

Water-Deprivation Headache: “New” Variants of Phenomenology

Blau et al believe that water deprivation may play a pathogenetic role in migraine and suggest studies of serum osmolality to unravel the link.¹

Pathogenetic implications of altered water balance in migraine have been considered previously.²⁻⁴ Both fluid depletion and excess have been noted in migraine patients. Water and salt depletion within 12 hours of onset of headache—a physiological alteration opposed to that presented in this study—has been recorded and serial measurements of serum osmolality made during a spontaneous attack of common migraine.⁵ Renal and extrarenal manifestations (facial pallor and alterations in platelet function) in migraine patients probably represent concomitant side effects of an adaptive physiological change.^{2,4} On the other hand, premenstrual or migraine—attack-related fluid retention might serve as an anticipatory or event-related priming of the adaptive system.^{2,3} As the biology of migraine remains unknown,⁶ causes and cures in the public domain (including certain families) are largely matters of personal perceptions. Due to osmotic diuresis, diabetes mellitus is a state of water depletion seen best in diabetic ketoacidosis; this clinical situation closely mimics water deprivation. In contrast to the present hypothesis, Blau and Pyke have previously suggested that the diabetic tendency of pregnancy may remit migraine.⁷

Insofar as the use of water as a remedy for migraine attacks is concerned, the following features merit attention: (1) Migraine attacks tend to resolve spontaneously; even in the same patient, such resolution is not always predictable. Any medication, including drinking water, might remit a waning or mild attack of migraine, particularly in patients conditioned by intrafamilial responses to logically expect such a remission. (2) While water deprivation enhances vasopressin release, drinking of water, especially larger volumes (1000–1500 mL), is likely to suppress vasopressin release. As vasopressin promotes vasomotor, antinociception, and behavior control mechanisms,² the remission of headaches by drinking of water probably results from the placebo effect. (3) Water deprivation in headaches reported in this study is not an isolated stimulus but a concomitant feature of relatively prolonged stress (tour of a city with forewarning of limited availability of conveniences or assisting in the operating theater). These real-life situations are not strictly comparable with the results of experimental 24-hour water deprivation in humans.

With the headache classification resting (and enlarging) uncertainly on pure phenomenology, today, migraine research stands where ischemic heart disease stood before the discovery of the atheromatous plaque, when every variant of anginal chest pain could be touted as a new clinically important variant or subtype.⁵ Care should be taken before committing oneself to “new” variants in primary headache research. It is quite unlikely that studies of serum osmolality in migraine patients will provide further pathophysiological insights.

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Water-Deprivation Headache: A New Headache With Two Variants—A Response

We thank Dr. Gupta for his interesting comments that merit further consideration. We described a new intracranial headache that totally differed from migraine. Six of our 34 subjects also had migraine, which they could differentiate from water deprivation headache; in these six patients, water deprivation did not induce a migraine.¹

In clinical practice one can divide patients into those who have migraine alone, and those who have migraine plus another headache, each requiring individual analysis and treatment. Further the same trigger, eg, not eating, can induce migraine in some, or a hunger headache in others, which they readily distinguish because the latter resolves within minutes of starting to eat. There is a close similarity between precipitants of migraine and many other common headaches.²

In our article, we postulated that osmolality could be rewarding to investigate, being easier to measure than vasopressin; but there is a tight linear relationship between the two.^{3,4} Further, altered water balance is not common in migraine: few patients have a diuresis ending their attacks, presumably because nausea reduces food and fluid intake during episodes. However, premenstrual fluid retention seems to play a role in some women, although in medicine a number of factors often act in unison, rather than a single one causing a condition.

Measurement of serum or urinary vasopressin showed that they could be elevated,⁵ depressed,⁶ or unaltered⁷ during migraine attacks. This is in keeping with the observations of 50 migraineurs, seven of whom passed more than their usual amount of urine after headache resolution, and two migraineurs passed less; a further four were thirsty. Of the total 50, 34 had symptoms before the headache onset, and only 3 of these had fluid retention.⁸ These observations indicate no consistent, even totally opposite, urinary and vasopressin responses.

Stress is often blamed as an attack precipitant by migraineurs. But we have to seek deeper mechanisms provoked by stress, such as missing sleep (by going to bed later than usual, or difficulty in attaining sleep), delaying meals, or pain arising from undue contraction in head and neck muscles.

Finally, we can reassure Dr. Gupta that neither of us (cases 1 and 2) was under stress; on the contrary, one of us enjoyed the Rome trip, the other was fascinated by the plastic surgical procedures.

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Ascertainment of Photophobia and Phonophobia During Migraine: Preferred Close-Ended Questions

According to the IHS 2004 criteria, the diagnosis of migraine requires the presence of at least one of the following during a headache: (1) nausea and/or vomiting, (2) photophobia and phonophobia. I have observed that many patients answer the question, "Does light or noise bother you during a headache," with a "no" when the answer is really "yes." In many cases, I ask them what they do during a headache and they may reply that they lie down. I then ask whether they prefer a dark, quiet room and the answer is usually "yes." I ask why and they state that, "oh yes, perhaps light and noise does bother me." Or they answer one or both of the following questions affirmatively and the initial question, negatively.

More sensitive questions may be the following:

1. During a headache, would you prefer to be in a room with loud music or in a quiet room?
2. During a headache, would you prefer to be in bright sunlight or in a dark room?

These questions stimulate more awareness and discussion about behaviors during a migraine such as wearing sunglasses or turning down the volume of the music, radio,

or television, which may not have occurred to the patient when only asked the “does light or noise bother you” question. Some of you may also have found the value of similar questions.

I suspect that use of these two close-ended questions will increase the number of migraine diagnoses using strict IHS criteria. Let us do the experiment. For your next 10 new mi-

graine patients, ask the “bother” question first. If the answer is no, then ask the two questions and see what the additional yield is. Please let me know. Unfortunately, funding is not available for this study.

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