

## Section Editors

David C. Spencer, MD  
Steven Karceski, MD

# Infant colic and migraine

## Is there a connection?

Steven Karceski, MD  
Neal S. Parikh, BA

**WHAT DID THE AUTHORS STUDY?** In their article “Before the headache: infant colic as an early life expression of migraine,” Dr. Gelfand and colleagues<sup>1</sup> studied a large number of mother-infant pairs to better understand the cause of infant colic. Colic is defined as a situation in which an otherwise healthy baby cries or displays symptoms of distress frequently and for extended periods. In these instances, there is no clear cause for the discomfort. Colic usually starts within the first month of life, and often disappears rather suddenly. In most babies, colic stops before the infant is 3 to 4 months old. In some babies, colic can last up to 12 months.

The cause of colic is not well known. Limited data link infant colic to migraines. It is known that migraine is genetic: children of a person with migraines are more likely to have migraine as well. If colic is a symptom of migraine, one would expect that colic should occur more often if a parent had migraine. Dr. Gelfand and colleagues designed a study to better understand the relationship between colic and migraine.

**HOW WAS THE STUDY DONE?** At the University of San Francisco Pediatrics Clinic, between July 2010 and September 2011, 165 mothers and their infants were studied. Dr. Gelfand et al. included infants between 2 and 12 weeks old in the study because colic symptoms peak in this age group. In the pediatrician’s office, the mother completed a questionnaire to screen for colic in her baby, and migraine in herself. When present, fathers also filled out a questionnaire. The answers to the questions were carefully analyzed to determine if infants of migraineurs were more likely to have colic than infants of migraine-free mothers.

The authors used very specific criteria to define both colic and migraine. They used modified Wessel criteria to define colic. The baby needed to be crying for at least 3 hours a day for at least 3 days each week. For migraine, the mothers were asked if they were ever diagnosed with migraine. Since migraine is underdiagnosed, the researchers also used the ID Migraine questionnaire to screen for migraine. In other words, even if the mother was never diagnosed with migraine, Dr. Gelfand wanted to be sure that the

mothers did not have migraine symptoms. The migraine survey required that the mother have at least 2 of the following during a headache: limitation of activity, nausea, and sensitivity to light.

**WHAT WERE THE FINDINGS?** Dr. Gelfand collected 165 surveys. Eleven surveys were excluded for various reasons, leaving 154 for analysis. The average infant age was 8.0 weeks. A total of 55% of infants with colic were female while 47% of infants without colic were female. A total of 22 (14%) infants had colic by modified Wessel criteria. A total of 28 (18%) mothers had migraine either by a doctor’s diagnosis or by the answers they gave on the ID Migraine survey. Fathers answered questions for 93 (60%) of the infants.

The key result was this: 29% of infants of mothers with migraine had colic compared to 11% of infants whose mothers did not have migraine. In other words, infants whose mothers had migraine were 2.6 times more likely to have colic. A paternal history of migraine was also associated with a possible increased prevalence of infant colic. However, there were not as many fathers involved in the study. This made analyzing the answers more difficult.

**WHAT DO THE FINDINGS MEAN?** There are many important findings in this study. First, 14% of the infants in this study had colic. This is exactly that same as found by other researchers. About 5%–19% of infants have colic. This is important because it shows that the babies in the study by Gelfand et al. were no different from those in other studies in the United States.

Second, 18% of the studied mothers had migraine, which is the same as what has been reported in North America: about 18% of women have migraine. Just as with the infants, this tells us that the mothers are good representatives for other mothers across the United States.

In the past, one prospective study found that “hyperactive” infants were more likely to develop migraine. However, those authors did not look specifically at infant colic. Dr. Gelfand and colleagues found a significantly higher prevalence of colic in infants of migraineur mothers. Based on

their data, they speculate that infant colic may be a precursor of migraine.

As with all studies, there were limitations to this study. The authors used the maternal history of migraine as a marker of the infant's genetic tendency to develop migraine. Although a maternal history of migraine does correlate with the likelihood of the infant developing migraines, the correlation is not exact. A study that follows infants with colic through childhood to see if they themselves develop migraines would be more accurate. Regardless, this study makes

a substantial contribution to the understanding of colic.

This research has important implications both for researchers and caregivers. If a baby has colic, the doctor may try migraine medications as a treatment for the colic. Colic frustrates caregivers and puts colicky infants at greater risk for shaken baby syndrome. Successful treatment may protect infants against this syndrome. Although more research is needed, this study at least points out one possible reason for infant colic: migraine.

Section Editors  
David C. Spencer, MD  
Steven Karceski, MD

# About migraine

**WHAT IS MIGRAINE?** Though it seems an easy question to answer, the term “migraine” can refer to many different kinds of symptoms. The one that most people think about is headache. In truth, this is the most common symptom that a person will have during a migraine attack. Most people report that migraine pain is very severe. It is often throbbing. Most of the time, the pain affects only one side of the head. The pain lasts from several hours up to 3 days. It causes sensitivity to both light and noise. Many people experience nausea or vomiting.

Migraines typically start in either childhood or adolescence. Migraines affect women more than men (about 3 times more often). Migraine is likely genetic: two-thirds of identical twins both will have migraine. In some people, migraine is triggered by certain kinds of foods or physical activity.

There are usually 4 “phases” to a migraine attack. Not everyone experiences all 4. The first is the “prodrome.” This occurs in two-thirds of migraineurs and can cause irritability, stiff neck/joints, or mood changes (like depression). Next is the “aura.” This usually comes on gradually, over 5–20 minutes. It can consist of seeing wavy lines or flashing lights, or in some people can be a tingling sensation. The third phase is the head pain. This lasts hours to up to 3 days. Following this is the “postdrome.” This can last several days, and may consist of a “weird feeling” in the same spot as the headache. Others describe a general weakness or depression that follows the headache.

Although pain is the most common symptom of migraine, there are other kinds of migraine that do not cause pain. Some people only experience visual symptoms, like seeing “spots.” Others may experience dizziness or vertigo. Children may have nausea, vomiting, and stomach pain (without headache). They may see several doctors for stomach problems and later realize that the cause of the problems was migraine.

What about infants? It is difficult to know when a young child is having a headache. The only way that a baby can “tell” parents is by crying. Maybe the reason that we think migraine “starts” in childhood (or adolescence) is that this is the age

at which a person can start to communicate why he or she is feeling unwell. Perhaps migraine starts in infancy—this was one of the reasons for the current study.

**WHAT CAUSES MIGRAINES?** The answer to this is not yet known. Some scientists have proposed that the cause of migraine is in nerve cells. Others have identified changes in the blood vessels in and around the brain. This is an active area of research. It is likely that both the nerve cells and blood vessels act together to produce migraine.

**TREATMENT OF MIGRAINE** Migraines can have specific triggers. Avoiding the triggers is one treatment for migraine. Chocolate, aged cheeses, strong smells, or loud noises can provoke migraines. For some people, exercise is a culprit. In some, caffeine causes headaches. In others, caffeine helps to stop the migraine. This is the reason why over-the-counter medications containing caffeine in addition to aspirin help so many people with migraine.

Pain medicines are another treatment for migraines. There are many kinds of pain medicines. Although they all work, it can sometimes be hard to know which one will work for a specific person. In other words, what works for one may not work for another migraineur. This can be very frustrating. A person may need to try several different medicines before finding the one that works best.

There are 2 categories of pain medicines. The first are abortive medicines. These are the ones that a person takes when the headache happens. Often, these medicines work best if they are taken just as the headache first starts. The sooner a person takes them, the better that they work.

The second types of migraine medicines provide prophylaxis. These medicines work by preventing headaches. They do not work if they are taken when the headache starts. Instead, a person takes this kind of medicine every day, even on headache-free days.

Most people need both kinds. One medicine keeps the headaches from happening often. The second stops a headache that is already in progress.

## FOR MORE INFORMATION

AAN Patients and Caregivers site

<http://patients.aan.com/go/home>

Migraine Research Foundation

<http://www.migraineresearchfoundation.org>

American Headache Society Committee for Headache Education (ACHE)

<http://www.achenet.org>

American Pain Foundation

<http://www.painfoundation.org>

## REFERENCE

1. Gelfand AA, Thomas KC, Goadsby PJ. Before the headache: infant colic as an early-life expression of migraine. *Neurology* 2012;79:1392–1396.

## *Neurology Now* – Another AAN Resource for Patients and Caregivers



*Neurology Now*, an official publication of the American Academy of Neurology (AAN), provides patients and caregivers with credible, up-to-the-minute, balanced coverage of the latest advances in neurology research and treatment. To subscribe, go to [neurologynow.com](http://neurologynow.com) and click on the “Subscribe Now” tab. *Neurology Now* is now also available on your iPad. The iPad edition features a print-like reading experience enhanced with article-sharing features, multimedia links, and more. The app is free and you can download it today. On your iPad home screen, open the App Store icon and search for “Neurology Now.”

# Neurology<sup>®</sup>

## **Infant colic and migraine: Is there a connection?**

Steven Karceski and Neal S. Parikh

*Neurology* 2012;79:e112-e115

DOI 10.1212/WNL.0b013e31826daf64

**This information is current as of September 24, 2012**

<b>Updated Information &amp; Services</b>	including high resolution figures, can be found at: <a href="http://n.neurology.org/content/79/13/e112.full">http://n.neurology.org/content/79/13/e112.full</a>
<b>References</b>	This article cites 1 articles, 1 of which you can access for free at: <a href="http://n.neurology.org/content/79/13/e112.full#ref-list-1">http://n.neurology.org/content/79/13/e112.full#ref-list-1</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>All Headache</b> <a href="http://n.neurology.org/cgi/collection/all_headache">http://n.neurology.org/cgi/collection/all_headache</a> <b>All Pediatric</b> <a href="http://n.neurology.org/cgi/collection/all_pediatric">http://n.neurology.org/cgi/collection/all_pediatric</a> <b>Migraine</b> <a href="http://n.neurology.org/cgi/collection/migraine">http://n.neurology.org/cgi/collection/migraine</a> <b>Pediatric headache</b> <a href="http://n.neurology.org/cgi/collection/pediatric_headache">http://n.neurology.org/cgi/collection/pediatric_headache</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="http://www.neurology.org/about/about_the_journal#permissions">http://www.neurology.org/about/about_the_journal#permissions</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="http://n.neurology.org/subscribers/advertise">http://n.neurology.org/subscribers/advertise</a>

*Neurology*® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2012 by AAN Enterprises, Inc.. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

