



Clinical Digest

PAIN MANAGEMENT

What's Behind Morning Headaches?

Waking up with a headache often is associated with a sleep-related breathing disorder. But after analyzing the responses from a multi-national telephone survey, an investigator from Stanford University, Stanford, CA has found that many other factors—including major depressive disorders and insomnia—also may be involved in morning head pain.



The survey was administered to 23,620 people in five European countries. They were asked a series of questions about the occurrence of morning headaches; such sociodemographic factors as age, marital status, and occupation; use of psychoactive substances; and history of organic, sleep, or mental disorders. Of the 18,980 respondents, 1,442 (7.6%) said they experienced morning headaches: 1.3% always did, 4.4% often did, and 1.9% sometimes did. Typically, the individual with morning headaches was a married woman, between the ages

of 45 and 64, who either was unemployed or considered herself a homemaker.

Anything that gets in the way of a good night's sleep can cause a morning headache, but the common culprits—a partner's heavy snoring and obstructive sleep apnea—weren't the strongest predictors. The researcher noted a higher prevalence of morning headache in people with a body mass index below 20 or above 27, as well as among those with musculoskeletal, heart, upper airway, or thyroid diseases.

What's more, those who reported having more than six alcoholic drinks a day or using anxiolytic medication were twice as likely to report morning headaches. In studies that have analyzed factors related to morning headaches, these two factors rarely are taken into account, says the study author—even though both are known to suppress the respiratory system, and lack of oxygenation during sleep is believed to encourage morning headaches.

Hypertension also was linked to a higher risk of morning headaches. The investigator notes, however, that hypertension itself

wasn't enough to explain the headaches, since not all people with hypertension had them and not all people with morning headaches had hypertension.

Depression had one of the highest odds ratios in the study, which is consistent with findings from a previous study in which adolescents with major depression at first evaluation had nearly 10 times the risk of developing headaches in the next seven years. The researcher points out, however, that depression and headaches may have a "chicken-and-egg" relationship: While headaches may be a somatic manifestation of depression, chronic morning headaches also could be a cause of depression.

This study suggests that morning headaches aren't necessarily related to sleep-related breathing disorders, but in about 80% of the cases, result from an organic disease, a sleep disorder, a mental disorder, or a combination of these factors. The author advises a thorough interview with any patient who reports morning headaches.

Source: *Arch Intern Med.* 2004; 164:97-102.

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SURGERY**Effects of Perioperative Hyperoxia**

In the general surgical population, the routine use of a high fractional inspired concentration of oxygen (FiO_2) in the perioperative period won't help lower the overall incidence of surgical site infection (SSI), say a team of researchers from Weill Medical College of Cornell University, New York, NY. In fact, their findings suggest that its predominant effect actually may be deleterious.

In their double-blind, parallel group, randomized study of 160 adult patients undergoing a variety of major abdominal procedures, 29 patients developed SSIs. Nine (11%) were in the group receiving an FiO_2 of 0.35 and 20 (25%) were in the group receiving an FiO_2 of 0.80—a statistically significant disparity.

Furthermore, the infections were clinically significant, causing infected patients to stay more than twice as long as patients without infections (mean, 13 days versus 6 days). Four patients who developed infections required reoperation, all of whom were in the group given an FiO_2 of 0.80. One patient in the 0.35 FiO_2 group developed a wound infection and, later, a deep abscess. This patient had a myocardial infarction and cerebral

artery stroke and died 16 days after surgery.

In the multivariate logistic regression analysis, higher FiO_2 predicted infection. The only other significant predictor of infection was intubation.

The effects of oxygen at the cellular and tissue levels are very complex, say the researchers. They caution that, while elevations in tissue oxygen certainly can have bactericidal results, these processes aren't completely understood, and the adaptive potential of bacterial species shouldn't be overlooked.

Source: *JAMA*. 2004;291:79–87.

PRIMARY CARE**Measuring BP: A Call to Arms**

The position of the arm during blood pressure (BP) measurement can mean the

difference between a patient who's deemed hypertensive and one who isn't, say a pair of researchers from the University of California, San Diego and the Medical College of Wisconsin, Milwaukee.

For their prospective study, they enrolled a convenience sample of 100 adult, emergency department patients whose chief symptoms were unlikely to be associated with cardiovascular instability. The patients ranged in age from 18 to 88.

For each patient, they obtained six BP measurements: with the patient standing, sitting, and supine—and, in each body position, with the arm perpendicular and parallel to the torso. Perpendicular was defined as the arm in front of the patient, creating a 90° angle with the torso, and parallel was defined as the arm fixed at

the patient's side. They recorded the mean systolic and diastolic values for each of six body-arm combinations.

In every body position, the systolic and diastolic BP measured with the arm perpendicular to the body was significantly lower than with the arm in the parallel position. The American Heart Association recommends that BP measurements be taken while the patient's elbow is flexed at heart level. In this study, however, the researchers noted that 73% of health care providers neglected to abide by this recommendation.

In this study, the 5.6-mm Hg range in BP differences (from 8.8 to 14.4 mm Hg) was greater than the traditional 5-mm Hg range (from 5 to 10 mm Hg) used to modify antihypertensive therapy. Using standard values for classification of hypertension, the researchers say, arm position during BP measurement significantly alters the proportion of patients categorized as hypertensive. They are calling for clinicians to reach a consensus on arm position to be used when BP measurements are taken, and they suggest that future clinical studies involving BP measurements specify subjects' arm position upon measurement.

Source: *Ann Intern Med*. 2004; 140:74–75.



**PATIENT
EDUCATION**

Avoiding Diabetic Burns and More

Diabetic burn patients face an elevated risk of nosocomial infection compared with nondiabetic burn patients, concluded a trio of researchers after conducting a 46-month retrospective review of 1,063 nonpediatric patients admitted to a Chicago, IL burn center. These findings, they say, underscore the importance of educating diabetic patients about risks associated with using such items as heating pads, heaters, and hot water bottles.

Of the 1,063 burn patients between the ages of 15 and 54, 68 (6%) had diabetes; of the 193 senior burn patients (those aged 55 and up), 62 (32%) had diabetes. Most of all burns were due to scalding, flame, or contact. Scald injuries occurred at the same rate in diabetic and nondiabetic patients, flame injuries occurred at a higher rate in nondiabetic patients, and contact injuries occurred at a higher rate in diabetic patients. Patients with diabetes had foot burns significantly more often, and they were admitted more often during the winter.

But the burns themselves weren't the only problems. Burn patients

with diabetes were more likely to be hospitalized longer and to have bacteremia, sepsis, and burn wound cellulitis. Older diabetic patients—who were more likely to have sustained perineal, buttock, and upper thigh burns (usually from falls in baths and showers)—more often needed catheters, which predisposed them to urinary tract infections. Patients with diabetes also developed respiratory failure more often than nondiabetic patients: Those between the ages of 15 and 54 were twice as likely and those age 55 or older were four times as likely as their nondiabetic counterparts to have symptoms.

Another critical difference is the amount of time it took the patients to get to the hospital. The majority (63%) of nondiabetic burn patients presented within 48 hours of the injury, compared with 40% of the patients with diabetes.

Source: *Diabetes Care*. 2004; 27:229–233.

PATIENT SAFETY

Preventing Nursing Home Violence

Some nursing home residents may be more likely than others to be victims of aggression and violence by other residents. Such was the conclusion of researchers from Harvard



School of Public Health, Harvard Injury Control Research Center, Health Care For All, and the Massachusetts Department of Public Health (MDPH), all in Boston, MA, and Yale Medical School in New Haven, CT, who conducted a case-controlled study of resident-resident violence in nursing homes between January and December 2000. According to their findings, injured residents fall into two main categories: those who may be more susceptible to “getting in harm’s way” and those who might behave in ways that provoke an aggressive response.

Using data from the MDPH Complaint and Incident Reporting System, the researchers compared 272 residents who had been injured (and whose injuries left visible evidence) to a control group of 1,994 residents without injury reports. Injuries included

fractures, dislocations, bruises or hematomas, lacerations, and reddened areas. A total of 25 residents were involved in more than one such incident. In 60% of the cases, the second event occurred within 60 days of the first. Male residents were almost twice as likely as female residents to be injured.

Through the narratives of the reporting system, the researchers found that some of the residents may have provoked the attacks, often unwittingly. Insufficient reporting details prevented a true analysis, but the authors suspect that some residents might have “invaded personal space”—for example, by wandering into another resident’s room or by eating from another resident’s plate. Residents who were injured were often wandering, being verbally abusive, or acting in a socially inappropriate manner.

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In addition, the likelihood of being injured rose as the level of cognitive impairment increased. Residents in an Alzheimer's unit faced three times the risk of injury as those in other units. Compared with residents who showed no impairment on the Cognitive Performance Scale, residents classified as having borderline or mild cognitive impairment were about five times as likely to be injured; and those classified as having severe cognitive impairment were about 12 times as likely to be injured.

Notably, injured residents appeared to be more physically independent than those in the control group: Residents classified as needing extensive assistance or as being severely dependent on others for activities of daily living had a significantly lower rate of injury than other residents. This finding, say the researchers, suggests that those less likely to become injured are either cognitively intact and thus capable of avoiding confrontations with other residents or are too physically dependent to find

themselves in a troublesome situation.

Although more research into protective strategies is needed, the authors point to ways that various facilities have tried to reduce resident-resident violence. Interventions include such environmental modifications as soft barriers or stop signs placed in the doorways of residents who may become violent when a resident with dementia wanders into their rooms. The researchers also cite studies indicating that music therapy may improve behavioral problems, while organized activities

can be used to help redirect residents prone to wandering.

The researchers note that while they included only residents who had visible evidence of trauma, there were several hundred violent incidents that didn't result in identifiable trauma—categorized as “no lasting harm.” Those incidents, however, may be a precursor of more severe trauma and, they suggest, may be as psychologically or physically detrimental as the ones leaving “visible evidence.” ●

Source: *JAMA*. 2004;291:591–598.