

Role of Atmospheric Pressure as a Trigger for Subarachnoid Hemorrhage

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Studies suggest that there is a link between temperature decline from the highest of the previous day (TDP) to the lowest of the event day with the incidence of subarachnoid hemorrhage (SAH).¹ The impact of weather conditions, particularly the atmospheric pressure, on the occurrence of cerebral hemorrhage is well described in the literature. Several studies have reported a potential correlation between environmental factors and SAH onset, while certain others have not found a significant association, resulting in controversy due to different assessment of meteorological factors, patient selection, target geographical area and study design.²⁻⁸ The atmospheric pressure is related to the temperature variation and atmospheric pressure determines nature of temperature fluctuation, magnitude of change and persistence duration. However, using prefecture-wide survey data amassing all patients with SAH in the defined area, has minimized referral and selection biases and proved the correlation of TDP with the incidence of spontaneous SAH. The triggering effect of TDP was prominent in younger women patients <65 years old. Interestingly, variations in barometric pressure are reported to be associated with the development of intracerebral hemorrhages, including SAH. It is possible that the effect depends on the change of magnitude of the barometric pressure, and secondary manifesting, as temperatures changes in preceding days and onset of new-onset SAH ictus. This aspect has been evaluated by various authors.^{5,8-10}

Previous studies from the Netherlands, Japan and Northern France revealed significant associations between low daily temperatures and SAH.^{2,3,11} Conversely, such an association was not found to be significant in studies from Germany and the US.^{4,6} Although the study has many concerns (a small sample size; lack of atmospheric pressure trend over SAH ictus and limited information about exposure to cold, usage of protective clothing and living room modifications),⁷ to add further, investigating environmental factors not only will help to know the impact of atmospheric pressure as a risk factor to trigger SAH but also shall help in deciding how the environment around these patients needs to be managed in critical care settings. The biggest challenge for the researcher would be to identify whether it is low pressure,¹² or high atmospheric pressure,⁵ which is more important. Additionally, it will help to guide how the patients with diagnosed, yet unruptured, aneurysms can be managed and what kind of day-to-day activities in what weather conditions they can participate in.

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Small Study Suggests Rapid Decay of Anti-SARS-CoV-2 Antibodies in Persons with Mild COVID-19

DG Alert: Findings from a study published in *The New England Journal of Medicine* "raise concern" that humoral immunity against SARS-CoV-2 may not be long lasting in persons with mild illness. Javier Ibarondo, David Geffen School of Medicine at University of California, Los Angeles, California, and colleagues evaluated 34 persons (20 females and 14 males; mean age: 43 years, [range, 21-68]). Of these, 30 participants had their infection confirmed by PCR, while the other 4 participants had CLI. Most of the participants had mild illness.

A total of 31 of the 34 participants had two serial measurements of IgG levels, while the remaining 3 participants had three serial measurements. The first measurement was obtained at a mean of 37 days after the onset of symptoms (range, 18-65), and the last measurement was obtained at a mean of 86 days after the onset of symptoms (range, 44-119).

The initial mean IgG level was 3.48 log₁₀ ng per milliliter (range, 2.52-4.41). On the basis of a linear regression model that included the participants' age and sex, the days from symptom onset to the first measurement, and the first log₁₀ antibody level, the estimated mean change (slope) was reported to be -0.0083 log₁₀ ng per milliliter per day (range, -0.0352 to 0.0062). The authors noted that this corresponds to a half-life of approximately 73 days over the observation period. Further, they reported that the 95% confidence interval for the slope was -0.0115 to -0.0050 log₁₀ ng per milliliter per day (half-life, 52-120 days).

The protective role of antibodies against SARS-CoV-2 is unknown, but these antibodies are usually a reasonable correlate of antiviral immunity, and anti-receptor-binding domain antibody levels correspond to plasma viral neutralizing activity. Given that early antibody decay after acute viral antigenic exposure is approximately exponential, we found antibody loss that was quicker than that reported for SARS-CoV-1.

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Treatment of AMI and Acute Stroke will be Tenecteplase

The COVID-19 pandemic could hasten the switch to tenecteplase for stroke and acute myocardial infarction (AMI) treatment because it is given as a single, 5-second IV bolus that takes about 2 minutes to mix, prepare and administer rather than the more than 1 hour for weight-based bolus and subsequent infusion of alteplase.