CLINICAL BRIEFS

The Unique Burden Of Menstrual Migraine

A review of the disability impact of menstrual migraine with an analysis for managed care decision makers

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The Unique Burden of Menstrual Migraine

Sufferers experience not only physical symptoms, but personal and professional disruptions

Migraine headaches affect about 12 percent of the U.S. population each year, and are 3 times more common in women than in men (17 percent versus 6 percent in a recent national survey) (Lipton 2007). For both genders, migraine prevalence is highest during the fourth decade of life (men 7.4 percent; women 24.4 percent) (Lipton 2007). While the prevalence curve for men is relatively flat throughout life, in women, it rises to a sharp peak between ages 30 to 39 and then declines thereafter. The substantially greater prevalence of migraine in women and the declining rates as women age suggest that migraine attacks may have a hormonal component. The implication of hormones in migraine attacks raises the question of whether migraines associated with menstruation differ from those occurring at other times of a woman's menstrual cycle.

Interpreting studies of menstrual migraine is difficult because of differences in the populations studied (e.g., women in the general population versus patients referred to headache clinics) and the different definitions of menstrual migraine. Reviews of various studies of female migraineurs suggest a prevalence of menstrually related attacks between 35 and 68 percent (Brandes 2006, Dzoljic 2002). In an effort to accommodate the different definitions, a representative, population-based Dutch study estimated the prevalence among all women who have regular menstrual cycles (n=982). Couturier (2003) employed four categories of migraine with a menstrual component to conclude that, depending on how the definition of menstrual migraine is applied, prevalence in women who menstruate is as high as 21 percent (Table 1).

Burden of illness

Physical symptomology

Menstrual migraines may pose a greater clinical burden than nonmenstrual migraines. Menstrual migraines have been shown to be more severe and more likely to be associated with vomiting or nausea (MacGregor 2004). In a diary study conducted at a migraine clinic in London, the prevalence of migraine was examined in 155 women over the course of at least two menstrual cycles. Severe migraine attacks were more likely to occur during premenstrual (relative risk [RR]=1.43) and postmenstrual (RR=2.63) intervals than at other times in the cycle. Women also were more likely to have severe migraines on the first day of menstruation or during the next 2 days (RR=3.41) compared with other times during their cycles (MacGregor 2004). With respect to nausea or vomiting, highly significant results were seen in the postmenstrual period (days 1 to 6), and women were almost 5 times more likely to have a migraine associated with vomiting on or during days 1 to 3 of their cycles (RR=4.69) (MacGregor 2004).

Menstrual migraines also may last longer than nonmenstrual migraines. An Italian study followed 64 women who were referred to headache centers (Granella 2004). The patients kept diaries for 2 months after they were enrolled in the program, the basis for which was the occurrence of at least one perimenstrual migraine attack during 5 of the previous 6 months. For enrollment purposes, the perimenstrual period was defined as a 5-day period covering the 2 days before and after the first day of the menstrual cycle. For the purpose of analyzing the characteristics of attacks, the perimenstrual period was expanded to a 9-day period comprising three stages: premenstrual (the 2 days before onset of bleeding); menstrual (days 1 and 2 of the menstrual cycle); and late menstrual (days 3 through 7). These women reported 459 attacks over the course of 2 months, 50 percent of which occurred during the 9-day perimenstrual period (Table 2).

The longer duration of the attacks was statistically significant in all three perimenstrual phases compared with

TABLE 1 Prevalence of menstrual migraine

Depending on how the definition is applied, the prevalence of migraine associated with menses in women with regular menstrual cycles could be as high as 21 percent

	Attack starting on or between:		
Type of headache	**Starting point**	**Ending point**	**Prevalence***
Menstrually related migraine	2 days before menstruation	Last day of menstruation	8%
Menstrual migraine†	2 days before menstruation	Third day of menstruation	3%
"True" menstrual migraine‡	2 days before menstruation	Third day of menstruation	1%
Subjective migraine	2 days before menstruation	Last day of menstruation	9%

*Rounded to nearest whole percentage point.
†Definition used by the International Headache Society (IHS) for *menstrually related migraine.*
‡Identical to IHS definition of *menstrual migraine,* with the exception that these migraines can only occur during menstruation.
SOURCES: COUTURIER 2003, IHS 2004

TABLE 2 Severity of menstrual migraine

Characteristics of migraine attacks in 64 menstrually related migraine patients referred to a headache clinic

	Perimenstrual			
	Premenstrual *(2 days before menses)*	**Menstrual *(cycle days 1–2)***	**Late menstrual *(cycle days 3–7)***	**Nonmenstrual**
Number of attacks (% of total)	60 (13%)	78 (17%)	90 (20%)	231 (50%)
Duration (hours)	29.6	33.7	24.0	16.2
P value vs. nonmenstrual	<.0001	<.0001	.002	–

SOURCE: GRANELLA 2004

nonmenstrual attacks. Patients were instructed to take their usual medication for acute attacks whenever they experienced pain of moderate intensity, defined as that which might inhibit, but not prohibit, daily activities. Patients with menstrual attacks were pain-free 2 hours after initial treatment in only 13.5 percent of attacks, compared with a pain-free rate of 32.9 percent in nonmenstrually related migraine attacks (Granella 2004). Compared with nonmenstrual attacks, premenstrual or menstrual attacks also were relatively resistant to treatment, as shown by various measures of treatment efficacy, and were more likely to recur (Figure).

Work and activities of daily living

Patients who experience menstrual migraine often are burdened not only with physical symptoms, but also by restrictions on their daily activities, including work responsibilities. The study by Granella (2004) found that premenstrual and menstrual attacks were associated with more time lost from work because of absence, reduced productivity, or both (Table 3).

In the Couturier study, 45 percent of women reported that their menstrual migraines restricted their work; 70 percent who experienced work restrictions said they were "usually" or "always" restricted and that they were "much" or "very much" restricted (Couturier 2003). In contrast, only 21 percent of women with nonmigraine headaches linked with menstruation reported work restrictions.

A similar pattern was found in this study for quality-of-life-related activities, such as restrictions placed on household chores, sports, or family activities (Couturier 2003). A greater percentage of women with menstrually related migraine experienced significant restrictions on their activities, and found these restrictions to be more disabling when compared with those in women experiencing other types of headaches (Couturier 2003).

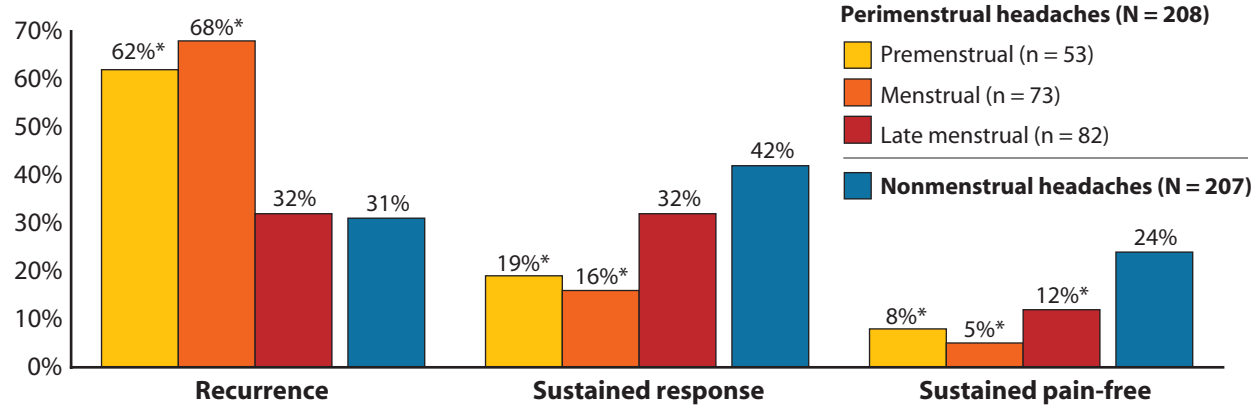
Summary

Although it is difficult to make generalizations about migraines with a menstrual dimension, a subpopulation of female migraineurs may have perimenstrual migraines that are more severe and more likely to result in lost work time and decreased productivity. Menstrual migraines have been reported as longer in duration, less likely to respond to acute therapy, and have a higher probability of relapse than nonmenstrual migraines. Menstrual migraines also have been linked with economic and quality-of-life burdens (Couturier 2003).

Because these patients may have a predictable menstrual migraine trigger in the form of estrogen, identify-

FIGURE Efficacy of first drug treatment with nonsteroidal anti-inflammatory drugs or triptans

Characteristics of migraine attacks in 64 menstrually related migraine patients referred to a headache clinic



*P<.05 vs. nonmenstrual group.

SOURCE: GRANELLA 2004

TABLE 3 Menstrual migraine effects on productivity

	Perimenstrual			
	Premenstrual ***(2 days before menses)***	**Menstrual** ***(cycle days 1–2)***	**Late menstrual** ***(cycle days 3–7)***	**Nonmenstrual**
Missed work	51%*	27%	27%	27%
Lost work time (hours)	2.7†	2.1	1.0	1.2
Lost work-hour equivalents	4.8	8.6‡	4.2	4.4

*P=.006 vs. nonmenstrual.
†P=.02 vs. nonmenstrual.
‡P=.05 vs. nonmenstrual.
SOURCE: GRANELLA 2004

ing this population may help to reduce the disease burden and restore productivity.

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Managed Care Considerations: Migraine and the Workplace

By Maria Lopes, MD, MS

Many employers are embracing the idea of measuring the impact of certain disease states on work productivity, and this concept is especially useful when demonstrating the value of disease management. With migraines, however, many MCOs do not have extensive disease management programs in place, and those programs that do exist are sometimes limited to member- and physician-education initiatives.

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Given the prevalence of migraines among women of childbearing age, along with the International Headache Society's classification of menstrual migraines (IHS 2004), interest from employers is certainly valid in the face of greater numbers of females in the workforce. By 2015, women will make up about 48 percent of the labor force. In 1998, this share was 46 percent (Fullerton 1999). When examining additional past changes in workforce involvement, in 1950, 34 percent of women age 16 and over participated, compared with 60 percent of women in 1998 (Fullerton 1999). The biggest increase in labor force participation has been in those women age 25 to 34 — this share more than doubled, from 34 percent in 1950 to 76 percent in 1998 (Fullerton 1999).

Clearly, women have substantial responsibilities within the work force. Migraine symptoms and therapy side effects cause significant functional disability that can result in work and productivity losses. Effective, well-tolerated migraine therapy with rapid onset of relief could decrease work and productivity losses and reduce absenteeism. But shortcomings still remain when looking beyond employer needs. Establishing a proper diagnosis, understanding what diagnostic workups are (or are not) needed, and engaging the member in proper management steps remain significant challenges, and are of critical importance for the effective treatment of menstrual migraine.

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