HeadWise®

A Voice for People with Migraine and Headache Disorders
From the National Headache Foundation

Migraine, Epilepsy and Genetics

Migraine and epilepsy are often mentioned together, in both research and patient care. The results from the Epilepsy Phenome/Genome project (EPGP) found evidence for a shared genetic effect in migraine and epilepsy.

Physical Therapy for Headache

Physical therapy is often utilized in the comprehensive treatment of headache sufferers. A variety of therapeutic techniques can improve the headache patient's outcome.

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NATIONAL HEADACHE FOUNDATION™

If you think a headache is just a headache, think again. Millions of Americans suffer from migraines, cluster headaches, and other serious headache disorders. Chances are, headache disorders affect you or someone you love.

Join the cause by becoming a member of the National Headache Foundation, the world's largest voluntary organization for the support of people with migraine and headache disorders. For 45 years, the NHF has assisted millions of individuals and inspired hope through awareness, advocacy, education, and research.

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A subscription to HeadWise® magazine

The *NHF News to Know* monthly e-newsletter: Access to a wealth of headache research, support, and information. Plus, your donation will support the NHF and help advance headache advocacy, education, and research.

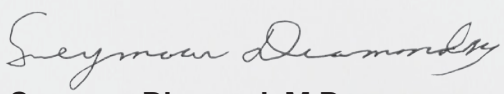
To join, go to www.headaches.org/become-a-member/ or call 1-888-NHF-5552

FROM THE EXECUTIVE CHAIRMAN:

In 2005, the National Headache Foundation established the special lectureship, the *Seymour Diamond, M.D. Lectureship Award*, which recognizes the most significant paper in headache published during the past year. I was gratified that the Foundation named this award in my honor. Previous honorées have hailed from several countries including Chile, Denmark, Germany, Iran, and The Netherlands, as well as the United States. Prestigious institutions, such as Harvard University and Columbia University, have been well-represented. And these lectures have highlighted the outstanding research on headache being undertaken throughout the world. This issue's featured article, "Migraine, Epilepsy and Genetics," based on the lecture by Melodie Winawer, MD, MS, is an excellent example of current research.

The question of a relationship between epilepsy and headache has been debated for many years. Studies at the Cleveland Clinic by A. David Rothner, MD, have disputed any relationship whatsoever, and numerous other studies have been equivocal. The genetic study described by Dr. Winawer implies that there is a genetic connection between these two disorders. The importance of the results of the Epilepsy Phenome/Genome Project (EPGP) will have to be sorted out by further epidemiological investigations as well as genetic studies regarding this connection.

If these results are further proven, we foresee – in the far future – a genetic-based therapy for migraine.



Seymour Diamond, M.D.
Chicago, Illinois

HeadWise®

The National Headache Foundation • www.headaches.org

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Mission
To cure headache, and end its pain and suffering.

Vision
A world without headache.

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This publication discusses a broad range of headache information in an effort to inform and educate readers, but is not intended to substitute for the advice of your health care provider. Statements expressed herein are not necessarily those of NHF.

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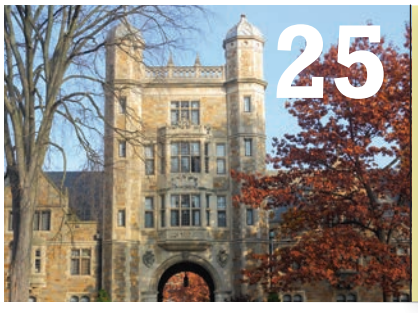

IN EVERY ISSUE

GATSBY GALA

On Saturday, May 2, 2015, the National Headache Foundation hosted its 29th annual fundraiser, The Gatsby Gala – Inspiring Hope for 45 Years, at the Ritz-Carlton Chicago. In addition to celebrating the 45th anniversary of the founding of the NHF, we also used this opportunity to celebrate the 90th birthday of our Executive Chairman and Founder, Seymour Diamond, MD. Guests were encouraged to wear their best flapper or dapper, and the tables were named for famous individuals who were born in 1925, the year that T*he Great Gatsby* was published. During the cocktail hour, guests could imbibe on a specialty drink based on a 1920s' recipe – The Bee's Knees. The menu was inspired by a dinner served at the Waldorf-Astoria Hotel in New York City in 1924, which was served to President Calvin Coolidge and his guests at a State Dinner. Our guests enjoyed the Silent Auction of approximately 100 items, from gift cards from Saks, Neiman Marcus, and Tiffany's, as well as travel getaways, dining certificates at local restaurants as well as national chains, and sports memorabilia. The 4th annual Wall-of-Wine was a great success, selling all of its wares within 50 minutes. The winners of the premium wines are listed on page 14. Music was again provided by the Don Cagen Orchestra, and guests danced to selections from the Roaring Twenties.

The evening's program was emceed by the NHF Associate Executive Chairman, Roger K. Cady, MD. A special rendition of "Happy Birthday" was started by the grandchildren of Dr. Seymour Diamond while he was presented with his favorite strawberry whipped cream cake. Prior to honoring this year's award recipients, attendees watched the special video, The Future of the National Headache Foundation, which is available for viewing on our website, www.headaches.org.

At the end of the program, Sara Cady, MD, daughter of Dr. Roger Cady, picked the winning ticket for our annual car raffle. Nichole Hyde, of Springfield, Missouri, was the lucky winner. She had the choice of $20,000 in cash or a 2015 Honda Accord LX Sedan.

According to the guests, it was a very enjoyable evening and successful for the NHF. Thank you to all who attended as well as those who supported the Foundation through their contributions. We also want to thank our Volunteer Board for their hard work and dedication: Colleen Albrecht, Marsha Beste, Jill Rosenberg, and James Staulcup, Esq. And finally, a big thank you to the NHF staff and the evening's volunteers who looked wonderful as "visitors" from the Roaring Twenties and gave their time and energy to help the NHF! HW

1 Dr. Seymour Diamond celebrating his 90th birthday. **2** Dancing to the Don Cagen Orchestra. **3** Dr. & Mrs. Richard Wenzel **4** Drs. Kathleen and Roger Cady with a birthday greeting for Dr. Seymour Diamond. **5** Sara Cady, MD enjoying a dance with her father, Roger Cady, MD, Associate Executive Chair of the NHF. **6** Emily Kaplan Kandel, Ellen Friedman, Joshua Friedman, and Paul Kandel **7** Former Board member, Lisa K. Mannix, MD, and Mr. Brent Clark **8** Wall of Wine **9** Roberta Lustin-Hawk, MD, President of Presence-Saint Joseph Hospital, Chicago, presenting a birthday gift to Seymour Diamond, MD. **10** Drs. Veronika Urban, George Urban, George Nissan, and Merle Diamond.

AT THE FUND RAISER, *THE GATSBY GALA – INSPIRING HOPE FOR 45 YEARS*, THE NHF PRESENTED THE FOLLOWING AWARDS:

The Lifetime Achievement Award:

The *Lifetime Achievement Award* is given to a health care practitioner in recognition of an impressive body of work in the field of headache. Previous winners include Roger K. Cady, MD, K. Michael Welch, MB, and Robert B. Daroff, MD.

This year's winner is **Timothy R. Smith, MD, R Ph, FACP.** Dr. Smith serves as Vice President-Research for the Sisters of Mercy Health System, St. Louis, MO, Clinical Instructor of Medicine at Washington University School of Medicine in St. Louis, and Clinical Affiliate Faculty for the Southern Illinois University School of Pharmacy in Edwardsville, IL. A native of Corinth, MS, Dr. Smith received his BS in Pharmacy as well as his MD degree from the University of Mississippi. In 1997, he became involved in headache medicine when he joined the Ryan Headache Center in St. Louis, as Medical Director and Director of Clinical Research. In 2001, Dr. Smith received the CAQ in Headache Medicine from the NHF and, in 2006, a Subspecialty Certification in Headache Medicine from the United Council of Neurologic Specialties.

At Mercy, Dr. Smith has research governance and infrastructure responsibilities for the entire health system, including 42 hospitals and 494 medical clinics across four states. In 2010, he received an NHF research grant which enabled him to initiate the country's first, and now longest-running, tele-headache program. It provides headache specialty care to patients in rural Missouri and Kansas via streaming video technology from Mercy's Virtual Care Center in St. Louis.

Dr. Smith has been an NHF member since 1997, and has served on the Board of Directors since 2010. He currently heads the Certificate of Additional Qualification in Headache Medicine committee, and serves on the long-range planning and research committees of the Board. In 2001, Dr. Smith received the National Headache Foundation Lectureship in Rancho Mirage, CA. HW

Timothy R. Smith, MD, R Ph, FACP

Dr. Timothy Award admiring his award with Dr. Vincent Martin

2015 NATIONAL HEADACHE FOUNDATION HONOREES

Margaret E. Azarian, PhD, recipient of the *Elaine Diamond Service Award*

Elaine Diamond Service Award:

The *Elaine Diamond Service Award* recognizes excellence and enduring service to the National Headache Foundation. Elaine Diamond was instrumental in the formation of the Foundation, served over 30 years as an NHF Board member, and volunteered countless hours at the Foundation office. This year's honoree is the Secretary of the NHF, **Margaret E. Azarian, Ph.D.**

Doctor Azarian received her A.B. in chemistry, cum laude with honors at Bryn Mawr College in Pennsylvania. She received a M.Sc. and Ph.D. in Physical Chemistry from Yale University. Dr. Azarian served as a post-doctoral fellow at the University of Pennsylvania's Institute for the Structure of Matter. She served as a Senior Research Chemist at the Franklin Institute Research Laboratories in Philadelphia, as a Senior Scientist at Schering Corporation, and as a Technical Fellow at Hoffman-LaRoche. Eventually, Dr. Azarian became Editor-in-Chief of International Universities Press, where she was responsible for the content and quality of books in psychoanalysis, psychology, and psychiatry that were published for the mental health professional. She also oversaw production of the journal, *Headache Quarterly.*

Dr. Azarian's late husband, Martin, served on the Board of the NHF from 1990 through his death in 2001. She was elected to the Board in 2003, and assumed the role of Secretary in 2005. Her experience in the sciences and medical publishing have served us well as the NHF. She serves on the Editorial Committee of the NHF and aids in the editing of *HeadWise.* Dr. Azarian was instrumental in the establishment of our monthly chat rooms which are available on our website, **www.headaches.org**. She has also served as a mentor to our staff, providing invaluable insight into the educational and awareness outreach of the Foundation. HW

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Tired of searching the internet for answers?

It's time to learn from those in the know. In every issue of HeadWise®, our experts respond to reader-submitted questions about migraine and headache disorders.

Amitriptyline In Headache Treatment

Has anyone been prescribed amitriptyline for chronic headaches and migraines? If so, how did it go? I've just been prescribed it but want to know more before taking it. Did anyone get any side effects? –Facebook visitor

"Since 1962, amitriptyline has been prescribed for chronic headache. It is the most frequently prescribed generic drug for this purpose.

The stimulus that prompted my career in headache medicine was my original work with amitriptyline. I conducted a study on the relationship between depression and other bodily complaints, such as arthritis, gastrointestinal symptoms, etc. The results demonstrated that amitriptyline has superior efficacy in treating these various complaints.

At the 1963 convention of the American Medical Association (AMA), I presented my findings in a scientific exhibit. A physician asked me a question about the relationship between depression and headache. The question intrigued me and I then started an investigation on the use of amitriptyline in headache – and my keen interest in the subject was born.

Extensive studies on the efficacy of amitriptyline in headache were not conducted in the pursuit for approval from the Food and Drug Administration for this indication. The expense of such investigations precluded their undertaking. The side effects of amitriptyline include dry mouth, constipation, and blurred vision. These side effects are usually transient. Dosage of the drug should be gradually increased for its efficacy and to minimize the side effects."

Seymour Diamond, MD
Executive Chairman and Founder
National Headache Foundation
Chicago, IL

Aura Symptoms Without Headache

I have been a migraine sufferer for 8 years (visual, sensory, and neurological auras increasing progressively but rarely get headaches). A neurologist insists I have 'pain in my head' as I have what I would describe as an increasing tightness in my scalp. It feels like I want to pull off my scalp and scratch my brain, a fuzzy feeling is unbearable. I also have neck pain but never need pain killers. I have been treated for chronic daily headache.

Along with the symptoms above, I have developed pulsating tinnitis on the same side of head that has been affected for the last 16 months. Auras are persistent from morning to night and unrelentless, dizziness, pins and needles, visual disturbances, difficulty getting words out, chills, thirst, runny nose, nerve pain in face, nausea, tripping over my feet.

Despite prophylactic meds, (topiramate, neurontin, numerous blocks, and inpatient treatment – nothing has worked and out of frustration I fell out with my neurologist 6 months ago. Currently, I am in bad shape even having one drooping eye lid. I have looked up a few headache journals and found articles on persistent migraine aura without headaches. Could I possibly have this all along?

Please help. –Karen K.

"These diagnoses are only made after an extensive evaluation to rule out other causes. It is true that migraine can occur without headache, or with mild headache, but you have many other symptoms that would not be explained by that diagnosis. It is important that you seek care with another neurologist who likely will want to do much more testing before contemplating treatment."

Mark Green, MD
Mt. Sinai Medical Center
New York, NY

Avoiding Caffeine = No Headache

I am a former migraine sufferer who was plagued for 27 years with chronic, right-sided migraine attacks. Five years ago, I discovered what was causing my migraines, I eliminated the trigger, and I have been free of migraines and drugs ever since. I am writing you, to share my discovery in the hopes that it will help legions of headache sufferers.

In 2008, I was co-authoring a blog. In a post one day, I mentioned that I had migraines. Two of the readers of our blog commented on the post, telling me that the only way they had gotten rid of their own migraine headaches was to eliminate caffeine completely from their diet. Not only did I not believe that I consumed enough caffeine to make a difference, I was in the habit of having one cup of coffee in the morning that was made of half strength caffeine (half-caf). Then, I would have a glass of iced tea for lunch, and sometimes, chocolate in the evening. Not only did I believe that caffeine in such small amounts could cause a problem, but I believed for many years that the caffeine must have been helping me because it was in the very headache medications, which my doctors prescribed. In fact, for years, even with the blessing of my doctors, when I would get a migraine, I would drink a cup of coffee to try to abort the attack. It never worked of course, but at the time, I believed the attack may have been worse without it.

Adhering to my reader's advice, I decided to wean myself off of a habit that I had my entire adult life except when I was pregnant, during which time I did not drink caffeine and during which time I, incidentally, did not have headaches. I was told that the lack of headache was a natural benefit of the pregnancy.

I first reduced my cup of half-caf in the morning to quarter-caf. The day after I began this reduction, I had a withdrawal headache that lasted me a solid week. The following week, when I switched to full decaf, again, I had a headache for a week. Next came the tea. I reduced it twice with an extended headache resulting each time. At that point, there was no doubt in my mind as to how profoundly the small amounts of caffeine were affecting me. The last to go was chocolate and again, a headache. Once my system was cleaned, I was cured.

I am 55 years old now and I have been through menopause in the past 3 years. Had this discovery occurred simultaneously with menopause, I might question which was responsible. However, the discovery preceded menopause and I am certain that the cause was attributable to the caffeine. – Lisa T.

"Caffeine has long been a controversial topic in the headache world. Due to the very large diversity of patient profiles and headache types, which we currently classify into about 200 categories, it is certainly conceivable that certain patients have an exquisite sensitivity to the drug, while others have no sensitivity whatsoever.

Many headache remedies incorporate caffeine and many patients report aborting headaches with an anti-inflammatory and a simple cup of coffee. There are case reports of caffeine being useful in treating hypnic headaches as well as caffeine withdrawal headaches. On the other hand, caffeine is a common ingredient in the combination medications which cause medication overuse headaches. It is a question of the setting in which caffeine is used, or abused.

In my experience, many patients have quit caffeine at my request and a few have noted reduction in headaches but most patients have noted no change. The only logical conclusion is that some people have a sensitivity to caffeine, but this is not a generalization which should dogmatically be applied to all migraine patients. It is certainly reasonable, however, for patients with refractory headaches to taper off caffeine gradually to see if they might benefit.

Remember, many people will use caffeine as a stimulant because of daytime sleepiness which might arise from undersleeping, insomnia, or sleep apnea, so another important question is to ask why people are using caffeine and seek the underlying cause, which might be the key to their headache problems."

Edmund Messina, MD
The Michigan Headache Clinic
East Lansing, MI

GATSBY GALA

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IMPORTANT SAFETY INFORMATION

BOTOX® may cause serious side effects that can be life threatening. Call your doctor or get medical help right away if you have any of these problems any time (hours to weeks) after injection of BOTOX®:

- **Problems swallowing, speaking, or breathing,** due to weakening of associated muscles, can be severe and result in loss of life. You are at the highest risk if these problems are pre-existing before injection. Swallowing problems may last for several months.
- **Spread of toxin effects.** The effect of botulinum toxin may affect areas away from the injection site and cause serious symptoms including: loss of strength and all-over muscle weakness, double vision, blurred vision and drooping eyelids, hoarseness or change or loss of voice (dysphonia), trouble saying words clearly (dysarthria), loss of bladder control, trouble breathing, trouble swallowing. **If this happens, do not drive a car, operate machinery, or do other dangerous activities.**

There has not been a confirmed serious case of spread of toxin effect away from the injection site when BOTOX® has been used at the recommended dose to treat Chronic Migraine.

Please see additional Important Safety Information on adjacent page.

MEDICATION GUIDE
BOTOX® and BOTOX® Cosmetic (Boe-tox) (onabotulinumtoxinA) for Injection

Read the Medication Guide that comes with **BOTOX** or **BOTOX Cosmetic** before you start using it and each time it is given to you. There may be new information. This information does not take the place of talking with your doctor about your medical condition or your treatment. You should share this information with your family members and caregivers.

What is the most important information I should know about BOTOX and BOTOX Cosmetic?

BOTOX and BOTOX Cosmetic may cause serious side effects that can be life threatening, including:

- **Problems breathing or swallowing**
- **Spread of toxin effects**

These problems can happen hours, days, to weeks after an injection of BOTOX or BOTOX Cosmetic. Call your doctor or get medical help right away if you have any of these problems after treatment with BOTOX or BOTOX Cosmetic:

1. Problems swallowing, speaking, or breathing. These problems can happen hours, days, to weeks after an injection of BOTOX or BOTOX Cosmetic usually because the muscles that you use to breathe and swallow can become weak after the injection. Death can happen as a complication if you have severe problems with swallowing or breathing after treatment with **BOTOX** or **BOTOX Cosmetic**.

- People with certain breathing problems may need to use muscles in their neck to help them breathe. These people may be at greater risk for serious breathing problems with **BOTOX** or **BOTOX Cosmetic**.
- Swallowing problems may last for several months. People who cannot swallow well may need a feeding tube to receive food and water. If swallowing problems are severe, food or liquids may go into your lungs. People who already have swallowing or breathing problems before receiving **BOTOX** or **BOTOX Cosmetic** have the highest risk of getting these problems.

2. Spread of toxin effects. In some cases, the effect of botulinum toxin may affect areas of the body away from the injection site and cause symptoms of a serious condition called botulism. The symptoms of botulism include:

- loss of strength and muscle weakness all over the body
- double vision
- blurred vision and drooping eyelids
- hoarseness or change or loss of voice (dysphonia)
- trouble saying words clearly (dysarthria)
- loss of bladder control
- trouble breathing
- trouble swallowing

These symptoms can happen hours, days, to weeks after you receive an injection of **BOTOX** or **BOTOX Cosmetic**.

These problems could make it unsafe for you to drive a car or do other dangerous activities. See "What should I avoid while receiving **BOTOX** or **BOTOX Cosmetic**?"

There has not been a confirmed serious case of spread of toxin effect away from the injection site when **BOTOX** has been used at the recommended dose to treat chronic migraine, severe underarm sweating, blepharospasm, or strabismus, or when **BOTOX Cosmetic** has been used at the recommended dose to treat frown lines and/or crow's feet lines.

What are BOTOX and BOTOX Cosmetic?

BOTOX is a prescription medicine that is injected into muscles and used:

- to treat overactive bladder symptoms such as a strong need to urinate with leaking or wetting accidents (urge urinary incontinence), a strong need to urinate right away (urgency), and urinating often (frequency) in adults when another type of medicine (anticholinergic) does not work well enough or cannot be taken.
- to treat leakage of urine (incontinence) in adults with overactive bladder due to neurologic disease when another type of medicine (anticholinergic) does not work well enough or cannot be taken.
- to prevent headaches in adults with chronic migraine who have 15 or more days each month with headache lasting 4 or more hours each day.
- to treat increased muscle stiffness in elbow, wrist, and finger muscles in adults with upper limb spasticity.
- to treat the abnormal head position and neck pain that happens with cervical dystonia (CD) in adults.
- to treat certain types of eye muscle problems (strabismus) or abnormal spasm of the eyelids (blepharospasm) in people 12 years and older.

BOTOX is also injected into the skin to treat the symptoms of severe underarm sweating (severe primary axillary hyperhidrosis) when medicines used on the skin (topical) do not work well enough.

BOTOX Cosmetic is a prescription medicine that is injected into muscles and used to improve the look of moderate to severe frown lines between the eyebrows (glabellar lines) in adults for a short period of time (temporary).

BOTOX Cosmetic is a prescription medicine that is injected into the area around the side of the eyes to improve the look of crow's feet lines in adults for a short period of time (temporary).

You may receive treatment for frown lines and crow's feet lines at the same time.

It is not known whether **BOTOX** is safe or effective in people younger than:

- 18 years of age for treatment of urinary incontinence
- 18 years of age for treatment of chronic migraine
- 18 years of age for treatment of spasticity
- 16 years of age for treatment of cervical dystonia
- 18 years of age for treatment of hyperhidrosis
- 12 years of age for treatment of strabismus or blepharospasm

BOTOX Cosmetic is not recommended for use in children younger than 18 years of age.

It is not known whether **BOTOX** and **BOTOX Cosmetic** are safe or effective to prevent headaches in people with migraine who have 14 or fewer headache days each month (episodic migraine).

It is not known whether **BOTOX** and **BOTOX Cosmetic** are safe or effective for other types of muscle spasms or for severe sweating anywhere other than your armpits.

Who should not take BOTOX or BOTOX Cosmetic?

Do not take **BOTOX** or **BOTOX Cosmetic** if you:

- are allergic to any of the ingredients in **BOTOX** or **BOTOX Cosmetic**. See the end of this Medication Guide for a list of ingredients in **BOTOX** and **BOTOX Cosmetic**.
- had an allergic reaction to any other botulinum toxin product such as *Myobloc®*, *Dysport®*, or *Xeomin®*
- have a skin infection at the planned injection site
- are being treated for urinary incontinence and have a urinary tract infection (UTI)
- are being treated for urinary incontinence and find that you cannot empty your bladder on your own (only applies to people who are not routinely catheterizing)

What should I tell my doctor before taking BOTOX or BOTOX Cosmetic?

Tell your doctor about all your medical conditions, including if you:

- have a disease that affects your muscles and nerves (such as amyotrophic lateral sclerosis [ALS or Lou Gehrig's disease], myasthenia gravis or Lambert-Eaton syndrome). See "What is the most important information I should know about **BOTOX** and **BOTOX Cosmetic**?"
- have allergies to any botulinum toxin product
- had any side effect from any botulinum toxin product in the past
- have or have had a breathing problem, such as asthma or emphysema
- have or have had swallowing problems
- have or have had bleeding problems
- have plans to have surgery
- had surgery on your face
- have weakness of your forehead muscles, such as trouble raising your eyebrows
- have drooping eyelids
- have any other change in the way your face normally looks
- have symptoms of a urinary tract infection (UTI) and are being treated for urinary incontinence. Symptoms of a urinary tract infection may include pain or burning with urination, frequent urination, or fever.
- have problems emptying your bladder on your own and are being treated for urinary incontinence
- are pregnant or plan to become pregnant. It is not known if **BOTOX** or **BOTOX Cosmetic** can harm your unborn baby.
- are breast-feeding or plan to breastfeed. It is not known if **BOTOX** or **BOTOX Cosmetic** passes into breast milk.

Tell your doctor about all the medicines you take, including prescription and nonprescription medicines, vitamins and herbal products. Using **BOTOX** or **BOTOX Cosmetic** with certain other medicines may cause serious side effects. **Do not start any new medicines until you have told your doctor that you have received BOTOX or BOTOX Cosmetic in the past.**

Especially tell your doctor if you:

- have received any other botulinum toxin product in the last four months
- have received injections of botulinum toxin, such as *Myobloc*® (rimabotulinumtoxinB), *Dysport*® (abobotulinumtoxinA), or *Xeomin*® (incobotulinumtoxinA) in the past. Be sure your doctor knows exactly which product you received.
- have recently received an antibiotic by injection
- take muscle relaxants
- take an allergy or cold medicine
- take a sleep medicine
- take anti-platelets (aspirin-like products) and/or anti-coagulants (blood thinners)

Ask your doctor if you are not sure if your medicine is one that is listed above.

Know the medicines you take. Keep a list of your medicines with you to show your doctor and pharmacist each time you get a new medicine.

How should I take BOTOX or BOTOX Cosmetic?

- **BOTOX** or **BOTOX Cosmetic** is an injection that your doctor will give you.
- **BOTOX** is injected into your affected muscles, skin, or bladder.
- **BOTOX Cosmetic** is injected into your affected muscles.
- Your doctor may change your dose of **BOTOX** or **BOTOX Cosmetic**, until you and your doctor find the best dose for you.
- **Your doctor will tell you how often you will receive your dose of BOTOX or BOTOX Cosmetic injections.**

What should I avoid while taking BOTOX or BOTOX Cosmetic?

BOTOX and **BOTOX Cosmetic** may cause loss of strength or general muscle weakness, or vision problems within hours to weeks of taking **BOTOX** or **BOTOX Cosmetic. If this happens, do not drive a car, operate machinery, or do other dangerous activities.** See "What is the most important information I should know about **BOTOX** and **BOTOX Cosmetic**?"

What are the possible side effects of BOTOX and BOTOX Cosmetic?

BOTOX and BOTOX Cosmetic can cause serious side effects. See "What is the most important information I should know about **BOTOX** and **BOTOX Cosmetic**?"

Other side effects of BOTOX and BOTOX Cosmetic include:

- dry mouth
- discomfort or pain at the injection site
- tiredness
- headache
- neck pain
- eye problems: double vision, blurred vision, decreased eyesight, drooping eyelids, swelling of your eyelids, and dry eyes.
- urinary tract infection in people being treated for urinary incontinence
- painful urination in people being treated for urinary incontinence
- inability to empty your bladder on your own and are being treated for urinary incontinence. If you have difficulty fully emptying your bladder after getting **BOTOX**, you may need to use disposable self-catheters to empty your bladder up to a few times each day until your bladder is able to start emptying again.
- allergic reactions. Symptoms of an allergic reaction to **BOTOX** or **BOTOX Cosmetic** may include: itching, rash, red itchy welts, wheezing, asthma symptoms, or dizziness or feeling faint. Tell your doctor or get medical help right away if you are wheezing or have asthma symptoms, or if you become dizzy or faint.

Tell your doctor if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of **BOTOX** and **BOTOX Cosmetic**. For more information, ask your doctor or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about BOTOX and BOTOX Cosmetic:

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide.

This Medication Guide summarizes the most important information about **BOTOX** and **BOTOX Cosmetic**. If you would like more information, talk with your doctor. You can ask your doctor or pharmacist for information about **BOTOX** and **BOTOX Cosmetic** that is written for healthcare professionals.

What are the ingredients in BOTOX and BOTOX Cosmetic?

Active ingredient: botulinum toxin type A

Inactive ingredients: human albumin and sodium chloride

This Medication Guide has been approved by the U.S. Food and Drug Administration.

Manufactured by: Allergan Pharmaceuticals Ireland a subsidiary of: Allergan, Inc.
2525 Dupont Dr.
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Migraine, Epilepsy and Genetics

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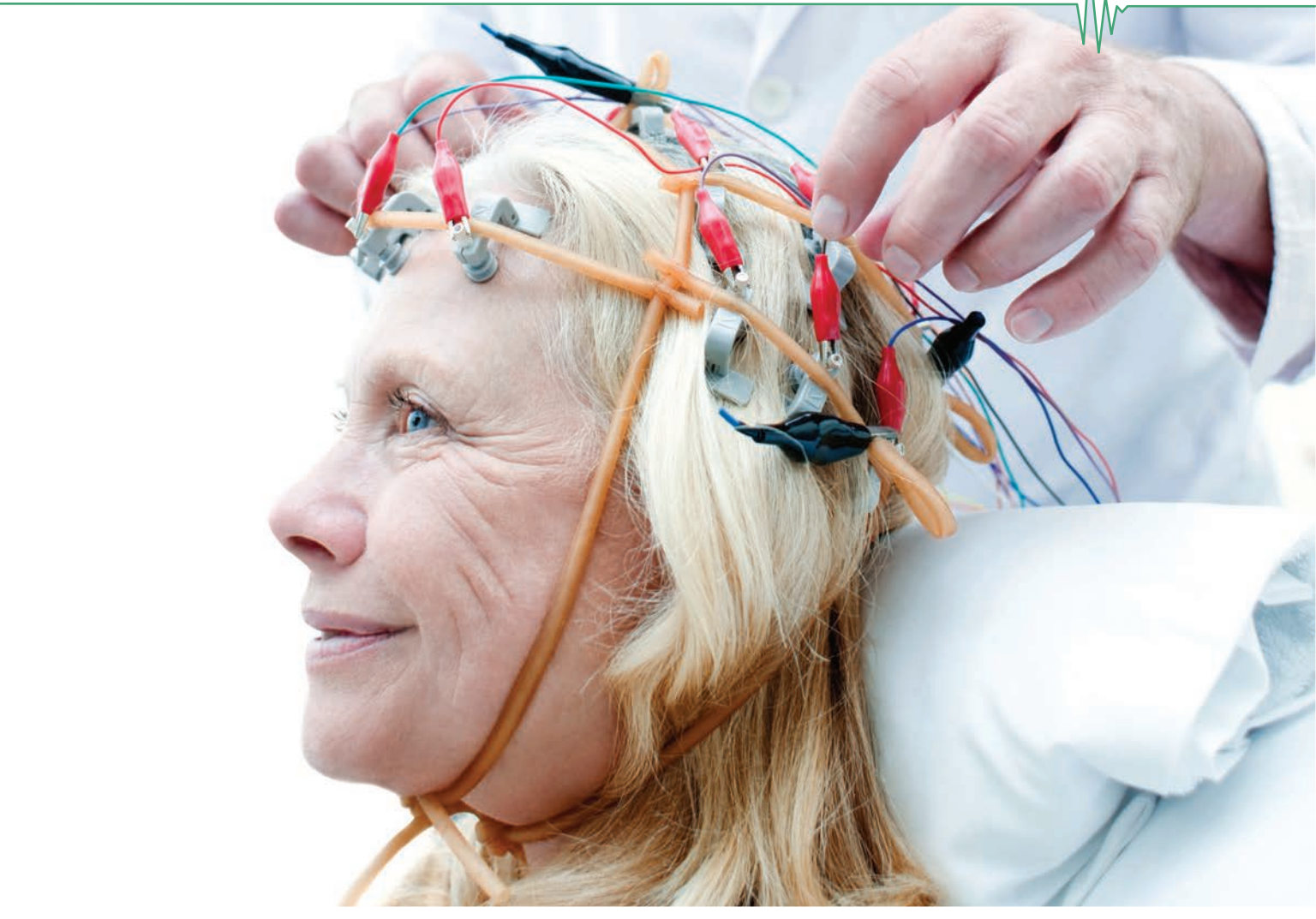
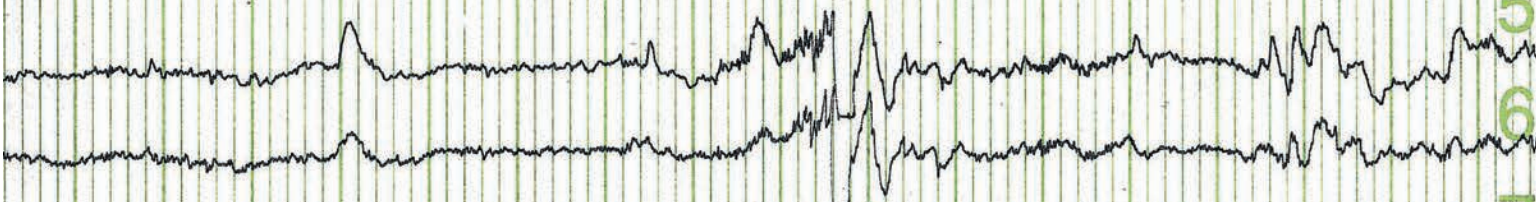
This article is based on Dr. Winawer's Seymour Diamond, M.D. Lectureship, *"Evidence for a Shared Genetic Susceptibility to Migraine and Epilepsy*," which was presented on February 14, 2014, at the course, *The 27th Annual Practicing Physician's Approach to the Difficult Headache Patient*. The course was sponsored by the Diamond Headache Clinic Research & Educational Foundation, and was held at the Island Hotel, Newport Beach, California. The lectureship is awarded to the best article in headache medicine from the prior year. Dr. Winawer's lecture was based on the article of the same title which appeared in the journal, *Epilepsia*, Volume 54, 2013. Her coauthors were Robert Connors and the investigators of the Epilepsy Phenome/Genome Project (EPGP).





Migraine and epilepsy are often mentioned together, in both research and patient care. Why? First, both migraine and epilepsy are paroxysmal disorders of the nervous system; they consist of recurrent attacks with return to baseline function between attacks. Second, attacks of migraine and epileptic seizures may have similar symptoms, such as changes in vision or tingling. Sometimes, it may even be difficult to distinguish certain types of seizures from certain types of migraine, especially those which cause confusion or loss of consciousness. Third, migraine and epilepsy are comorbid conditions—in other words, they occur together within individuals more than would be expected by chance alone. Individuals with migraine are more likely to have epilepsy, and people with epilepsy are more likely to have migraine. Finally, there are overlaps in the treatment of migraine and epilepsy.

Research studies have identified genetic causes of some rare types of migraine, and separate genetic causes of some rare types of epilepsy. However, it was not known whether genetics might play a role in the co-occurrence of migraine and epilepsy, particularly common types of migraine and epilepsy. In our study, we attempted to determine whether the comorbidity of migraine and epilepsy might be caused by shared genetic causes between the two disorders – i.e. whether there could be genes that cause both migraine and epilepsy.

In order to answer this question, we studied participants from a very large study of epilepsy, the Epilepsy Phenome/Genome Project (EPGP). EPGP is a consortium of 27 medical centers in the U.S. and internationally, made up of several hundred physicians and staff who have worked together to enroll over 4,000 individuals with epilepsy and their family members. One part of the study enrolled families in which more than one person had epilepsy of unknown cause. Most of these families included two siblings who both had epilepsy or at least one child with epilepsy who had one parent with epilepsy.

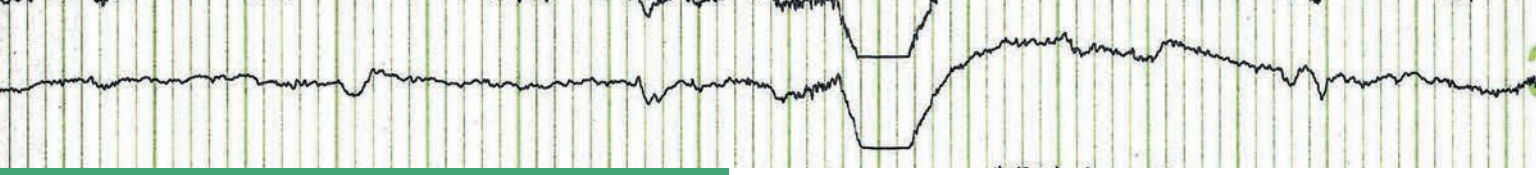
Our research was based on the concept that if two disorders share a common genetic cause, then if one of the disorders occurs in a family, particularly in many individuals in that family, then the other disorder is more likely to occur in that family. Using this principle, we predicted that more individuals with *seizures* within the family, made *migraines* more likely to occur in the enrolled EPGP participants. If in families with more individuals with seizure disorders, migraine was also more common, then that would provide evidence for a shared genetic contribution to migraine and epilepsy.

We used this cohort of families in which two or more individuals had epilepsy. Detailed information was collected from interviews about participants' epilepsy and headaches. In our interviews, we also asked a question about whether there were additional people in the family who had seizures, beyond the two people who had already been enrolled. "Was there anyone else in the family who has seizures? Who are they and what is their relationship to you?" We were able to use the information about these additional individuals with epilepsy to understand more about the genetics of migraine and epilepsy.

We studied 730 participants, age 12 or older, in families with two or more individuals with seizures. Individuals were included who had either generalized epilepsy, in which seizures begin on both sides of the brain at once, or focal epilepsy, in which seizures begin in one part of the brain and may spread. Those with a known cause of their epilepsy, such as stroke or head trauma, were not included in the study.

In families with four or more individuals with seizure disorders, (ie two or more additional affected individuals beyond the enrolled pair), migraines were three times more likely to occur, compared to families with only two affected individuals with seizures. This indicates that the stronger the genetic effect on *epilepsy* in the family, the higher the rates of *migraine* in the participants. This relationship between seizure disorders and migraine was only demonstrated when we examined the closest, ie first-degree relatives (parents, children, and siblings) with seizure disorders. When we included more distant relatives, the effect did not persist. This provided additional evidence that the strength of the genetic effect on epilepsy predicts the occurrence of migraine in these families.

We then wanted to determine whether evidence for



Seizure is the clinical manifestation of an abnormal discharge of a population of cells in the brain (neurons) that all fire together. When a population of neurons starts firing abnormally all together, this electrical event can produce a manifestation in a person: the clinical features of a seizure. Clinical features can be subjective – something that the patient notices such as a rising feeling in the stomach, a taste or a smell – and/or objective, such as jerking of the limbs or loss of consciousness.

Epilepsy is a neurological disorder characterized by the occurrence of seizures without acute provocation. Epilepsy is common: 1 in 26 people develop epilepsy at some point in their lives. About one-third of people still have seizures despite treatment with currently available medications. Some people's epilepsy can be managed by surgery if an identifiable region of the brain can be located where the seizures originate, and that region can be resected surgically. But many people with epilepsy still have seizures despite treatment efforts.

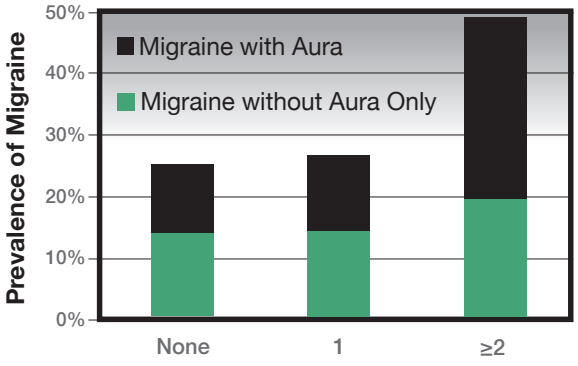
About two-thirds of epilepsy has no identified cause. Genetic factors may play a critical role particularly in that subset of epilepsy. Genetic research has begun to offer a novel understanding of the causes and the underlying biology of epilepsy. That understanding can be used to develop targeted new treatments, and transform patient care.

"Our results are the first demonstration of a shared genetic effect on migraine and epilepsy in a large group of individuals with common epilepsy and common migraine."

this shared genetic cause was restricted to specific types of migraine or epilepsy. First, we looked at migraine with aura and migraine without aura. Migraine with aura (MA) is a specific sub-type of migraine, where a person experiences a warning sensation before the headache. A migraine aura consists of reversible focal neurological symptoms. Those symptoms, which can be quite varied, usually develop gradually over 5 to 20 minutes and last for less than 60 minutes. The headache usually follows the aura symptoms. The most common aura symptoms are visual symptoms, such as bright flickering lights and geometric patterns with impaired vision. Sometimes during an aura, patients will be unable to see in a certain part of their visual field. They may also experience loss of sensation on one side of the body, tingling sensations, weakness on one side of the body, inability to speak, or vertigo. It is important to distinguish more dangerous neurological conditions that can cause these symptoms before attributing the cause to migraine.

Some people experience both headaches with aura and without aura. In this study, we separated participants with migraine into those who ever had auras (MA) from those who never had an aura with their migraine headaches (MO only). In our study, when we divided migraine types, we found that the shared genetic effect between migraine and epilepsy was specific to MA; in other words, MO-only did

FIGURE 1:
Lifetime Prevalence of Migraine in
EPGP Participants, by History of Seizure Disorders
in Non-Enrolled First-Degree Relatives



not increase with the number of first-degree affected individuals with seizures. This corresponds to the thought that auras are a phenomenon that has some similarity to seizures – they are transient neurological disturbances in the brain. A strong relationship between MA and epilepsy has been found in other research studies as well.

We then continued to separate our results according to the type of epilepsy experienced by the study participants – either focal epilepsy or generalized epilepsy. We found that the evidence for a shared genetic effect on migraine and epilepsy was just as strong in the individuals with focal epilepsy as with generalized epilepsy. This result was also as strong if both participants in the family had the same type of epilepsy or different types of epilepsy.

Our results are the first demonstration of a shared genetic effect on migraine and epilepsy in a large group of individuals with common epilepsy and common migraine. About two-thirds of epilepsy has no identified cause. Genetic factors may play a critical role particularly in that subset of epilepsy. The hope of scientists, caregivers, and families with epilepsy is that genetics will lead to greater understanding of the causes and the pathophysiology of epilepsy. Understanding more about the genetics of a disorder can help clarify the underlying biology of that disorder. That knowledge can be used to develop targeted new therapies, and allow physicians to better care for patients with epilepsy and migraine. HW

Could your **headaches** actually be **CHRONIC MIGRAINE**?

Chronic Migraine is a distinct neurologic condition defined as having **15 or more headache days per month,** with headaches lasting **4 hours/day or longer.**[1]

The condition impacts **3.2 million Americans** today,*[2,3] however, many people don't know they have it.

Based on one study (n=520), it is estimated that approximately **80% of those who meet the clinical definition of Chronic Migraine have not received an accurate diagnosis**[4] and as a result, may be unaware of their treatment options.

Recent research† indicates that the burden of Chronic Migraine extends well beyond the people living with it, **significantly impacting family members** as well.[5]

3x/month
on average respondents
missed a date or social event with their partner.[5]

7x/month
on average respondents
reported reduced involvement in family activities[5]

4x/month
on average respondents
cancelled plans[5]

1 in 5
of respondents
missed a planned family vacation
within the past year.[5]

The new **Identifying Chronic Migraine (ID-CM) screening tool,** the only tool developed using the most recent headache classification guidelines, is now available to help you communicate your headache symptoms and the impact those symptoms have on your daily life to your doctor.[6]

To learn more about Chronic Migraine and to find a specialist in your area, visit **www.MyChronicMigraine.com.**

*Prevalence calculation is based off of census projections.

†The Chronic Migraine Epidemiology and Outcomes (CaMEO) Study is a cross-sectional and longitudinal Internet study designed to characterize the course of episodic migraine (EM) and chronic migraine (CM). Participants were recruited from a Webpanel using quota sampling in an attempt to obtain a sample demographically similar to the U.S. population.

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2. Natoli JL, Manack A, Dean B, Butler Q, Turkel CC, Stovner L, Lipton RB. Global Prevalence of Chronic Migraine: A Systematic Review. *Cephalalgia*. 2010. May;30(5):599-609.
3. Center for Disease Control and Prevention. Census Projections Request. CDC WONDER Web site. Available at: http://wonder.cdc.gov/population-projections.html. Last accessed December 5, 2014.
4. Bigal ME, Serrano D, Reed M, Lipton RB. Chronic migraine in the population: burden, diagnosis, and satisfaction with treatment. *Neurology*. 2008;71(8):559-566.
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6. Lipton, RB, Serrano D, Buse DC, et al. Improving the Detection of Chronic Migraine: Development and Validation of the Identify Chronic Migraine(ID-CM). Cephalagia 2015, Manuscript Accepted.

Physical Therapy for Headache

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Physical therapy is often utilized in the comprehensive treatment for headache sufferers. For certain types of headaches, physical therapy has proven to be successful in decreasing and/or resolving the intensity and frequency of symptoms, improving an individual's function and mobility, and improving an individual's quality of life. Cervicogenic headache is a common type of headache seen in clinical practice that responds well to physical therapy.

A cervicogenic headache stems from the structures in the cervical spine (neck) and radiates into other areas, such as the back of the head, over the top of the head, and/or on the side of the head. This type of headache may occur gradually or occur as a result of an injury. An individual suffering from a cervicogenic headache may report an increase in symptoms with movement of the head or neck and a decreased ability to do so. Symptoms may increase with prolonged positions or postures, such as sitting for extended periods of time at the computer. Other symptoms associated with cervicogenic headache include: neck pain; muscle tenderness; tenderness over the joints in the neck; shoulder/arm pain on the same side of the headache; weakness; and, possible dizziness, nausea, and lightheadedness. Cervicogenic headache and its associated symptoms are typically the result of stiff joints in the neck, more specifically the upper portion of the neck; soft tissue tightness and/or trigger points; and, possibly nerve irritation.

Physical therapy is commonly prescribed for individuals who experience cervicogenic headaches. The physical therapist will complete a comprehensive musculoskeletal exam to determine which structures are contributing to the symptoms. The exam includes assessment of: range of motion of the head/neck; joint mobility; musculature tightness, tenderness, and trigger points; strength and endurance of the deep neck flexor muscles; strength and endurance of the axioscapular muscles; and posture. The physical therapist will also include other appropriate tests and measures.

Based on the results of the examination, the physical therapist will then design a specific treatment plan. The physical therapist will likely perform manual therapy techniques in order to decrease pain and increase the movement of the head/neck. **Figure 1** demonstrates a joint mobilization technique for a stiff joint in the upper cervical spine. **Figure 2** demonstrates a general manual therapy technique used to decrease stress on the head and neck and promote pain relief.

In addition to manual therapy techniques, physical therapy treatment will include the performance of exercises to increase the strength and endurance of the deep neck flexor muscles. **Figure 3** demonstrates a craniocervical flexion exercise whereby the individual is instructed to gently nod his head, by bringing his chin towards his throat. He is also instructed to relax his shoulders to avoid

"Cervicogenic headache and its associated symptoms are typically the result of stiff joints in the neck, more specifically the upper portion of the neck"

compensatory patterns of other muscles. He is instructed to hold this position for a certain amount of time, and repeats this action for a certain amount of repetitions. Additional exercises are performed in physical therapy to promote strength and endurance of the neck muscles and upper back muscles.

Other physical therapy interventions used to address cervicogenic headache include, and are not limited to: soft tissue massage; cardiovascular exercise; education on posture and body mechanics; stretching; and, pain relieving modalities. Individuals should expect to attend physical therapy sessions 2 to 3 times per week for 3 to 6 weeks. With appropriate treatment from a physical therapist who specializes in headache interventions, one can expect a decrease or resolution in cervicogenic headache signs and symptoms. **HW**

Figure 1

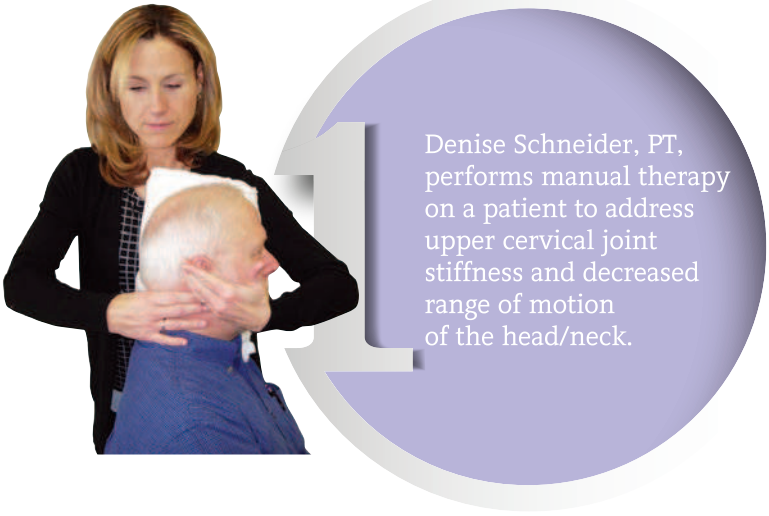

Figure 2

Figure 3

Suggested reading:

Biondi, D. Cervicogenic headache: A review of diagnostic and treatment strategies. *JAOA*. April 2005;105 (4).

Chaibi, A et al. Manual therapies for cervicogenic headache: A systematic review. *J Headache Pain.* 2012; 13: 351-359.

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Jull, G et al. Trial of management of cervicogenic headache. *Pine* 2002; 27 (17):1835-1843.

Winkel D. *Differential Diagnosis of the Spine: Nonoperative Orthopedic Medicine and Manual Therapy*. PRO-ED, Inc; 1996. **HW**

What to Do When Your Child with Headache Is Leaving for College

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Mount Sinai Medical Center
New York, NY

The college environment is fraught with novelty for incoming freshman. For most students, the challenge lies in adapting to new academic and social pressures. However, for those with migraine, the task lies beyond this: navigating a host of new lifestyle factors that may trigger migraines. As any migraineur knows, change is often a stimulus for headache, and for those new to campus the changes in food, mood, sleep, and stress all play a role. Migraine is thought of as a genetic tendency toward headache. Thus, it is likely many parents reading this article for their teenager had once themselves faced the challenge of leaving for college as a migraine sufferer. Knowing what to expect and having a plan in place can alleviate concerns and make for an easier transition.

Migraines occur above a certain threshold of triggers, at the interplay of genes and environment. At the cornerstone of migraine management is knowing one's triggers. If your teenager does not yet possess a good handle on this, now is a good time to start a headache diary – tracking the circumstances around each migraine episode and looking for patterns. An identifiable trigger may not always be present, but common trends may emerge, and behaviors can be modified to address this. Environmental triggers are entirely personal and vary from one individual to the next. Some common ones include:

irregular sleep patterns (too much or too little)
long periods without eating
dehydration
alcohol
caffeine or caffeine withdrawal
certain foods (commonly: MSG or nitrate)
hormone changes (as during menses)
weather changes
stress (both positive and negative)
depression or anxiety

"Recognizing triggers, preparing a treatment plan, and anticipating the changes in advance will give your teenager the best tools to keep his or her migraines managed."

Paying attention to the above-mentioned triggers and their role in headache may be helpful. For instance, a teenager who suffers from migraine exclusively on weekends may do well to avoid oversleeping.

Naturally, the college environment will be less structured than it was at home. Meals will be less nutritious, sleep patterns will be irregular, and classes and roommates will pose new demands. Stress, both good and bad, is perhaps the most common trigger for migraine, and will be an inevitable part of adjusting to the new pressures of college. It is important, then, to work closely on the triggers your teenager can control – like staying well-hydrated (with at least 2 liters of non-caffeinated fluid daily), eating regularly with balanced meals, maintaining an exercise regimen, and avoiding caffeine-overuse (no more than 200mg caffeine daily, about 2 regular cups of coffee), and known food and alcohol triggers.

The prospect of a roommate may be tricky. While sharing living space with a peer is a unique social opportunity in the college experience, it also means giving up some control of the environment. Freedom from the above triggers and access to a dark, quiet, snore-free, scent-free surrounding when migraines do occur may not always be available. Roommate housing options vary widely. Options allowing for some degree of private space, like multi-unit suites with shared common space, may be feasible for some migraineurs. Although, for those who suffer more frequent and/or severe headaches, any shared situation might be untenable and teenagers may opt for a single room allowing them exclusive control of their space. A physician's note is usually required, and it is best to make this request early.

Even with optimal lifestyle management- avoidance of triggers and an ideal roommate situation, occasionally migraines will inevitably occur. Having a plan in place before your child leaves for college is essential to tackle this situation. You should share the headache diary with your child's physician months before leaving for college. If there has been a recent change in your child's headaches, your physician may decide to run tests to exclude underlying medical problems (such as anemia and thyroid dysfunction). If the headaches are being inadequately treated, this is an opportunity to try alternate rescue medications. Additionally, if headaches are frequent (usually above 5 days per month) or intrusive, there may be a role to initiate a preventive regimen. This usually involves prophylactic medication, but other options may include specific vitamin supplementations, addressing comorbid mood disorders, biofeedback training, physical therapy, and acupuncture. These preventive strategies raise the headache threshold and make it harder for the brain to generate headache – the goal being to decrease the migraines' frequency, severity, duration, and/or improve response to rescue medication. These medicines take around 6 weeks to take effect, and finding the correct regimen may require trial and error, so it is important to begin working with your physician on this plan as soon as possible.

With the transition to college come new challenges for those with migraine. Teenagers prepare with standardized testing and rigorous applications, but planning for migraine care is just as important. Recognizing triggers, preparing a treatment plan, and anticipating the changes in advance will give your teenager the best tools to keep his or her migraines managed in the background, and allow him to be fully present in the college experience. **HW**

Take control of your migraine...

before your migraine takes control of you

Clinically proven to relieve:

✓ Migraine pain ✓ Nausea
✓ Sensitivity to light & sound

NATIONAL HEADACHE FOUNDATION™ : Acknowledges Advil® Migraine as an effective treatment for migraine headaches

Use as directed

Leave a legacy to the National Headache Foundation.

Charitable Giving

There are different ways that individuals can support the mission of the National Headache Foundation through donations. A present donation of money or other items of value is the most frequent manner of support. Provisions for specific bequests or residual bequests in one's will or trust are often utilized. As part of one's estate planning or planned giving, an individual can provide for charitable giving that may minimize gift and estate taxes while providing for (a) the smooth transfer of ownership, (b) the care and support of dependents, and (c) the avoidance of disputes among survivors.

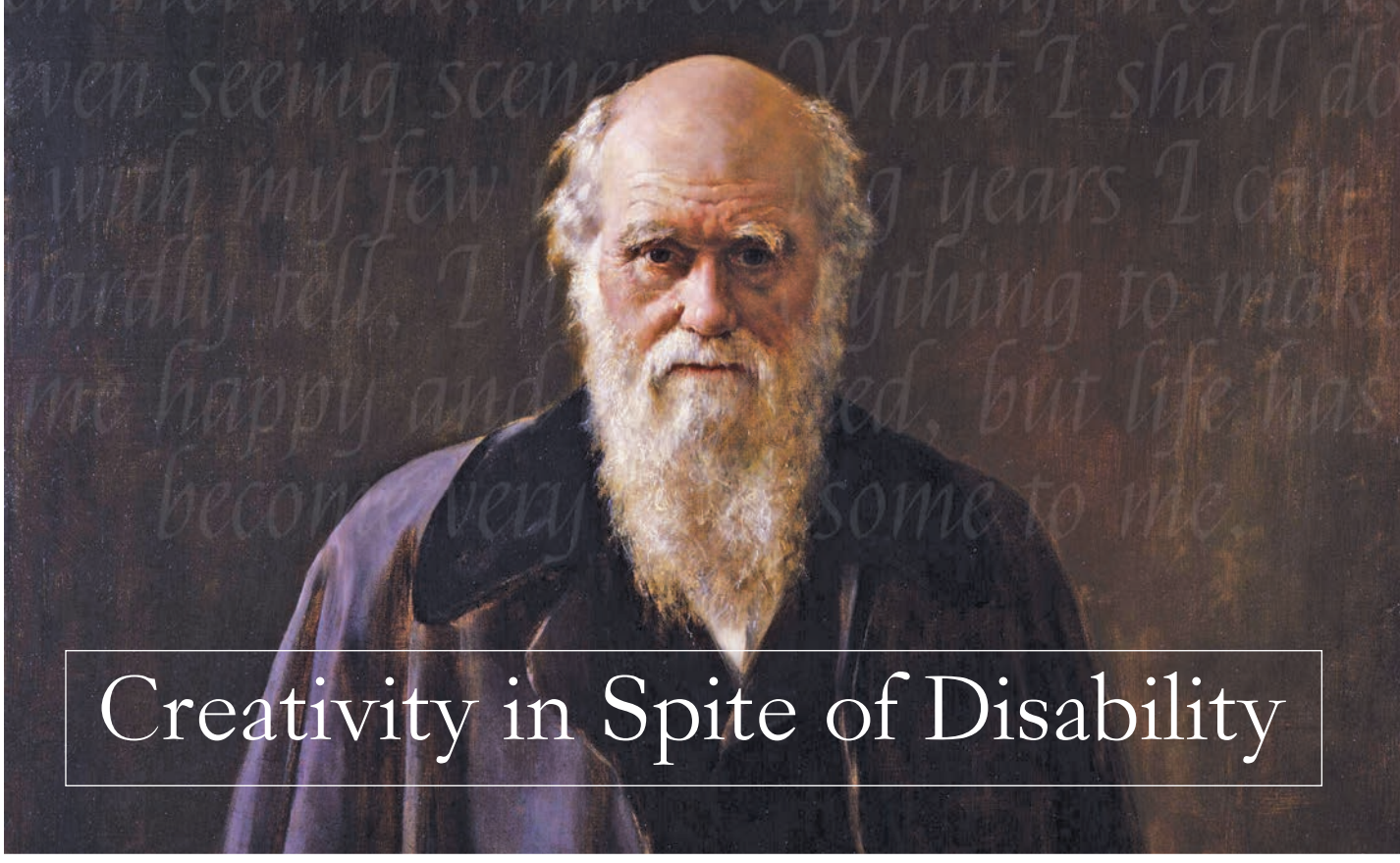
Three commonly used planned giving vehicles are:

1. **Charitable remainder annuity trust.** Assets (generally securities) are transferred to a trust. The trust makes fixed annual payments to the donor or other specified beneficiaries named by the donor. When the trust terminates upon the death of the donor or other specified beneficiaries, the remainder of the assets in the trust pass to the charity. A trust document is required. The donor retains the ability to change the designated charity.

2. **Charitable remainder unitrust.** Assets are transferred to a trust. The donor or other specified beneficiaries named by the donor receive fluctuating payouts from the trust (a percentage of the value of the principal) and, upon the death of the donor or other specified beneficiaries, the remainder of the assets passes to the designated charity. A trust document is required. The donor retains the ability to change designated charity.

3. **Charitable gift annuity.** The donor, under a contract with a charity, transfers cash or securities to the charity. The charity pays the designated beneficiary a fixed income for life. Upon the death of the beneficiary, the remaining balance passes to the charity. No trust document is required and the charity cannot be changed.

NATIONAL HEADACHE FOUNDATION™



Creativity in Spite of Disability

Seymour Diamond, MD
Executive Chairman and Founder
National Headache Foundation
Director Emeritus and Founder
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IN HIS 1974 BOOK, *CREATIVE MALADY*, PICKERING DESCRIBES A GROUP OF INDIVIDUALS WHO THRIVE CREATIVELY ALTHOUGH THEY ARE DEBILITATED BY CHRONIC ILLNESS.

One of this group is the renowned biologist, Charles Darwin (1809 to 1882). Darwin persevered in his scientific writings although he was plagued by migraine since his early twenties.

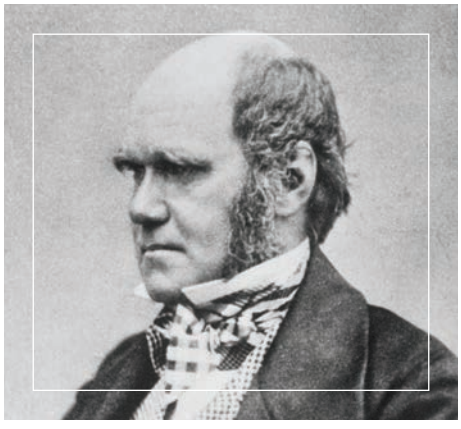
Reportedly, Darwin suffered a severe headache only a few days prior to his marriage to his cousin, Emma Wedgewood. He said that it was not the upcoming marriage that precipitated the headache but rather the actual nuptials, "As the excruciating moment drew close, Charles' usual symptoms appeared." He wrote to his fiancee, "My last two days in London, when I wanted to have most leisure, were rendered very uncomfortable by a bad headache, which continued two days and two nights, so that I doubted whether it ever meant to go and allow me to be married."

For those experiencing migraine, this scenario is truly believable. How often has a migraine attack appeared immediately before a stressful event, such as an exam or a significant ceremony (ie graduation)? For example, Charles Darwin was not able to attend his own father's funeral because of a severe headache. The fear of an impending attack will impact a happy event, such as a child's wedding. Many migraine sufferers will report that they made it through the event only to be sidelined later with a severe headache.

Throughout Darwin's adult life, he would experience a migraine attack that was triggered by a deviation in his normal routine. His family, including his wife and 10 children, learned to adapt to life with a migraineur – "a pall settled over his family. The children played in a depressed hush." Seven of his children lived to adulthood, and three inherited his headaches – something he feared for them. Darwin described his migraines as his "hereditary weakness." As we know, up to 70 percent of migraineurs will report a family history of similar headaches. Research continues into the identification of genomes associated

with migraine subsets, including familial hemiplegic migraine.

Based on Darwin's writings, some researchers have theorized that the scientist was suffering from depression. Darwin wrote to one correspondent, "We have just returned home after spending five weeks in Ulswater; the scenery is quite charming, but I cannot walk, and everything tires me, even seeing scenery. . .What I shall do with my few remaining years I can hardly tell, I have everything to make me happy and contented, but life has become very wearisome to me." As Pickering noted in his book, Darwin – unlike other depressed patients – was able to perform tasks during those reportedly "depression" periods. Although living as a recluse, Darwin was quite productive in his writings, including the publication of *On the Origin of Species* (1859) and *The Descent of Man* (1871).



His productivity in writing despite his disability could be attributed to the care of his wife. Following their marriage, Darwin became an invalid. He stopped attending scientific meetings and social events at friends' homes. With Emma's help, he was also able to avoid visitors to his own home. Emma was his shield from social interactions which made him ill, and also served as his caregiver. It appears that Mrs. Darwin enjoyed caring for invalids, and Charles became more dependent on his wife. This process has been described as the "concubine syndrome" which is most often seen in female patients. The patient's chronic illness, including headache, is used for secondary gain by a significant other, such as a spouse, parent, lover, or child. Emma was a facilitator for Charles' disability.

Darwin's illness improved as he aged, a scenario often seen in migraine. He became more productive during the last decade of his life. On April 19, 1882, at age 73, Darwin died of coronary heart disease. He had suffered a heart attack several weeks earlier and lingered. However, his headaches continued through this last illness. In a letter to Thomas Huxley, his son Frank wrote, "He remained in a condition of terrible faintness and suffered very much from overpowering nausea, interrupted by retchings. He more than once said, 'if I could but die'." According to Emma's memoirs of his last years, Darwin's final words to his family were, "I am not the least afraid of death – Remember what a good wife you have been to me – Tell all my children to remember how good they have been to me." And while Emma rested, he repeatedly told his children, Henrietta and Frank, that "It's almost worth while to be sick to be nursed by you."

Darwin's story reflects not only his productivity despite illness, but also the impact of chronic illness on an entire family. His recurrent headaches altered the roles of his wife and children, and their social interactions. The headaches had a life of their own within the family dynamics.

Because of his headaches, Darwin no longer ventured far from home and did not return to his scientific voyages. Who know what levels of learning would have been achieved if he had not been disabled by migraine? Despite his illnesses – headaches and possible depression – our own scientific knowledge has been enhanced because of Charles Darwin's scientific explorations and publications. **HW**

Suggested Reading

Browne J. *The Power of Place* – Volume II of a biography. New York: Knopf; 2002.

Diamond S, Franklin MA. *Headache Through the Ages*. Caddo, OK: Professional Communications; 2005.

Pickering GW. *Creative Malady*. London: Oxford; 1974.

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THE HEADACHE CLINICS

featuring:

The Headache Care Center
Springfield, Missouri

The Headache Care Center was founded in January, 1996, by Roger K. Cady, MD and Kathleen Farmer, PsyD. The following is based on an interview with Doctor Kathleen Farmer.

Doctor Cady attended medical school at the Mayo Medical School in Rochester, MN. He completed a Family Practice residency at Mayo Clinic-St. Francis in LaCrosse, WI, and continued his work in Family Practice in Hillsboro, WI. In 1986, Dr. Cady assumed the role of Medical Director at the Shealy Institute in Springfield, MO, where he remained until 1995, and where he began his work in headache medicine.

Doctor Cady is Board Certified by the American Board of Family Practice, and has received subspecialty certification in Headache Medicine from the United Council for Neurologic Subspecialties. He holds a Certificate of Added Qualification from the National Headache Foundation. In 2000, Dr. Cady was the co-recipient of the prestigious Harold G. Wolff Award from the American Headache Society for his research entitled "The Spectrum of Headache." He was elected to the Board of Directors for the National Headache Foundation in 1998, and has served as its Associate Executive Chairman since 2010. Dr. Roger Cady received the Lifetime Achievement Award from the National Headache Foundation in 2012.

Doctor Farmer is a psychologist specializing in Health Psychology at the Headache Care Center. She received her PsyD degree from the Forest Institute of Professional Psychology in Springfield, MO, and is a Diplomat of the American Academy of Pain Management. Prior to founding the Headache Care Center with Dr. Roger Cady, she served as the chair of the Psychology Department of the Shealy Institute for the Comprehensive Management of Pain from 1988 to 1995.

J. Kent Dexter, MD, is a graduate of the University of Missouri Medical School at Columbia, MO, where he completed a residency in Internal Medicine. Dr. Dexter is Board Certified in Internal Medicine, and was awarded the subspecialty certification in Headache Medicine from the United Council for Neurologic Subspecialties. He is a Fellow of the American College of Physicians. Dr. Dexter previously served in the Department of Medicine for St. Johns Regional Health Center, Springfield, MO, and was Chairman of Primary Care, Monroe Clinic, Monroe, WI. He returned to Springfield in 2003 to serve as the Medical Director of the Headache Care Center.

The other staff members of the Headache Care Center include Heather Manley, LPC; Danielle Gilmore, RN; Dani Hurt, RN; Sarah Woolford, RN; Angela Wall; and, Blair McClelland.

The typical patient at the Headache Care Center is an individual with debilitating headaches – most commonly chronic migraine. However, a wide range of other headache disorders are treated at the Center. Also, most patients have headache-related co-morbidities, including sleep disruption, irritable bowel syndrome, weight gain, and often depression. Adults as well as children are evaluated at the Center. A referral from another health care provider is not required.

At the first appointment at the center, the patient should expect to spend about 30 minutes with one of the nurses and describe their headaches as well as review other medical issues and medication history. The patient will then be seen by one of the Center's physicians for a 60-minute period which is comprised of a comprehensive diagnostic evaluation, as well as a physical and neurological examination. At this initial visit, an individualized treatment plan will be developed, including lifestyle, pharmacological,

Roger Cady MD & J. Kent Dexter MD

Kathleen Farmer, PsyD

Wall of Champions

and non-pharmacological interventions, and follow-up. The patient will also meet with a psychologist to determine the limbic contribution to the disability of headaches and development of a behavioral plan with the use of biofeedback and cognitive restructuring and follow-up.

A typical day at the Center is busy with new patient and follow-up visits. The schedule is highlighted by collaboration among the health care professionals and patients in order to implement the best treatment strategy for a patient. The Center does not specialize in any particular headache condition or treatment.

At the Center, the treatment philosophy is patient-centered, comprehensive, individualized care for the patient experiencing headache. They strive to assist patients to become successful managers of their headache disorders with compassion, education, and collaboration. Patients are guided to become collaborators with the health care professionals in order to make effective therapeutic and lifestyle decisions. Patients are provided with a "care-kit" of a variety of effective treatment tools.

The Center does not offer inpatient care but provides a comprehensive, intensive outpatient program for patients with intractable headaches. For those patients who have been successful through collaboration in their treatment, their photos are placed on the Wall of Champions. A wide-range of acute treatment options are available as well as a full-range of alternative therapies. Thermal biofeedback is central. Other important therapies include massage, nutritional interventions, acupuncture, nerve blocks, and transcutaneous stimulation. During the next few years, they would like to expand the complimentary services provided at the Center.

When asked about why they elected to practice Headache Medicine, Doctors Cady, Farmer, and Dexter noted that historically, most primary headaches (migraine, tension-type, and cluster) have been minimized as legitimate medical diseases. Headache patients have often been misdiagnosed and inadequately treated. These health care professionals have devoted over 25 years to the care and management of headache patients, conducting extensive research on pharmacological and non-pharmacological headache therapies, and have been pioneers in patient-centered headache management. They chose to go into headache medicine because they realized that headache is a manageable disease and that with appropriate care, patients can get their lives back. They concurred that headache is, without a doubt, one of the most rewarding medical conditions to treat.

When asked what they enjoy most about working in Headache Medicine, Doctors Cady, Farmer, and Dexter concurred that it is the patients. It is rewarding to see how patients can change their lives when provided with education and quality treatment. They each enjoy conducting research and being able to explore the new frontiers of headache medicine. And, it is rewarding to be part of their patients' success.

Do they have any general advice for the patient experiencing headache? They suggested that the patient record, in a diary, headache days, treatment, and the effects of treatment. The diaries should be shared with their health care provider at the initial visit and at follow-up visits. Patients should seek to learn about their headaches, and become involved in the management of the disorder. HW

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[1]Institute of Medicine Report from the Committee on Advancing Pain Research, Care, and Education: Relieving Pain in America, A Blueprint for Transforming Prevention, Care, Education and Research. The National Academies Press, 2011. [2]Advanced Pain Management; http://www.apmhealth.com/education/pain-awareness-month/pam—facts—information/ [3]2006 Voices of Chronic Pain Survey. (American Pain Foundation) [4]National Centers for Health Statistics, Chartbook on Trends in the Health of Americans 2006, Special Feature: Pain.