consumption, skipped meals, dehydration, excessive caffeine consumption, alcohol, chocolate, processed meats, bright or flickering light, strong odors, and loud noises ^[2]. Additional factors influencing the frequency of migraine attacks include genetic predisposition, hormonal changes, and environmental factors. Regarding the excluded migraine triggers, it should be specified more precisely which foods were considered triggers.

Second, it is unclear why atmospheric pressure fluctuations were analyzed on the day the migraine began and the following day. Rather, atmospheric pressure fluctuations one or two days before the onset of a migraine attack are the relevant triggers.

The third point is that even within a 10-km radius of the weather station, differences in elevation are possible, since Utsunomiya lies at an elevation between 100 and 600 meters ^[3]. With every 100-meter increase in elevation, the air pressure in the lowest layers of the atmosphere drops by about 12 to 12.5 hPa. In particular, air pressure drops from about 1001 hPa (at an altitude of 100 m) to about 941 hPa (at an altitude of 600 m), resulting in a difference of about 60 hPa ^[4]. Therefore, even a slight change in altitude within the 10-km zone can trigger a migraine attack regardless of the weather, and the daily air pressure must be adjusted to the altitude at which the 28 patients were located.

Declarations

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