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PI and Its Associated Problematic Issues

TODAY, MORE THAN 150 different types of primary immunodeficiencies (PIs) have been identified, affecting approximately one in 1,200 people in the U.S.1 The first PI to be discovered, agammaglobulinemia, accounts for approximately half of all cases, 85 percent of which are the X-linked type (XLA). Usually referred to as an early-onset PI, meaning it begins during childhood (common variable immunodeficiency, the other most common PI, is typically referred to as late-onset), there are increasing reports of adults diagnosed with XLA. Realizing that a good number of our readers are likely diagnosed with agammaglobulinemia, we asked Dr. Bob Geng, an immunologist and frequent contributor to IG Living on immune disease-related matters, to explain in his article “Understanding Agammaglobulinemia” the hallmark symptoms of the different types of agammaglobulinemia, most notably XLA, its methods of diagnosis and treatment protocols.

As patients with agammaglobulinemia and other types of PI well know, many problematic issues associated with these diseases are a constant hindrance to living as well as possible. Access to medication could, presumably, be considered the most concerning of all issues because without it, patients would fail to survive. Yet, the brand of medication can be just as important as the type of medication itself. It’s not uncommon to hear of a medication brand switch at the hand of an insurance and/or pharmacy directive due to a drug’s high cost. Is it legal? It depends on the state in which a patient lives. While no state mandates therapeutic substitution, it may be allowed. For instance, in Illinois, therapeutic substitution is allowed only in hospitals, where doctors control the process. A drug can also be substituted because the one prescribed isn’t covered by insurance. But, patients do have rights. In her article “Patient Rights and Medication Changes,” IG Living’s patient advocate, Abbie Cornett, looks at the reasons medications may be switched and the risks involved in substitution therapy, especially for chronically ill PI patients. She also outlines how patients can help to prevent medication brand changes. Following her suggested steps puts patients more in control of their healthcare.

Anxiety and depression, which frequently accompany chronic illness, may take a back burner to medication issues, but they are equally distressing. There is, however, one way of dealing with these emotions beyond traditional therapy. Known as therapeutic writing or journal therapy, patients are finding that writing down their thoughts and emotions on a regular basis can help them to better deal with what is happening to them. Our article “The Healing Properties of Therapeutic Writing” explores how therapeutic writing works, both in therapy and as a self-help tool. Highlighted are some experiences from chronically ill patients who describe it as “life-changing.”

Lastly, autoimmune diseases that often accompany a PI diagnosis can be a harbinger of a patient’s myriad physiological side effects. But, paying attention to the role of nutrition can help manage inflammation and optimize the immune health benefits of foods. Registered dietitian Mindy Hermann explains in her article “The Role of Nutrition in Treating Autoimmune Disease,” there is no one solution, only an individualized approach.

As always, I hope you gain insight from the information presented and enjoy this edition of IG Living.

Ronale Tucker Rhodes, MS

WINSTON CHURCHILL once said, “Those who fail to learn from history are doomed to repeat it.” This axiom has never been more spot-on as it relates to public policy regarding healthcare. During every election cycle, at both the federal and state level, legislation is introduced with the intent to either fix or improve healthcare. But frequently, what is adopted neither fixes nor improves it. In fact, it oftentimes makes situations worse, or it has unforeseen consequences that negatively affect patients’ access to care.

A good example of this occurred in 2003, when the Medicare Modernization Act altered the basis for Part B drug reimbursement from average wholesale price (AWP) to average sales price (ASP), making it difficult for physicians to recover the costs of prescribing intravenous immune globulin (IVIG) therapy. As a result, patients were hard-pressed to find a physician who could afford to treat them with IVIG, forcing them to either forgo treatment or seek it in a more costly hospital setting.

Unfortunately, policymakers failed to learn from this mistake, and in December passed the 21st Century Cures Act, which went into effect on Jan. 1. While the act has many positive provisions such as funding research to find cures for rare and chronic diseases, reducing regulations on access to medical research and speeding up testing of new drugs, it also contains two sections that negatively impact Medicare patients who are treated with IG therapy in the home setting.

Similar to what happened to IVIG under the 2003 Medicare Modernization Act, one section of the new act modifies reimbursement for drugs covered under the Medicare durable medical equipment benefit. Specifically, section 5004 of the act changes reimbursement for IG infused in the home from 95 percent of the first published AWP to the average ASP plus 6 percent, less a 2 percent reduction of payment due to the federal sequestration required under the Budget Control Act of 2011. As legislated, applying sequestration of 2 percent to 80 percent of Medicare payment portions changes the actual reimbursement to ASP plus 4.3 percent. As a result, the cost to purchase an IG product exceeds reimbursement for many specialty pharmacies.

A second provision in the act will rectify the reimbursement problem with some changes, but it is not scheduled to go into effect until Jan. 1, 2021. Section 5012 allows the Centers for Medicare and Medicaid to reimburse “qualified home infusion therapy suppliers” for providing infusion therapy services at home to beneficiaries covered under Medicare Parts B and D. This provision will come with a broad list of new requirements and standards for suppliers of home infusion, and it will require Medicare to reimburse home infusion therapy suppliers based on a single, all-inclusive payment. But, the effective date leaves a four-year gap in adequate reimbursement.

Because of this, many primary immunodeficiency patients covered by Medicare may have difficulty receiving IG treatment until the second provision goes into effect. These patients may be required to switch to a different product or switch specialty pharmacies.

In response to the negative impact to patients, key stakeholders have formed coalitions in an effort to delay implementation of these provisions and to further explore possible legislative remedies. Regrettably for Medicare Part B patients, there is no quick easy fix. In the meantime, patients and patient support groups need to work together to show legislators how these changes negatively affect their access to care. To achieve the most effective outcome, it will be important moving forward for stakeholders to have one voice.

As the patient advocate for IG Living, I will closely follow what actions are being taken and keep you updated. If you have any questions about how the 21st Century Cures Act specifically impacts you, please feel free to contact me. 

ABBIE CORNETT is the patient advocate for IG Living magazine. She can be reached at patient advocate@igliving.com or (800) 843-7477 x1366.
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Abbie » According to immunologist Terry Harville, MD, there are no concerns with the use of IVIG for any specific condition while trying to get pregnant or during pregnancy. Upon further research, I found IVIG is actually recommended during pregnancy for patients with immune deficiencies and other conditions. And, it is often administered after delivery to deter relapse events that may occur postpartum.

Question » Is IVIG safe to use as replacement therapy for dermatomyositis during pregnancy?

I have a 28-year-old daughter who has dermatomyositis and is being treated with Cellcept. She and her husband would like to start a family, so she has been weaning off of Cellcept, which her doctor suggests temporarily replacing with intravenous immune globulin (IVIG) therapy. Can you provide information about the use of IVIG for dermatomyositis while trying to get pregnant?

Abbie » According to immunologist Terry Harville, MD, there are no concerns with the use of IVIG for any specific condition while trying to get pregnant or during pregnancy. Upon further research, I found IVIG is actually recommended during pregnancy for patients with immune deficiencies and other conditions. And, it is often administered after delivery to deter relapse events that may occur postpartum.

Question » Should a PVB19 infection be treated with IVIG?

I have a primary immune deficiency for which I receive standard replacement dose intravenous immune globulin (IVIG) therapy. However, I was hospitalized with acute myocarditis and developed chronic myocarditis. A cardiac biopsy revealed borderline myocarditis with a high PVB19 viral load. The only known treatment for PVB19 is high-dose IVIG, but as with many rare diseases, there is no scientific consensus and controversy about the treatment, and insurance will not pay for it.

Abbie » I spoke with immunologist Terry Harville, MD, who stated there are few studies dealing with nutrition and CVID, so most articles provide expert opinion and conjecture. According to Dr. Harville, a healthy diet that includes little to no red meat, few processed meats and fresh-cooked vegetables is recommended for people with immune deficiencies. Milk, whether whole, skim or low-fat, does not really matter, but it should be consumed in moderation. Some people are concerned about live organisms found in food and yogurt, but these concerns are based on incorrect information. Most CVID patients do better taking a probiotic or a yogurt-type dietary supplement (e.g., kefir).

Dr. Harville’s recommendation is for patients to eat an overall healthy diet, and avoid red meat and foods that are known to potentially create health problems (e.g., raw seafood and undercooked meats).

Question » What is a good diet for CVID patients?

While researching good nutrition for common variable immunodeficiency (CVID), some scholarly articles say that whole milk is the best choice, and some encourage eating yogurt, while others discourage it and specifically say to avoid Activia. What is correct?

Abbie » I spoke with immunologist Terry Harville, MD, who stated there are few studies dealing with nutrition and CVID, so most articles provide expert opinion and conjecture. According to Dr. Harville, a healthy diet that includes little to no red meat, few processed meats and fresh-cooked vegetables is recommended for people with immune deficiencies. Milk, whether whole, skim or low-fat, does not really matter, but it should be consumed in moderation. Some people are concerned about live organisms found in food and yogurt, but these concerns are based on incorrect information. Most CVID patients do better taking a probiotic or a yogurt-type dietary supplement (e.g., kefir).

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Have a question? Email us at editor@IGLiving.com. Your information will remain confidential unless permission is given.

ABBIE CORNETT is the patient advocate for IG Living magazine.

By Terry O. Harville, MD, PhD

IN PREVIOUS issues, we have discussed the improper timing and sequence of the formation of anatomic structures that result in DiGeorge syndrome (DGS) and partial DGS (PDGS) features. In summary, DGS is sometimes referred to as “complete” DGS when the immune system is severely affected and unlikely to recover normal function. Most commonly, however, patients present with PDGS in which immune function is not overly affected and is expected to become relatively normal over time.

All the features of DGS/PDGS occur as a consequence of improper timing and sequence during the middle and latter weeks of the first trimester of embryonic development, or between four and 12 weeks (and possibly up to 14 weeks for some issues). The timing may be off for a brief instance anywhere during this time frame, or there may be more prolonged intervals with timing of events out of synchrony. It is important to note that the mother may not even know she is pregnant when the timing goes awry.

The point in time and length of asynchrony both contribute to four major characteristics of DGS/PDGS. Disruption of the correct sequence of the developmental events between the fourth and eighth weeks when the head of the embryo begins to develop may result in a triangular-shaped face, wide-spaced eyes, pointed and notched ears and a small chin, which are known as the “elfin face” characteristics of DGS/PDGS. An earlier, more-prolonged disruption may lead to more severe development issues, including cleft lip and cleft palate. A later, more-minor disruption may result in barely noticeable changes in the external ears as the only recognizable feature. And, an even later disruption may not produce any noticeable facial features.

Also during the early time frame, other midline features of the body may be affected. The esophagus may not form properly, resulting in problems with gastroesophageal reflux. Vertebral bones and ribs may not form correctly, which may lead to scoliosis in more severe circumstances. The intestines may not fold correctly, or developing segments of intestines may not join together correctly, resulting in gastrointestinal problems. The kidneys may not form correctly, or a single or “horseshoe” kidney may be all that develops.

Unfortunately, the brain may also suffer from the lack of normal development. The corpus callosum (nerves connecting between the brain halves) may not form. And, some of the lobes of the brain may not fully develop. As a consequence, approximately 50 percent of children with DGS/PDGS may have some extent of neurodevelopmental delay, which can result in learning problems. This is one major reason early intervention is needed — to mitigate these issues as much as possible.

The heart and major blood vessels also begin developing during the early time period. The specific timing and length of any disruption can result in a variety of cardiac malformations. Indeed, cardiac malformations are a second of the major characteristics of DGS/PDGS, and they can be very mild or absent to very severe. It is important to recognize that the severity of cardiac disease does not correlate with the severity of immune dysfunction.

A third major feature of DGS/PDGS is hypocalcemia, which occurs due to improper parathyroid gland development. Issues with the parathyroid glands may arise between the fourth week and 12th week of gestation, and may parallel issues with the thymus development, since both develop together. A more-prolonged disruption of timing will likely result in more parathyroid dysfunction, as well as thymus dysfunction.

A fourth major feature of DGS/PDGS is the decreased to absent formation of T lymphocytes required by the thymus for normal development. This results in immunodeficiency, which we will be discussing extensively in future issues.

TERRY O. HARVILLE, MD, PhD, is medical director of the Special Immunology Laboratory at the University of Arkansas for Medical Sciences and a consultant for immunodeficiencies, autoimmunities and transplantation.
**IN THE NEWS**

**Medicines**

**Kedrion Terminates Sale of Bivigam IVIG for 2017**

As of March 1, Bivigam (10% intravenous immune globulin [human]) is no longer for sale in the U.S. According to a press release by Kedrion Biopharma, distributor of Bivigam, “Due to unexpected difficulties in the manufacture of Bivigam encountered by Biotest Pharmaceuticals Corp., the agreement for distribution rights of Bivigam in the United States between Biotest and Kedrion Biopharma has been terminated. Biotest, the manufacturer of Bivigam, is unable to sustain a supply of Bivigam given issues affecting the company’s manufacturing operations in Boca Raton. Termination of the contract means that Bivigam will no longer be available for sale or distribution for at least the remainder of 2017.”

In January 2016, Kedrion Biopharma gained exclusive distribution rights to Bivigam in the U.S. with Biotest Pharmaceuticals Corp. Biotest holds the biologics license application for Bivigam. Questions related to Bivigam can be directed to the Bivigam customer support center at (800) 458-4244.

**Research**

**Infusion of BPX-501 T Cells Renders Haplo-HSCT a First-Line Option for Children with PI**

Results from a Phase I/II study indicate that haploidentical hematopoietic stem cell transplantation (haplo-HSCT), after depletion of $\alpha/\beta$ T cells and B cells followed by adoptive infusion of donor BPX-501 cells, is an effective alternative for children with primary immunodeficiency disease (PI) in need of an urgent allograft or lacking a suitable human leukocyte antigen (HLA)-matched donor. While haplo-HSCT after depletion of $\alpha/\beta$ T cells/CD19 B cells previously had high success rates, many patients had a delay in recovery of adaptive immunity, sometimes resulting in life-threatening or even fatal events. BPX-501 cells expand in vivo and persist over time, helping to hasten the recovery of adaptive T-cell immunity and to clear infections.

In the multicenter, prospective trial, 20 children with PIs were enrolled. All patients were transplanted after depletion of $\alpha/\beta$ T cells and CD19 B cells, employed to prevent graft-versus-host disease (GvHD) and post-transplant lymphoproliferative disorders. No patient was given any post-transplantation GvHD prophylaxis. Four patients were enrolled in the Phase I portion of the trial, which consisted of a classical 3+3 design with three cohorts, with escalating doses of BPX-501 cells of $2.5\times10^6$ (one patient) $5\times10^6$ (no patients) and $1\times10^6$ cells/kg (three patients), respectively. The remaining 16 patients were treated in the Phase II portion, all of whom received the highest dose identified during the Phase I portion ($1\times10^6$ cells/kg). All patients were engrafted, and no secondary graft failure was recorded. The median time to neutrophil and platelet recovery was 16 (range 11-35) and 10 days (range 7-14), respectively. BPX-501 cells were infused at a median time of 15 days (range 13-56) after the allograft. Five children experienced Grade 1 (three patients) or Grade II (two patients) acute GvHD, which resolved with either topical or systemic steroids in three patients. The other two cases resolved after the infusion of Rimiducid, which activated the iC9 suicide gene. Two of the patients at risk developed mild (skin-only) chronic GvHD. The median time to discharge was 36 days, with eight patients experiencing one episode of rehospitalization after initial discharge. After a median follow-up of 10 months, all patients are alive and disease-free.

In January, Octapharma USA announced a new financial support program for primary immunodeficiency (PI) patients who are currently treated with or have a prescription to begin therapy with Octagam 5% (immune globulin intravenous [human] liquid preparation), as well as for patients age 18 and older with chronic immune thrombocytopenic purpura who are treated with or have a prescription to begin therapy with Octagam 10% (immune globulin intravenous [human] liquid preparation). The new program offers eligible patients a maximum of $5,000 in assistance each calendar year for co-pay, co-insurance and deductible expenses associated with their treatment without regard for their ability to pay. Patients must have third-party commercial insurance to participate in the program.

“We realize that patient out-of-pocket expenses associated with healthcare can sometimes be daunting; therefore, Octapharma has committed to support a program specifically designed to supplement these costs,” said Octapharma USA president Fleming Nielsen. “Octapharma is focused on creating support programs that adapt to meet patient needs and ensure continued access to therapies recommended by their medical providers. Coupled with ongoing education programs, these efforts emphasize our strong belief that patient needs must always come first.”


Researchers at the National Institutes of Health along with an international team have identified a genetic immune disorder characterized by increased susceptibility and poor immune control of Epstein-Barr virus (EBV) and, in some cases, an EBV-associated cancer, Hodgkin’s lymphoma. The discovery was made while studying two related sets of siblings with similar immune problems who had evidence of uncontrolled infection with EBV that resulted in the development of Hodgkin’s lymphoma in three of the children. The siblings also had other immune systems such as reduced activity of pathogen-fighting T cells, low production of antibodies and poor activation of antibody-producing B cells. By analyzing the genomes of the siblings, the researchers found that all four children had two mutated copies of the CD70 gene, a protein found on the surface of several types of immune cells, rendering them nonfunctioning or nonexistent.

All four parents, who had healthy immune systems, had only one copy of the mutation, indicating that CD70 deficiency follows an autosomal recessive pattern of inheritance, which means affected individuals receive a flawed gene from each parent in order to have symptoms. Currently, no specific treatment for CD70 deficiency exists, but the children have recovered from Hodgkin’s lymphoma and are receiving immune globulin infusions to help bolster the immune system.

Previous studies have shown the CD70 protein interacts with the CD27 immune cell protein that may be important for proper function of lymphocytes, which is confirmed by this new finding. Because experimental medications being tested to combat autoimmune diseases decrease the activity of CD70 or CD27, the findings indicate researchers should be aware of the possible risk of EBV-related complications.

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— Marcia Boyle
President and Founder, Immune Deficiency Foundation

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Autoimmune Corner

Medicines
FDA Approves Stelara to Treat Crohn’s Disease

Johnson & Johnson’s Stelara has been approved by the U.S. Food and Drug Administration (FDA) to treat Crohn’s disease in adults. FDA approval of the drug to treat Crohn’s disease was based on late-stage clinical trial data that showed Stelara induced remissions in moderate-to-severe Crohn’s disease patients who had previously failed to benefit from TNF inhibitors, a leading class of medicines for the inflammatory bowel disease. Stelara, which blocks two inflammation-causing proteins IL-12 and IL-23, was previously approved in the U.S. to treat scaly plaque psoriasis and a type of arthritis associated with psoriasis.

Research
Adjunctive Corticosteroid Therapy Beneficial for KD Patients

A recent study that compared corticosteroids plus intravenous immune globulin (IVIG) therapy with IVIG therapy alone highlights the importance of timing to prevent coronary artery complication in treating high-risk Kawasaki disease (KD) patients. The meta-analysis reviewed 16 comparative studies involving 2,746 patients treated with either corticosteroids as initial therapy or as rescue therapy. Researchers found that the duration of illness before corticosteroids therapy was significantly shorter in the initial corticosteroids subset than in the rescue corticosteroids subset. And, the rate of coronary artery abnormalities was significantly lower in adjunctive corticosteroids therapy than in IVIG therapy alone. Subgroup analysis, including studies using corticosteroids plus IVIG as initial therapy, showed a more advantageous effect than IVIG alone regarding coronary artery abnormality prevention, whereas this benefit was not found in a subgroup of studies using corticosteroids as rescue therapy. Further analysis found that patients predicted at baseline to be at high risk of IVIG resistance seemed to obtain the greatest benefit from adjunctive corticosteroid therapy regarding coronary artery abnormality prevention.

Medicines
FDA Approves Tests for Autoimmune Thyroid Disease

The U.S. Food and Drug Administration has given 510(k) clearance for Thermo Fisher Scientific’s new EliA IgG tests for detecting anti-thyroglobulin (anti-TG) and anti-thyroid peroxidase (anti-TPO) autoantibodies in serum or plasma. EliA anti-TG and anti-TPO quantitatively measure a patient’s autoantibodies to thyroglobulin or thyroid peroxidase, which provides information to help clinicians develop comprehensive disease management plans for patients with autoimmune thyroid disease such as Graves’ disease and Hashimoto’s thyroiditis. The new CLIA-moderate lab tests, performed on the fully automated Phadia 250/2500/5000 Laboratory Systems, are designed to provide higher sensitivity and wider measuring ranges to labs and clinicians. Formerly, they were offered on the ImmunoCAP technology platform.
The U.S. Patent and Trademark Office has issued a patent to GigaGen Inc. that covers protein expression methods for the production of polyclonal antibodies from natural immune repertoires. GigaGen’s exclusive rights to the patented technology is being used to develop recombinant intravenous immune globulin (rIVIG), an alternative to conventional plasma-based IVIG used to treat primary immunodeficiencies and other autoimmune and infectious diseases. “We are pleased that our inventions for drug discovery methods have been recognized with the issuance of this key intellectual property,” said Dave Johnson, PhD, inventor of the technology and CEO of GigaGen. “This patent is a key foothold in our patent portfolio for the development of recombinant IVIG, the first recombinant polyclonal antibody therapeutic.”

Subsequent to the patent, the National Institutes of Health (NIH) awarded GigaGen a $1.5 million Phase II grant to support the development of its rIVIG. “We are pleased that the NIH has recognized the power of our drug discovery technology to create new recombinant drugs that previously have only been available by harvesting plasma from humans,” added Johnson. “Recombinant IVIG hyperimmunes hold great potential for improving the quality of life for not only PI patients, but also other types of immunocompromised patients such as transplants, and ultimately can be used to combat emerging pathogens such as Zika.”


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BATTLING CANCER IS hard, especially when a number of neurological disorders, called paraneoplastic syndromes, may complicate the disease. Paraneoplastic syndromes (PNS) represent a rare group of disorders in which the immune system mistakenly reacts against healthy cells in an attempt to suppress the cancer. They can present when the cancer is active, in remission or even before it is discovered. Immune-mediated disorders caused by the same antibodies as paraneoplastic syndromes occur even when cancer is not present.

There are several paraneoplastic syndromes with varied clinical presentations that may affect a variety of systems, including kidneys, blood, skin and the gastrointestinal tract, to name a few. Paraneoplastic neurological syndromes occur when antineuronal antibodies attack neurons or muscles. When one of these conditions is suspected, clinicians will usually order a number of scans and tests to look for an underlying malignancy. They will also look for a specific autoantibody in blood or spinal fluid to help confirm the diagnosis.

Many factors need to be considered when treating a paraneoplastic syndrome. When cancer is discovered, the primary treatment plan will include cancer care and removal of the tumor, when possible. As in many other immune-mediated conditions, immunosuppressants, plasmapheresis and intravenous immune globulin (IVIG) may aid in therapy. The goal is to suppress the immune response, which will stop the production of the antibodies causing the problem.

**Myasthenia Gravis (MG)**

MG is a condition in which an antibody interferes with the function of acetylcholine receptors on muscle. These receptors bind transmitters released by nerves, and signal the muscle to contract. When the receptors are blocked, the muscles become weak. While MG is usually an autoimmune disorder, in about 10 percent of cases, it is a paraneoplastic syndrome that is caused by a tumor in the thymus gland. Symptoms range from mild weakness, drooping eyelids or double vision to severe presentations manifested by difficulty swallowing or breathing. Studies show that IVIG is useful in treating acute attacks of MG. However, there is only circumstantial evidence that IVIG can be used as a maintenance therapy, even though it is often utilized in practice for maintenance when other therapies fail.

**Lambert-Eaton Myasthenic Syndrome (LEMS)**

LEMS is caused by an autoantibody that binds to specialized ion channels located on the end of nerves near the junction with muscle. These ion channels are necessary to release acetylcholine from nerves. As a result, patients with LEMS present with weakness and loss of reflexes. LEMS is superficially similar to MG, although subtle differences in clinical presentation can usually be deciphered by neuromuscular experts. About 40 percent of patients with LEMS have a paraneoplastic syndrome, usually caused by small-cell lung cancer, while in the remainder of patients, LEMS is a primary autoimmune disease. As a result, patients with LEMS must undergo a detailed workup to exclude cancer at the time of diagnosis. There is no literature supporting any particular therapy for LEMS since it is a rare disease. However, IVIG is often used to treat LEMS as first-line therapy or after other immune treatments such as prednisone have failed.

**Cerebellar Degeneration**

Cerebellar degeneration can be seen in various types of cancer, including ovarian, breast and lung cancers, as well as blood malignancies such as Hodgkin’s lymphoma. The more common antibodies found in cerebellar degeneration are called anti-Hu and anti-Yo, which affect the nerve cells. The cerebellum is located in the back of the brain and is responsible for balance and fine movement. As a result, the presenting symptoms include loss of balance with gait and walking, incoordination, drunken speech and loss of swallowing. The condition is also well-documented in LEMS. A number of case studies suggest IVIG is useful as a treatment.

**Limbic Encephalitis**

Limbic encephalitis occurs when autoantibodies attack the limbic system, which is the part of the brain that controls behavior and emotion and some
types of memory. The most common antibody found is anti-Ma2, and it can be seen most often in small-cell lung cancer or testicular cancer. The main symptoms are seizures, changes in personality, memory loss and depression. Symptoms tend to begin rather quickly, and the condition can be confused with other types of dementia since memory and personality change are key features. The condition is also well-documented in LEMS. Case studies suggest IVIG can help to treat limbic encephalitis.

Anti-NMDA Receptor Disease

Anti-NMDA receptor disease occurs when autoantibodies attack NMDA receptors in the brain, causing encephalitis. NMDA receptors are proteins that control electrical impulses in the brain. When they are impaired, judgment and memory can be affected. The autonomic nervous system, which affects breathing and swallowing, can also be affected. This syndrome can be associated with ovarian tumors in women and testicular tumors in men. Tumor removal is a crucial part of treatment. IVIG is also a first-line treatment, along with steroids and plasmapheresis.

A Consequence of Cancer

Although paraneoplastic syndromes occur as a consequence of cancer, unlike cancer, they are not caused by the presence of cancer cells, but by an immune response against the tumor. The same antibodies responsible for these syndromes are also responsible for immune-mediated disorders. PNS are typical among middle-aged to older patients, and they most commonly present with cancers of the lung, breast, ovaries or lymphatic system. While a number of researchers and medical facilities are investigating treatment options, IVIG therapy has been shown to be effective against many types of PNS.

MICHELLE GREER, RN, is senior vice president of sales for NuFACTOR Specialty Pharmacy.

Resources
2. International Paraneoplastic Association: www.paraneoplastic.org
The Healing Properties of Therapeutic Writing

Can the process of writing about ailments, treatments and feelings actually help to ease the physical and psychological symptoms of chronic illness?

By Ronale Tucker Rhodes, MS
HAVING A RARE chronic illness that will impact the rest of a person’s life can create feelings ranging from anxiety to depression. Fortunately, during the 1980s, James Pennebaker, PhD, discovered a healing solution that may help. Through his research, he found that writing about life’s stresses helps people heal both physically and emotionally. A professor in the department of psychology at the University of Texas at Austin and author of several books, including *Writing to Heal: A Guided Journal for Recovering from Trauma and Emotional Upheaval*, his research showed that short-term focused writing can have a beneficial effect on everyone, from those dealing with a terminal illness to victims of violent crime to college students facing first-year transitions. “When people are given the opportunity to write about emotional upheavals, they often experience improved health,” said Dr. Pennebaker. “They go to the doctor less. They have changes in immune function.”

Mary Puglisi, who suffers from chronic headaches, is testament to the power of therapeutic writing for chronic illness. “It’s therapeutic to me in so many ways,” says Puglisi. “Every once in a while, I seem to lose my grasp on how to verbalize the thoughts that are continuously rolling around in my head. Most often, this phenomenon occurs when I’m having very high pain-level days. Sometimes, though, it happens when my head is no worse than normal, but I’ve just become so fed up with living such a limited, chronic illness-filled life…. Usually, these funks are spelled with constant ‘why me’s’ and a good deal of blubbering. Instead of talking these funks out, I used to pout about them; but, now, I write about them. It’s been what they like to call ‘life-changing.’”

The Therapeutic Writing Paradigm

Also known as journal therapy or expressive therapy, therapeutic writing is defined by The Center for Journal Therapy as “the purposeful and intentional use of reflective writing to further mental, physical, emotional and spiritual health and wellness. It offers an effective means of providing focus and clarity to issues, concerns, conflicts and confusions. In practice, it is the act of writing down thoughts and feelings to sort through problems and come to deeper understandings of oneself or the issues in one’s life.”

Therapeutic writing is personal and emotional and doesn’t pay attention to form, spelling, punctuation, etc.

Therapeutic writing differs significantly from merely keeping a journal. One of the major differences is the way internal experiences, thoughts and feelings are captured. With therapeutic writing, individuals write down, dialogue with and analyze their issues and concerns, allowing them to be reflective, introspective and intentional about their writing.

Therapeutic writing is personal and emotional and doesn’t pay attention to form, spelling, punctuation, etc. “Turn off your resident Dr. Comma Splice,” says John F. Evans, EdD, a writer, scholar and workshop facilitator, as well as the founder and executive director of Wellness and Writing Connections. “Expressive writing pays more attention to feelings than the events, objects or people in the contents of the narrative…. [It is] not so much about what happened as it is about how you feel about what happened or is happening.” According to Dr. Evans, individuals should explore their very deepest emotions and thoughts, and they should give themselves some time after writing to reflect on what they have written and to be compassionate with themselves. Then, after completing several days of writing, they should consider reflecting on what they notice in their life, how they feel and how they behave (see Guidelines for Expressive Writing).
Treat PI on your own terms with CUVITRU

For people living with primary immunodeficiency (PI) 2 years of age or older

CUVITRU™ [Immune Globulin Subcutaneous (Human)] 20% solution gives you and your doctor control over your treatment— from the number of infusion sites to how much, how fast, and how often you infuse.¹

- **Number of infusion sites**: Infuse using 1 to 4 sites simultaneously
- **Infusion volume**: Infuse up to 60 mL per site, as tolerated
- **Infusion rate**: Infuse at rates up to 60 mL per hour per site, as tolerated*
- **Infusion frequency**: Infuse daily up to once every 2 weeks, at regular intervals

Weekly infusions typically were completed in **under an hour*** using **1 or 2 sites.¹**

**You and your doctor will determine if CUVITRU is right for you and if so, what regimen is best.**

*Recommended to infuse first 2 infusions at 10-20 mL per hour per site.
¹Median: 0.95 hours; range: 0.2-6.4 hours.
We’ve got patients with PI covered

Eligible patients with PI can save up to $5,000† on their out-of-pocket deductible/co-payment/co-insurance costs within a 12-month period for all Shire Ig products, including CUVITRU [Immune Globulin Subcutaneous (Human)] 20% solution.

For more information on MyIgCoPayCard and other support programs, visit MyIgSource.com or call 855-250-5111

†Not valid for prescriptions reimbursed, in whole or in part, by Medicaid, Medicare, Medigap, VA, DoD, TRICARE or any other federal or state healthcare programs, including state pharmaceutical assistance programs, and where prohibited by the health insurance provider or by law. Commercial insurance must cover medication costs for prescribed Shire Immune Globulin (Ig) treatment for primary immunodeficiency (PI) and allow for copay or co-insurance assistance. Shire reserves the right to change or discontinue this program at any time without notice. Please see full treatment-specific Terms and Conditions on product web sites for additional program restrictions and eligibility requirements or call MyIgSource for more information (855-250-5111).

Please see the Indication and Important Safety Information on the adjacent page, and the Brief Summary of the FDA-approved patient labeling on the back page of this ad.
CUVITRU [Immune Globulin Subcutaneous (Human)] 20% Solution

Indication and Important Safety Information

What is CUVITRU?

• CUVITRU is a ready-to-use, liquid medicine that contains immunoglobulin G (IgG) antibodies, which protect the body against infection.
• CUVITRU is indicated for the treatment of primary humoral immunodeficiency (PI) in adult and pediatric patients two years of age and older.
• CUVITRU is made from human plasma that is donated by healthy people. CUVITRU contains antibodies collected from these healthy people that replace the missing antibodies in PI patients.
• CUVITRU is given under the skin (subcutaneously).
• Most of the time infusions under the skin are given at home by self infusion or by caregivers. Only use CUVITRU by yourself after you have been instructed by your healthcare provider.

Important Safety Information

What is the most important information that I should know about CUVITRU?

CUVITRU can cause the following serious reactions:

• Severe allergic reactions causing difficulty in breathing or skin rashes
• Decreased kidney function or kidney failure
• Blood clots in the heart, brain, lungs, or elsewhere in the body
• Severe headache, drowsiness, fever, painful eye movements, or nausea and vomiting
• Dark colored urine, swelling, fatigue, or difficulty breathing

Who should not use CUVITRU?

Do not use CUVITRU if you:

• Are allergic to immune globulin or other blood products.
• Have selective (or severe) immunoglobulin A (IgA) deficiency with antibodies to IgA.

CUVITRU can cause serious side effects. Call your healthcare professional or go to the emergency department right away if you get:

• Hives, swelling in the mouth or throat, itching, trouble breathing, wheezing, fainting or dizziness. These could be signs of a serious allergic reaction.
• Bad headache with nausea, vomiting, stiff neck, fever, and sensitivity to light. These could be signs of irritation of the lining around your brain.
• Reduced urination, sudden weight gain, or swelling in your legs. These could be signs of a kidney problem.
• Pain, swelling, warmth, redness, or a lump in your legs or arms. These could be signs of a blood clot.
• Brown or red urine, fast heart rate, yellow skin or eyes. These could be signs of a liver or blood problem.
• Chest pain or trouble breathing, or blue lips or extremities. These could be signs of a serious heart or lung problem.
• Fever over 100°F. This could be sign of an infection.

What are the possible or reasonably likely side effects of CUVITRU?

The following one or more possible side effects may occur at the site of infusion: mild or moderate pain, redness, and itching. These generally go away within a few hours, and are less likely after the first few infusions.

The most common side effects that may occur are: headache, nausea, fatigue, diarrhea, and vomiting.

These are not all the possible side effects. Talk to your healthcare professional about any side effects that bother you or that don’t go away.

You are encouraged to report suspected side effects by contacting FDA at 1-800-FDA-1088 or www.fda.gov/medwatch or Shire at 1-800-999-1785.

The risk information provided here is not comprehensive. To learn more, talk about CUVITRU with your healthcare provider or pharmacist. The Brief Summary of the FDA-approved patient labeling can be found on the reverse side.


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Low rate of infusion site reactions even when infused at higher volumes and rates per site\textsuperscript{1,2}

- 2 out of every 3 people who received CUVITRU had no infusion site reactions
- The most common infusion site reactions are mild or moderate pain, redness, and itching (these generally go away within a few hours, and are less likely after the first few infusions)
- The most common side effects that may occur are headache, nausea, fatigue, diarrhea, and vomiting

To learn more about CUVITRU, visit ListenPI.com and talk to your doctor to find out if CUVITRU is right for you.

Important Safety Information

CUVITRU can cause blood clots in the heart, brain, lung, and elsewhere in the body. Call your healthcare professional or go to your emergency department right away if you have pain, swelling, warmth, redness, a lump in your legs or arms, chest pain, trouble breathing, or blue lips or extremities. These could be signs of a blood clot.

Do not take CUVITRU if you are allergic to immune globulin or other blood products, or have selective (or severe) immunoglobulin A (IgA) deficiency with antibodies to IgA.

Please see the Indication and additional Important Safety Information on the inside of this fold out page, and the Brief Summary of the FDA-approved patient labeling on the back page of this ad.
IMPORTANT INFORMATION ABOUT
CUVITRU [Immune Globulin Subcutaneous (Human)], 20% Solution

The following summarizes important information about CUVITRU. Please read it carefully before using this medicine. This information does not take the place of talking with your healthcare provider, and it does not include all of the important information about CUVITRU. If you have any questions after reading this, ask your healthcare provider.

What is CUVITRU?
- CUVITRU is a ready-to-use, liquid medicine that contains immunoglobulin G (IgG) antibodies, which protect the body against infection. CUVITRU is used to treat adult and pediatric patients two years of age and older with primary immunodeficiency diseases (PI).
- There are many forms of PI. The most common types of PI result in an inability to make a very important type of protein called antibodies, which help the body fight off infections from bacteria or viruses. CUVITRU is made from human plasma that is donated by healthy people. CUVITRU contains antibodies collected from these healthy people that replace the missing antibodies in PI patients.

What is the most important information I need to know about CUVITRU?
CUVITRU can cause the following serious reactions:
- Severe allergic reactions causing difficulty in breathing or skin rashes
- Decreased kidney function or kidney failure
- Blood clots in the heart, brain, lungs, or elsewhere in the body
- Severe headache, drowsiness, fever, painful eye movements, or nausea and vomiting
- Dark colored urine, swelling, fatigue, or difficulty breathing

Who should not use CUVITRU?
- Do not use CUVITRU if you have a known history of a severe allergic reaction to immune globulin or other blood products. If you have such a history, discuss this with your healthcare provider to determine if CUVITRU can be given to you. Tell your healthcare provider if you have a condition called selective (or severe) immunoglobulin A (IgA) deficiency.

What should I avoid while taking CUVITRU?
- CUVITRU can make vaccines (like measles/mumps/rubella or chickenpox vaccines) not work as well for you. Before you get any vaccines, tell your healthcare provider that you take CUVITRU.
- Tell your healthcare provider if you are pregnant, or plan to become pregnant, or if you are nursing.

What are the possible or reasonably likely side effects of CUVITRU?
The following one or more possible reactions may occur at the site of infusion: mild or moderate pain, redness, and itching. These generally go away within a few hours, and are less likely after the first few infusions.

The most common side effects with CUVITRU are: headache, nausea, fatigue, diarrhea, and vomiting.

If any of the following problems occur after starting treatment with CUVITRU, stop the infusion immediately and contact your healthcare provider or call emergency services. These could be signs of a serious problem:
- Hives, swelling in the mouth or throat, itching, trouble breathing, wheezing, fainting or dizziness. These could be signs of a serious allergic reaction.
- Bad headache with nausea, vomiting, stiff neck, fever, and sensitivity to light. These could be signs of irritation of the lining around your brain.
- Reduced urination, sudden weight gain, or swelling in your legs. These could be signs of a kidney problem.
- Pain, swelling, warmth, redness, or a lump in your legs or arms. These could be signs of a blood clot.
- Brown or red urine, fast heart rate, yellow skin or eyes. These could be signs of a liver problem or a blood problem.
- Chest pain or trouble breathing, or blue lips or extremities. These could be signs of a serious heart or lung problem.
- Fever over 100°F. This could be a sign of an infection.

These are not all of the possible side effects with CUVITRU. You can ask your healthcare provider for physician’s information leaflet. Tell your healthcare provider about any side effect that bothers you or that does not go away.

You are encouraged to report suspected side effects by contacting FDA at 1-800-FDA-1088 or www.fda.gov/medwatch or Shire at 1-800-999-1785.

The information provided here is not comprehensive. To learn more, talk about CUVITRU with your healthcare provider or pharmacist. The FDA-approved patient labeling can be found at www.CUVITRU.com or by calling 1-800-423-2090.

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Studies Support the Health Benefits

For those who are ill, therapeutic writing can be beneficial in a number of ways. It helps people feel they are taking control of the powerlessness that illness often causes. It also helps them to clarify the practical questions to ask doctors that they really want answered. And, most importantly, listing practical questions raises the more difficult, existential ones such as what’s important in life.6

Numerous studies have supported the health benefits of therapeutic writing.

Therapeutic writing also offers an alternative to support groups, psychotherapy or antidepressant drugs that help individuals cope with fears and challenges that illness brings. It allows patients to better understand what may be bothering them or triggering stress.7

In fact, numerous studies have supported the health benefits of therapeutic writing. In one study, researchers tracking the effects of journal therapy in patients with breast cancer found that standard four-day journal writing was effective in reducing physical symptoms.5 Another study at the University of Texas M.D. Anderson Cancer Center examined 42 patients with metastatic renal cell carcinoma who were randomly assigned to an expressive writing group or a neutral writing group. Patients in the expressive writing group wrote about cancer, and patients in the neutral writing group wrote about health behaviors. While no statistically significant differences were found regarding symptoms of distress, perceived stress or mood disturbance, patients in the expressive writing group reported significantly less sleep disturbance, better sleep quality and sleep duration, and less daytime dysfunction compared with patients in the neutral writing group.8

Another study looked specifically at clinical populations. The meta-analysis of nine expressive writing studies found a significant benefit for health, although when analyzed separately, the effects for physical outcomes in medically ill populations were significant.9

Other studies showed similar beneficial health effects. Participants with asthma or rheumatoid arthritis showed improvements in lung function and physical-related disease severity, respectively, following a laboratory-based writing program. Patients with HIV infection showed improved immune response similar to that seen in mono-therapy with anti-HIV drugs, and women with chronic pelvic pain reported reductions in pain intensity ratings.10

Is It for Everyone?

But, therapeutic writing may work better for some than others. Miriam Kuznets, a psychotherapist who is a proponent of therapeutic writing, says that since writing lets people choose their words, it works well with people who are less able to verbalize their feelings or who are skeptical about talk therapy. “It’s more concrete than just talking,” she explains, “and you can do it on your own, anywhere.”6

Therapeutic writing may not be as effective for people who experience cognitive or intellectual challenges.4 And, some studies show that writing’s effectiveness may be mediated by individual differences such as handling of stress, ability to self-regulate and interpersonal relations.11

Researchers have studied specific health populations to determine for whom therapeutic writing would be most beneficial. For instance, Dr. Pennebaker found that some personality types benefit more from therapeutic writing than others. “People who are able to construct

Longer-Term Benefits of Expressive Writing

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<thead>
<tr>
<th>Health Outcomes</th>
<th>Social and Behavioral Outcomes</th>
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<tr>
<td>• Fewer stress-related visits to the doctor</td>
<td>• Reduced absenteeism from work</td>
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<td>• Improved immune system functioning</td>
<td>• Quicker re-employment after job loss</td>
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<tr>
<td>• Reduced blood pressure</td>
<td>• Improved working memory</td>
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<tr>
<td>• Improved lung function</td>
<td>• Improved sporting performance</td>
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<tr>
<td>• Improved liver function</td>
<td>• Higher students’ grade point average</td>
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<tr>
<td>• Fewer days in hospital</td>
<td>• Altered social and linguistic behavior</td>
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<tr>
<td>• Improved mood/affect</td>
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<tr>
<td>• Feeling of greater psychological well-being</td>
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<td>• Reduced depressive symptoms before examinations</td>
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<tr>
<td>• Fewer post-traumatic intrusion and avoidance symptoms</td>
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a story, to build some kind of narrative over the course of their writing, seem to benefit more than those who don’t,” he said.¹

To evaluate who would most benefit, Dr. Pennebaker and colleagues developed a text analysis program called Linguistic Inquiry and Word Count (LIWC), which looks at the types of words people use in their writings. Linguistically, Dr. Pennebaker looks for words that are associated with more complex thinking, including certain prepositions such as “except,” “without” and “exclude” and causal words such as “cause,” “effect” and “rationale.” According to him, an increase in these types of words over the writing process suggests that writing is becoming clearer and more narrative. Dr. Pennebaker also found that ability to change perspectives during the course of writing is a strong indicator of how well therapeutic writing will benefit an individual. Using LIWC, he can analyze the types of pronouns an individual uses, which can indicate a shift in perspective. “So, one day, they may be talking about how they feel and how they sit,” he explains, “but the next day, they may talk about what’s going on with others, whether it’s their family or a perpetrator or someone else. Being able to switch back and forth is a very powerful indicator of how they progress.”¹

Combining Writing with Therapy

Traditionally, therapeutic writing has primarily been used in therapy to increase awareness and insight, promote change and growth and further develop sense of self. Integrating journal writing into different types of psychotherapy is called “therapeutic journal writing.” It is sometimes guided by journal therapists who are trained through programs approved by the National Federation for Biblio/Poetry Therapy, or independent programs like Kathleen Adams’s Center for Journal Therapy or Dr. Ira Progoff’s Dialogue House. But, even those not trained in journal therapy can still incorporate it into practice.⁴

Therapists employ a number of methods. But, a popular method is the therapist requesting a person begin each session with a writing exercise to declare his or her intention for the session or to home in on present concerns. With this method, the writing is used as a mode of communication between the person and the therapist, providing an extra layer of safety. At the end of the session, the therapist may assign therapy homework for the next session.⁴

For homework, therapists generally recommend individuals write for three to five consecutive days for 15 minutes to 20 minutes at a time. They also might provide writing instructions such as: “For the next four days, I would like you to write your very deepest thoughts and feelings about the most traumatic experience of your entire life or an extremely important emotional issue that has affected you and your life. In your writing, I’d like you to really let go and explore your deepest emotions and thoughts. You might tie your topic to your relationships with others, including parents, lovers, friends or relatives; to your past, your present or your future; or to who you have been, who you would like to be or who you are now. You may write about the same general issues or experiences on all days of writing or about different topics each day.… Don’t worry about spelling, grammar or sentence structure. The only rule is that once you begin writing, you continue until the time is up.”¹⁰

A growing trend championed by Nathan Field, an analytical psychotherapist, is Internet writing therapy. Field’s paper titled “The Therapeutic Action of Writing in Self-Disclosure and Self-Expression” focuses on how individuals can use the Internet to strengthen the therapist-client relationship. Email is the primary mode of contact between the client and the therapist, with both agreeing on a specific time frame to respond to each other. According to Field, email removes inhibitions that often occur face to face. Confronting issues through email encourages freedom, and clients can reflect and take time to communicate exactly what they are thinking. In addition, clients enjoy as much time as they need to explore their thoughts instead of being limited to a specific time frame.¹²

Guidelines for Expressive Writing¹⁰

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<tr>
<td><strong>1. Time:</strong></td>
<td>Write a minimum of 20 minutes per day for four consecutive days.</td>
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<tr>
<td><strong>2. Topic:</strong></td>
<td>What you choose to write about should be extremely personal and important to you.</td>
</tr>
<tr>
<td><strong>3. Write continuously:</strong></td>
<td>Do not worry about punctuation, spelling and grammar. If you run out of things to say, draw a line or repeat what you have already written. Keep pen on paper.</td>
</tr>
<tr>
<td><strong>4. Write only for yourself:</strong></td>
<td>You may plan to destroy or hide what you are writing. Do not turn this exercise into a letter. This exercise is for your eyes only.</td>
</tr>
<tr>
<td><strong>5. Observe the flip-out rule:</strong></td>
<td>If you get into the writing, and you feel that you cannot write about a certain event because it will push you over the edge, stop writing!</td>
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<tr>
<td><strong>6. Expect heavy boots:</strong></td>
<td>Many people briefly feel a bit saddened or down after expressive writing, especially on the first day or two. Usually, this feeling goes away completely in an hour or two.</td>
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The “79-Cent Therapy”

But, therapy isn’t necessary to benefit from therapeutic writing. Kathleen Adams, founder for the Center for Journal Therapy in Colorado who writes in inexpensive, spiral-bound notebooks, is a proponent of using therapeutic writing as a self-help mechanism, coining it the “79-cent therapy.” “For nearly 30 years, I’ve had the same therapist,” says Adams. “I’ve called on my therapist at 3 a.m., on my wedding day, on a cold and lonely Christmas, on a Bora Bora beach and in the dentist’s reception room. I can tell this therapist absolutely anything. My therapist listens silently to my most sinister darkness, my most bizarre fantasy, my most cherished dream. And, I can scream, whimper, thrash, rage, exult, foam, celebrate. I can be funny, snide, introspective, accusatory, sarcastic, caustic, inspirational, opinionated or vulgar. My therapist accepts all of this without comment, judgment or reprisal.”

As mentioned previously, self-help therapy can work well for people who have difficulty verbalizing their feelings or who are skeptical of talk therapy. This is true for Gillie Bolton, a researcher at King’s College in London, who finds therapeutic writing self-healing, allowing her to maintain control of difficult issues. “I suffered some very traumatic experiences, and writing saved my sanity,” she says. “In my early 30s, I was in a bad psychological state, but didn’t really know why. My husband suggested that I write my autobiography. I did, conjuring up a lovely, glorious story. Then, I came up with something far more chaotic but closer to the truth. Then, I refined it again, this time into poetry. It’s not just the first cathartic outpouring that matters; it’s the redrafting. I came to understand what had happened to me only through doing this.” When asked why she didn’t just seek regular therapy, she responded: “I couldn’t trust a therapist the way I could a piece of paper. Paper’s always there to reread or rewrite. Once you’ve said something, you can’t unsay it, but with a page of writing, you can. You don’t ever have to share it. You can burn it if you want.”

Traditionally, therapeutic writing has primarily been used in therapy to increase awareness and insight, promote change and growth and further develop sense of self.

Tips for Including Therapeutic Writing in a Self-Care Routine

- Ensure privacy by keeping materials in a safe place.
- Save everything that is written, and review it often to spark inspiration for future writing and offer perspective on how far you’ve come.
- Use timed writing exercises to help avoid writer’s block and tap into relevant unconscious material.
- Write freely and ignore the urge to edit the work.
- Be honest with your thoughts, feelings and experiences.

Ronale Tucker Rhodes, MS is the editor of IG Living magazine.

References

AS THE SAYING goes, you are what you eat. So it makes sense to take a closer look at diet when faced with a serious health challenge such as an autoimmune disease. While there’s no shortage of nutrition information and advice on the Internet, particularly pertaining to conditions that medicine cannot cure, much of the information is not scientifically proven and can, in some cases, be dangerous. Still, a carefully chosen diet may play a role in treating and managing the symptoms of autoimmune disease.

The Autoimmune Protocol (AIP) Diet — Newest Kid on the Block

Type the terms “autoimmune” and “nutrition” into an Internet search engine, and the results will include dozens of articles on the Autoimmune Protocol (AIP) diet, a highly restrictive eating plan that promises to reduce intestinal inflammation, heal the intestinal mucosa and lessen inflammation throughout the body. Stricter than the meat-centric Paleo diet, AIP encourages followers to limit their diet to meats and organ meats, fish, seafood, vegetables, some fruits and fermented foods, while eliminating grains, gluten, legumes (beans), potatoes, sugar and most dairy. AIP also restricts nuts, seeds, eggs and nightshade vegetables such as tomatoes, eggplant and peppers. Proponents also recommend combining diet and gut-healing with treatment for bacterial overgrowth of the small intestine, where indicated, and supplements for boosting immunity.

Where the AIP diet comports with more established approaches is in its support of an elimination phase that strictly limits foods in an effort to reduce gut inflammation by eating only those foods that are unlikely to cause an adverse reaction. Because food intolerances and tolerances are highly individual, an elimination approach with gradual reintroduction of certain foods allows the person with autoimmune disease to pinpoint foods that are best tolerated. Elimination diets are challenging to follow, particularly without the help of a health professional.
Credentialed nutritionists caution against the AIP diet and other severely limited eating plans. They can be nutritionally unbalanced and should be followed only under close supervision. Also, any promised effects of the AIP diet on autoimmune disease and inflammation have not yet been substantiated by clinical research. That said, people with an autoimmune disease can and should pay attention to certain diet elements and individualize their diet to maximize comfort and potential health benefits.

Minding the Microbiome

Increasingly, research is connecting bacteria in our body with health and illness. The microbiome, or microbiota, the bacteria living in the large intestine, plays a major role in immune function and health. Approximately 70 percent of the body’s immune system is located in the intestinal tract. The microbiota forms a protective layer or barrier in the intestine, interacts with the development and functions of intestinal innate and adaptive immunity, and protects the body from ingested allergens and harmful bacteria, viruses and parasites.

An unhealthy or unbalanced microbiota may contribute to inflammation and is thought to exacerbate the development of autoimmune diseases. Harmful bacteria carry and produce toxins that can damage the protective mucus layer in the intestine, make the intestine more permeable and possibly trigger autoimmune disorders. These include lipopolysaccharide (LPS) on the outer membrane of certain types of bacteria, and flagellin, a protein in the flagella, or tail, of gut pathogens such as Salmonella, E. coli, and Campylobacter. However, researchers have not yet established whether harmful changes in the microbiome lead to autoimmune disorders and whether inflammation causes changes in the microbiome.

Numerous factors can contribute to an unbalanced gut microbiota, including illness, antibiotics and diet. Recent research is considering whether common emulsifiers in processed foods, namely polysorbate 80 and carboxymethylcellulose (cellulose gum), might contribute to inflammation and harm healthful bacteria in the microbiome.

Prebiotics Nourish Beneficial Bacteria and Probiotics

Keeping the microbiota healthy may be more effective than trying to correct an imbalance. That is why one of the best ways to maintain gut health is to eat a diet rich in prebiotics. Prebiotics are specific carbohydrates that are not digested in the small intestine; they travel intact to the large intestine where they are “eaten” by beneficial bacteria. Kate Scarlata, a registered dietitian nutritionist, points out the importance of keeping the gut microbiota well fed to help prevent them from eating the intestine’s protective mucus lining.

A handful of foods naturally contain prebiotic fibers, including chicory root (its fiber is called inulin), Jerusalem artichoke, garlic, leek, onion and dandelion greens. Resistant starch, found in raw oats, potatoes, cashews and resistant starch supplements, also functions as a prebiotic. Prebiotic supplements also are available. When used, they should be added to the diet slowly to help maintain gut comfort.

Prebiotics also feed probiotics, certain beneficial bacteria strains that are not native to the human gastrointestinal tract and convey specific health benefits. Strains of bifidobacteria and lactobacilli, found in some yogurts, fermented foods and probiotic supplements, are among the most common. Probiotics do not become part of the body’s microbiota and, therefore, have to be eaten regularly and in adequate amounts to be beneficial.

Increasingly, research is connecting bacteria in our body with health and illness.

FODMAPS May Improve Intestinal Comfort

Finding a balance between feeding beneficial bacteria, which can produce gas as they ferment (digest) fiber, and reducing discomfort associated with an irritable bowel can be challenging. Some people manage their gastrointestinal symptoms with a diet that limits short-chain sugars called fermentable oligosaccharides, disaccharides, monosaccharides and polyols, abbreviated as FODMAPs. Limiting FODMAPs gives bacteria less fermentable food to feast on and, therefore, leads to less gas.

Because so many foods contain FODMAPs, including numerous vegetables, fruits and grains, a diet low in FODMAPs can be nutritionally unbalanced unless it is planned and overseen by a dietitian or qualified health professional. Followers of a low FODMAPs diet may be able to slowly add back foods and monitor their comfort level to find those that are best tolerated.

A Gluten-Free Diet Benefits Some

Looking beyond the still popular gluten-free trend, a gluten-free diet may benefit some people with autoimmune disease. In sensitive individuals, exposure to gluten — a protein in products and ingredients that contain wheat, barley or rye — causes an
immune system response and can result in inflammation and increased intestinal permeability. Removing gluten improves, but may not completely normalize, the intestinal barrier, and may or may not affect the progression of autoimmune responses.

Scarlata notes that some people are sensitive to components in wheat other than gluten, including glucose, fructans or amylase inhibitors. Heirloom wheat varieties and wheat grains from Europe may be better tolerated, and gluten-free grains always are recommended.

**Omega-3 Fatty Acids Consistently Show Benefits**

Omega-3 fatty acids are a type of fat found primarily in fatty fish and fish oil, and in a less potent form in walnuts, flaxseeds and chia seeds. Of the main types of omega-3 fatty acids, DHA appears to be more biologically active than EPA and ALA. The 2015 Dietary Guidelines for Americans recommends two weekly servings of fish, for an average of about 250 mg/day EPA plus DHA omega-3 fatty acids.

Animal studies suggest that omega-3 fatty acids may improve autoimmune disorders. In mice, those fed a diet that was enriched with omega-3s showed improvement in autoimmune antibodies, autoimmune response, inflammation and intestinal barrier function. Human studies suggest that fish oil supplements lessen joint discomfort in some individuals and may benefit lupus, among other benefits.
Turn Up the Heat on Autoimmune Responses

Capsaicin is a naturally occurring chemical compound that gives chili peppers their heat. In the body, capsaicin activates the vanilloid receptor, which may enhance immune status and improve particular immune functions. Results are preliminary, and additional research needs to be done, but in the meantime, adding hot sauce as tolerated is unlikely to hurt.

A Sensible Diet Makes the Most Sense

Health professionals generally agree that the best diet for managing inflammation and optimizing any immune benefits includes whole foods — green leafy vegetables, fruits, higher fat fish such as salmon and sardines, nuts and seeds, whole grains, legumes and healthy fats — and limits processed starches, sugars, saturated fats and trans fats.

Scarleta advises moderation over extremes. She cautions against overusing trendy therapies such as probiotics and fermented foods, noting that more is not necessarily better. On her list for supporting immune health are more food sources of omega-3s and the mineral magnesium (nuts, seeds, leafy greens, fish, legumes, whole grains), less saturated fat and fewer food additives. Individuals who have trouble tolerating dairy products may want to try sheep or goat cheese; both contain a well-tolerated type of milk protein called A2 casein and lack the A1 casein, in most cows’ milk and milk products, that appears to bother some people.

Several nutrients are associated with a strong immune system. Vitamin A supports barrier cells and lymphocytes and may lessen lupus symptoms, vitamin E protects cells membranes and vitamin D both generates more immune cells and makes them more active. The relationship between vitamin D and autoimmune disease is being actively studied. People with autoimmune diseases tend to have lower vitamin D levels, but it is not yet known whether a) low vitamin D levels increase risk of autoimmune disease and b) increasing vitamin D levels will improve immune function.

Vitamin A is found in many fruits and vegetables, as well as milk. Foods high in vitamin E include vegetable oils, green leafy vegetables, nuts, seeds and whole grain bread. Food sources of vitamin D currently are limited to fortified dairy products, legumes, whole grains, fish such as salmon and sardines, nuts and seeds, whole grains, legumes and healthy fats — and limits processed starches, sugars, saturated fats and trans fats.

Autoimmune diseases and their treatment can adversely affect nutrition. Individuals with bacterial overgrowth of the small intestine may have trouble absorbing fat if bacteria break down bile, the body’s fat emulsifier. The side effects of common medications include nausea and vomiting, stomach pains, mouth sores, decreased appetite and interaction with certain nutrients. Cutting down on outdoor physical activity during flare-ups reduces exposure to sunlight and lessens production of vitamin D. In these instances, individual, multiple or multi-nutrient supplements may be the best option for improving nutrient intake.

An Individualized Approach Is Best

Finding the right combination of diet and supplements takes time, patience and close attention to food-related symptoms. The ultimate goal is to balance nutritional adequacy with gut comfort and, hopefully, immune benefits.

MINDY HERMANN MBA, RDN, is a food and nutrition writer and communications consultant in metropolitan New York.

Sources


Resources

The inability to naturally produce immunoglobulins in the body is the hallmark of agammaglobulinemia, but with immune globulin therapy and vigilance regarding their health, patients’ prognosis is good.
AGAMMAGLOBULINEMIA is a condition in which the body cannot produce immunoglobulins (antibodies that fight infection). The exact incidence of this condition is unknown, but it is estimated to be in the range of one in 300,000. In 1952, it was the first primary immunodeficiency to be discovered by Colonel Ogden Bruton who described a young boy with recurrent respiratory infections who could not make specific antibodies, but was successfully treated by immune globulin (IG) replacement therapy. The condition was named in honor of Colonel Bruton, and Bruton’s agammaglobulinemia became the name of the X-linked type of agammaglobulinemia (XLA), which comprises the majority of all agammaglobulinemia cases.

In 1993, it was discovered that XLA is caused by a defect in the Bruton tyrosine kinase (BTK) gene, which is crucial for B-cell maturation and development. The BTK gene is located on the long arm of the X chromosome. Therefore, females are only carriers, and males are only affected. In the absence of normal BTK expression, B-cell development cannot proceed, and B cells cannot evolve to become plasma cells that produce immunoglobulin.

Not all cases of agammaglobulinemia are XLA. Since the discovery of the BTK gene, only 85 percent of agammaglobulinemia cases were identified to have a mutation in BTK. Furthermore, by definition, an X-linked disease affects only boys, and for some time, there have been reports of girls with the same clinical presentation of XLA. Therefore, over the past two decades, further investigations have revealed several additional genetic defects of proteins that work along with BTK in the process of B-cell development. When any of these genes and the proteins they encode are defective, B-cell maturation does not occur, and immunoglobulins are not produced. These identified defects are the mu heavy chain of immunoglobulin molecule, lambda 5, Ig-alpha, Ig-beta and BLNK. All these proteins help to support the maturation of pro-B cells into pre-B cells, which is a crucial step in B-cell development. The inheritance pattern of these gene defects is autosomal recessive, meaning that a person needs both copies of the gene to be defective in order to have the disease. Therefore, since these defects are not found on the X chromosome, females can be affected as much as males.

The inability for B-cell maturation to take place leads to an inability to produce antibodies against various invading pathogens (bacteria, viruses, fungi, etc.). Antibodies are very important in the body’s defense against invading pathogens for two main reasons: 1) when they bind to bacteria, it creates a docking site for additional inflammatory molecules such as complements to bind and destroy the bacteria; and 2) antibodies help to defend the body by facilitating the process in which other cells clear out bacteria. The main workhorse of the immune system is the phagocyte (neutrophils, macrophages, dendritic cells, etc.), which defends the body by engulfing or ingesting the invading bacteria so it can be destroyed inside the cell. When antibodies bind the surface of bacteria, it makes it easier for the phagocyte to recognize and engulf them. This process is called opsonization. Without antibody binding, bacteria do not appear as “attractive” to the phagocyte, and they do not ingest bacteria as efficiently.

Clinical Presentation

The main clinical features of agammaglobulinemia are recurrent upper and lower respiratory tract infections. These infections start at a very young age, in general, but often start after maternal antibody stores in the infant are depleted, since maternal antibodies protect the infant for the first several months of life. Respiratory tract infections are most often caused by bacteria in which antibody binding is crucial for clearance. These bacteria include, but are not limited to, Streptococcus pneumonia, Haemophilus influenza type B, Streptococcus pyogenes and Pseudomonas species. Recurrent respiratory tract infections not only cause significant morbidity during the actual episode of illness, but also predispose patients to developing chronic lung disease. Repeated courses of pneumonia will lead to chronic inflammatory changes in the airways, which may lead to scarring and bronchiectasis (abnormal dilation of the airways leading to signs and symptoms of chronic airway obstruction).

THE MAIN CLINICAL FEATURES OF AGAMMAGLOBULINEMIA ARE RECURRENT UPPER AND LOWER RESPIRATORY TRACT INFECTIONS.

Beyond respiratory tract infections, other bacteria such as Campylobacter and Salmonella can lead to infections in the gastrointestinal tract. In addition, patients may develop more serious giardia (parasite) infections if they are exposed.

If any bacterial infections are left untreated, they can progress to bacte remia (presence of bacteria in the bloodstream), sepsis
(infection of the blood stream) and invasion of other vital organ systems such as the central nervous system (meningitis or encephalitis), bones (osteomyelitis) and joints (infectious arthritis). While the spread of bacterial infection can happen in all patients, agammaglobulinemia patients are much more susceptible due to the absence of antibodies.

In addition to bacterial infections, agammaglobulinemia patients are susceptible to certain viral infection, namely the enteroviruses, which include coxsackie virus and echovirus. These viruses can lead to chronic infection of the central nervous system, skin, muscle and liver. The most well-known enterovirus is poliovirus, and in the past when live-attenuated vaccines were used, agammaglobulinemia patients developed debilitating polio infections. Since the advent of the inactivated polio vaccine in the U.S., that issue has resolved; however, for areas in the world where the live-attenuated vaccine is still used, this remains an issue.

Aside from infectious complications, agammaglobulinemia patients are also more susceptible to the development of certain autoimmune complications. The mechanisms in which these complications develop are not completely understood. While patients cannot make autoimmune antibodies due to deficient B cells, the phenomenon of autoimmune disease can still occur. Autoimmune conditions often seen include cytopenias (low counts of various blood cells), inflammatory skin conditions, arthritis (inflammation of the joints) and chronic gastrointestinal inflammation.

**Diagnosis**

Agammaglobulinemia is diagnosed through both clinical recognition of signs/symptoms and laboratory findings. Clinical presentation may include poor growth, failure to thrive, recurrent sinopulmonary infections, recurrent gastrointestinal infections and absence of tonsils (due to absence of B cells).

The main laboratory finding is the absence of all classes of serum immunoglobulin. The serum levels of IgA, IgM and IgG are all extremely low, often below the point of detection. In addition to low immunoglobulins, the cellular immune panel is abnormal because B cells are often absent as well. On the flow cytometry (cell counter) of the immune cells of the blood, the number of CD-19 or CD-20 cells (markers on the surface of B cells) is greatly diminished or often absent. Generally, according to expert guidelines, presence of less than 2 percent B cells is considered a necessary criteria for a diagnosis. Furthermore, patients have virtually no antibody response to vaccinations. Specific antibody levels (i.e., tetanus, diphtheria, streptococcus pneumonia, etc.) following those vaccinations are absent or extremely low. In addition, around 25 percent of patients have low neutrophil counts, which may be due to the persistent presence of recurrent systemic infections.

The definitive diagnosis of agammaglobulinemia is made with genetic testing. For Bruton’s XLA, a definitive diagnosis is made by the absence of the BTK gene expression (such as by messenger RNA detection), a specific BTK gene mutation by genetic sequencing, or by lack of detection of BTK protein in cells. While on a therapeutic basis, treatment can be initiated for probable diagnosis, a definitive diagnosis is important for genetic counseling purposes due to the known pattern of both Bruton’s and autosomal recessive agammaglobulinemia. When patients receive a definitive diagnosis, there are genetic testing options that exist for parents to receive carrier status evaluation.

**Agammaglobulinemia is diagnosed through both clinical recognition of signs/symptoms and laboratory findings.**

Because infants have residual levels of maternal antibodies in the first 6 months of their lives, diagnosis of agammaglobulinemia is often not made until after that time. On average, only half of Bruton’s cases are diagnosed by 1 year of age, but almost all cases are generally diagnosed by 5 years of age.
While a swift diagnosis is important, it is equally important to recognize that other conditions can appear similar to agammaglobulinemia. The differential diagnosis of agammaglobulinemia can include common variable immune deficiency, transient hypogammaglobulinemia of infancy, Wiskott-Aldrich syndrome and combined immune deficiencies such as severe combined immune deficiency with B-cell defects.

Management

The main treatment for agammaglobulinemia is IG replacement therapy. Replacement can be achieved by either the intravenous (IV) or subcutaneous (SC) route. IVIG is generally administered every three to four weeks, and SCIG is generally administered weekly, but can be given multiple times a week or every other week. While there is no established dosing regimen for IG replacement, the general guideline consensus is between 400 mg/kg/month and 600 mg/kg/month. Many practitioners will start at that level, and will titrate the dose according to clinical presentation (i.e., frequency/severity of infections and tolerability) and laboratory parameters (i.e., serum IgG trough level).

There is a dose-dependent relationship between dose and serum IgG trough level. According to a study by Orange et al., there is, on average, an increase of 121 mg/dL of serum IgG for every 100 mg/kg increase in dose of IG replacement. There is also a relationship between the serum IgG trough level and infection frequency. According to a study by Lucas et al., a serum IgG level of greater than 800 mg/dL is necessary to be infection-free in XLA patients. IG replacement therapy has led to significant reductions in infection frequency, severity and hospitalizations for agammaglobulinemia patients. In addition, due to the decrease in acute infections, the number of chronic lung diseases has decreased.

While replacement therapy has led to significant advances in the treatment of agammaglobulinemia, antibiotic therapy is still often necessary. First, IVIG and SCIG only replace the IgG, but not the IgM or IgA that are also deficient. Those two other classes of immunoglobulins play important roles in host defense against pathogens. Second, unlike naturally produced antibodies, replacement immunoglobulins do not fluctuate appropriately with the presence of invading pathogens. During active infection, the body often needs more antibodies to be present to fight off the infection than it does when a person is not sick. Therefore, patients and caregivers still need to be vigilant about infections, and they need to seek medical attention and have a low threshold for using antimicrobials to combat infections even if they are being adequately treated with IG replacement therapy.

Patients with agammaglobulinemia should not receive live-attenuated vaccines since they have a compromised immune system. The exposure to live-attenuated vaccines may predispose them to develop serious systemic infections of the pathogen to which they are exposed. These include the measles/mumps/rubella, rotavirus and chickenpox vaccines. Because most patients with agammaglobulinemia are on IG replacement therapy, they are already receiving passive immunity to these diseases, and typically do not need the vaccinations. Furthermore, one of the hallmarks of agammaglobulinemia is that these patients cannot make antibodies following stimulation from vaccines. However, there are some immunologists who still feel agammaglobulinemia patients may benefit from inactivated (killed) vaccines to elicit a T-cell immune response. This is because agammaglobulinemia patients generally have intact T-cell function, and the body responds to many infections via a combination of T-cell and antibody responses.

A Healthy Prognosis

Overall, the prognosis is good for patients with agammaglobulinemia who are treated with IG replacement therapy. IVIG and SCIG have dramatically reduced the morbidity and mortality of disease. With proper follow-up, strict adherence to IG replacement therapy and surveillance for infectious and autoimmune complications, most patients lead a normal and productive life.

BOB GENG, MD, MA, studied medicine at Washington University School of Medicine in St. Louis, where he also completed his residency training in internal medicine. He is currently an assistant professor in allergy and immunology at the University of California, San Diego. Dr. Geng received his bachelor’s and Master of Arts degrees in Georgetown University’s School of Foreign Service.
When doctors prescribe a medication, is it reasonable for patients to assume that they will receive what the doctor ordered?

By Abbie Cornett
PATIENTS WITH CHRONIC or life-threatening illnesses have many issues to worry about in today’s ever-changing healthcare landscape. But, getting the right medication for their condition shouldn’t be one of them. Unfortunately, while patients frequently assume they have the right to the medication their physician has prescribed, this is often not the case due to formularies adopted by the insurance industry to combat increasing costs of medications.

How Formularies Affect Patients

A formulary is a list of medications approved by an insurance company that includes both generic and brand-name drugs. Its purpose is to compel patients and doctors to utilize the least costly medication that will still achieve the desired outcome. Unfortunately, implementation of formularies limits medication choices for patients, and it has led to drug substitution in one of two forms: generic substitution or therapeutic substitution.

Generic substitution occurs when a name-brand drug is substituted for another that has the same chemical makeup and dosage. Therapeutic substitution occurs when a pharmacist substitutes a chemically different drug for the one prescribed. In the latter, the drug substituted by the pharmacist belongs to the same pharmacologic class and/or same therapeutic class. However, since the two drugs have different chemical structures, adverse outcomes for patients can occur. Which drugs are substituted is determined by what the insurance plan’s formulary will pay for.

A biologic is a medication that is made from human, animal or bacterial sources. Patients with immune deficiencies and many other chronic illnesses are treated with immune globulin (IG), which is a biologic derived from human plasma. There are no generic drugs for biologics, only biosimilars. A biosimilar is a drug that is similar to another biologic drug but not the same. While there are currently no biosimilars to IG approved by the U.S. Food and Drug Administration, should one be available in the future, patients may not experience the same efficacy from a substituted biosimilar.

Why Nonmedical Switching Is Risky for Chronically Ill Patients

Nonmedical drug switching can be harmful to people with chronic and complex illnesses for a number of reasons. Foremost, these patients’ conditions are stabilized with the correct medical therapies. But, stabilizing their conditions can be difficult, often taking “physicians and their patients through a painstaking process of trial and error, which can drag on for months or even years.”

Nonmedical switching, or substitution therapy, disregards this process entirely, many times putting patients at risk for re-emerging symptoms or side effects not suffered from previously, putting their health or lives in jeopardy. A study published in 2016 in the Journal of Current Medical Research and Opinion concluded: “Nonmedical switching was more often associated with negative or neutral effects than positive effects on an array of important outcomes. Among patients with stable/well-controlled disease, nonmedical switching was associated with mostly negative effects.”

What Rights Do Patients Have?

Under the Affordable Care Act, all plans offered through a state, sold on the individual market or offered through a small employer must offer a prescription plan. A prescription plan is one of 10 essential health benefits insurance policies must provide, according to the Affordable Care Act. Large employers (those with 50 or more employees) are not
Important Safety Information

Hizentra treats various forms of primary immunodeficiency (PI) in patients age 2 and over.

**WARNING:** Thrombosis (blood clotting) can occur with immune globulin products, including Hizentra. Risk factors can include: advanced age, prolonged immobilization, a history of blood clotting or hyperviscosity (blood thickness), use of estrogens, installed vascular catheters, and cardiovascular risk factors.

If you are at high risk of thrombosis, your doctor will prescribe Hizentra at the minimum dose and infusion rate practicable and will monitor you for signs of thrombosis and hyperviscosity. Always drink sufficient fluids before administration.

Tell your doctor if you have had a serious reaction to other immune globulin medicines or have been told you also have a deficiency of the immunoglobulin called IgA, as you might not be able to take Hizentra. You should not take Hizentra if you know you have hyperprolinemia (too much proline in your blood).

**Infuse Hizentra under your skin only; do not inject into a blood vessel.**

Allergic reactions can occur with Hizentra. If your doctor suspects you are having a bad allergic reaction or are going into shock, treatment will be discontinued. Immediately tell your doctor or go to the emergency room if you have signs of such a reaction, including hives, trouble breathing, wheezing, dizziness, or fainting.

Tell your doctor about any side effects that concern you. Immediately report symptoms that could indicate a blood clot, including pain and/or swelling of an arm or leg, with warmth over affected area; discoloration in arm or leg; unexplained shortness of breath; chest pain or discomfort that worsens with deep breathing; unexplained rapid pulse; and numbness or weakness on one side of the body. Your doctor will also monitor symptoms that could indicate
Before being treated with Hizentra, inform your doctor if you are pregnant, nursing or plan to become pregnant. Vaccines (such as measles, mumps and rubella) might not work well if you are using Hizentra. Before receiving any vaccine, tell the healthcare professional you are being treated with Hizentra.

Please see brief summary of full prescribing information for Hizentra on adjacent page. For full prescribing information, including boxed warning and patient product information, please visit Hizentra.com. You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Hemolysis (destruction of red blood cells), and other potentially serious reactions that have been seen with Ig treatment, including aseptic meningitis syndrome (brain swelling); kidney problems; and transfusion-related acute lung injury.

The most common drug-related adverse reactions in the clinical trial for Hizentra were swelling, pain, redness, heat or itching at the site of injection; headache; back pain; diarrhea; tiredness; cough; rash; itching; nausea and vomiting.

Hizentra is made from components of human blood. The risk of transmission of infectious agents, including viruses and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent, cannot be completely eliminated.

Celebrate With Us at the IDF 2017 National Conference

IDF 2017 National Conference
Anaheim Marriott • Anaheim, CA
June 15–17
Hizentra®, Immune Globulin Subcutaneous (Human), 20% Liquid
Initial U.S. Approval: 2010

**BRIEF SUMMARY OF PRESCRIBING INFORMATION**
These highlights do not include all the information needed to use HIZENTRA safely and effectively. See full prescribing information for HIZENTRA.

**WARNING: THROMBOSIS**
See full prescribing information for complete boxed warning.

- Thrombosis may occur with immune globulin products, including Hizentra.
  - Risk factors may include: advanced age, prolonged immobilization, hypercoagulable conditions, history of venous or arterial thrombosis, use of estrogens, indwelling vascular catheters, hyperviscosity, and cardiovascular risk factors.
- For patients at risk of thrombosis, administer Hizentra at the minimum dose and infusion rate practicable. Ensure adequate hydration in patients before administration. Monitor for signs and symptoms of thrombosis and assess blood viscosity in patients at risk for hyperviscosity.

**INDICATIONS AND USAGE**
Hizentra is an Immune Globulin Subcutaneous (Human) (IGSC), 20% Liquid indicated for the treatment of primary immunodeficiency (PI) in adults and pediatric patients 2 years of age and older.

**DOSAGE AND ADMINISTRATION**

For subcutaneous infusion only.
Administer at regular intervals from daily up to every two weeks (biweekly).

- **Dose (2.2)**
  - Before switching to Hizentra, obtain the patient’s serum IgG trough level to guide subsequent dose adjustments.
  - **Weekly:** Start Hizentra 1 week after last IGIV infusion
    - Initial weekly dose = Previous IGIV dose (in grams) x 1.37
    - No. of weeks between IGIV doses
  - **Biweekly:** Start Hizentra 1 or 2 weeks after the last IGIV infusion or 1 week after the last weekly Hizentra/IGSC infusion. Administer twice the calculated weekly dose.
  - **Frequent dosing (2 to 7 times per week):** Start Hizentra 1 week after the last IGIV or Hizentra/IGSC infusion. Divide the calculated weekly dose by the desired number of times per week.
  - **Adjust the dose** based on clinical response and serum IgG trough levels.

**Adaptation**
- **Infusion sites** – 1 to 4 injection sites simultaneously, with at least 2 inches between sites.

**Infusion Parameters**

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<th>1st</th>
<th>2nd to 4th</th>
<th>5th</th>
<th>6th and above</th>
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<td><strong>Volume (mL/site)</strong></td>
<td>≤ 15</td>
<td>≤ 20</td>
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<tr>
<td><strong>Rate (mL/hr/site)</strong></td>
<td>15</td>
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As tolerated

**CONTRAINdications**
- Anaphylactic or severe systemic reaction to human immune globulin products or components of Hizentra, such as polysorbate 80
- Hyperprolinemia (type I or II) (Hizentra contains the stabilizer L-proline)
- IgA-deficient patients with antibodies against IgA and a history of hypersensitivity

**WARNINGS AND PRECAUTIONS**
- IgA-deficient patients with anti-IgA antibodies are at greater risk of severe hypersensitivity and anaphylactic reactions.
- Thrombosis may occur following treatment with immune globulin products, including Hizentra.
- Aseptic meningitis syndrome has been reported with IGIV or IGSC treatment.
- Monitor renal function, including blood urea nitrogen, serum creatinine, and urine output in patients at risk of acute renal failure.
- Monitor for clinical signs and symptoms of hemolysis.
- Monitor for pulmonary adverse reactions (transfusion-related acute lung injury [TRALI])
- Hizentra is made from human plasma and may contain infectious agents, e.g., viruses, the variant Creutzfeldt-Jakob disease (vCJD) agent and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent.

**ADVERSE REACTIONS**
The most common adverse reactions observed in ≥5% of study subjects were local reactions (i.e., swelling, redness, heat, pain, and itching at the injection site), headache, diarhhea, fatigue, back pain, nausea, pain in extremity, cough, rash, pruritus, vomiting, abdominal pain (upper), migraine, and pain.

To report SUSPECTED ADVERSE REACTIONS, contact CSL Behring Pharmacovigilance at 1-866-915-6958 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

**DRUG INTERACTIONS**
The passive transfer of antibodies may interfere with the response to live virus vaccines, and lead to misinterpretation of the results of serological testing.

**USE IN SPECIFIC POPULATIONS**
- Pediatric: No specific dose requirements are necessary to achieve the desired serum IgG levels.

Based on October 2016 revision
required to offer the essential health benefits, but nearly all do.⁴

It is important to remember that prescription drug coverage is not the same in every state. Each state has different laws concerning which medications are covered by formularies and what notification is required prior to switching a medication. As of now, no states require therapeutic substitution.

Because each state’s laws differ, there is no one answer that applies to all patients. Patients who have been told by their pharmacy they are required to switch medications should research their individual state’s law, which is available on the National Association of Boards of Pharmacy’s website at nabp.pharmacy/boards-of-pharmacy.

If denied a prescribed medication because it is not on a plan’s formulary, patients have the right to appeal. While the appeal process doesn’t guarantee they will get the prescribed medication, to be successful, patients and their doctors must demonstrate to the insurance company why that medication is medically necessary, more so than the one on the plan’s formulary. Demonstrating a specific drug is medically necessary may convince the insurer to cover it.

Preventing Medication Swaps

If patients are concerned about their medication being switched without notification, there are some things they can do. First, they can ask their doctor to write on the prescription “dispense as written or medically necessary.” This requires the pharmacy to contact the doctor before any substitution is made. They can also request the pharmacy place a statement in their records stating they must be notified prior to any medication switches.

If a medication is switched, patients should contact their doctor immediately to determine if the new medication may have side effects that are different or more severe than the originally prescribed medication. They also need to ask if the new medication will interact differently with any other medications they are taking, and whether it is as effective as the prescribed drug. If their doctor determines that the new medication is not appropriate, he or she needs to document why the insurance policy should cover the original drug or an appropriate alternative.⁵

A final option is to pay for the medication out of pocket. Unfortunately, most medications for chronic or life-threatening illnesses are too expensive for the majority of patients to pay for. So while this is always the patients’ right, it is not realistically possible.

Ensuring Medications Are On the Formulary

Patients need to be diligent about understanding their healthcare plan’s formulary during each enrollment period. Because formularies change frequently, it is up to them to ensure their medication is still covered. If it is not, they may have to pay out of pocket or switch to a different medication.

If denied a prescribed medication because it is not on a plan’s formulary, patients have the right to appeal.

Patients who enroll in a marketplace plan have certain rights, including obtaining an easy-to-understand summary of benefits (SBC), which highlights what the plan covers and what the patient’s obligations are and provides a glossary of commonly used terms.⁶ These can be reviewed when enrolling for a plan at www.healthcare.gov. Those with private insurance can request the SBC and glossary at any time.

Vigilance and Advocacy Are a Necessity

Even though nonmedical drug switching has not been proved to save money or improve outcomes, it is likely a policy that is here to stay. Therefore, patients must be aware of their rights and obligations under their insurance plan. And, importantly, they must act as their own advocates if they want to receive the medications their doctor has prescribed for them.

ABBIE CORNETT is the patient advocate for IG Living magazine.

Resources

LET'S TALK

WENDY NAWARA was no stranger to medical adversities faced by young children. The Chicago native spent the better part of her childhood at Children’s Memorial Hospital with a younger brother who had Lowe syndrome, a rare X-linked genetic disorder. Wendy grew up with a desire to assist children with special needs, eventually earning both a bachelor of science degree in elementary education and a master’s in social work. But it wasn’t until her own children were diagnosed with pediatric autoimmune neuropsychiatric disorder associated with streptococcus/pediatric acute-onset neuropsychiatric syndrome (PANDAS/PANS) and comorbid immune deficiencies that Wendy discovered her true mission and calling.

Trudie: All three of your children were diagnosed with PANDAS/PANS. What advice do you offer parents of children with chronic illness and immune deficiencies?  
Wendy: Parenting children with chronic illness that includes immune dysfunction is not easy, but it is possible. Anything is possible. Do your research and understand your child’s illness so that you know how to best advocate for him. Don’t fear advocating for your child, even though it is intimidating at times. If something is not right, speak up. Be diplomatic about this, but know you are a partner to your physician. You are the expert on your child.

Trudie: What were the greatest challenges you faced early on?  
Wendy: My greatest challenges were the same as those faced by most PANDAS/PANS parents: simply being heard by the people who were in the position to best help us. Initially, that was our pediatrician’s office and our school. A 15-minute visit with a doctor does not do parents justice when trying to explain how different their child has become, especially when doctors don’t know how to help. I was traumatized by what was happening to my younger son, but had already learned from the experience with my older child that any behavioral changes would be quickly misconstrued as a parenting issue and not as a potentially physical illness that needed a closer look. (Wendy’s younger son was first to be officially diagnosed; her older son started displaying symptoms at age 2, but wasn’t diagnosed until age 15.) I’ve also had a doctor remark that we were a complicated family, but that he couldn’t, or wouldn’t, help us.

Trudie: What prompted you to start a Facebook support group in 2011?  
Wendy: By the time the Facebook group started, I had already spent a few years working with national groups and gaining my own support from friends I was making nationally, and even internationally. But I always felt like something was missing. Having children with chronic illness removes you from what you thought were your support systems. The ability to identify with the people who you felt were your friends is drastically changed for a variety of reasons. I just really wanted to be able to know the people who were becoming my friends and be able to meet them in person. I had been rejuvenated after conferences by being with people who understood how difficult navigating PANDAS/PANS could be. After a call from a parent in my state looking for local help and wanting to help others, we decided that we should start a local Facebook group and try to put people in the same room once in a while. Being a social worker was a natural step for me. But for the longest time, I felt alone in this. That call was...
what I needed to move from just letting PANDAS/PANS happen to my family to really considering taking action.

**Trudie:** Tell us about PANDAS/PANS Advocacy and Support (PAS).

**Wendy:** PAS is a group of parents who are all committed to changing the landscape for PANDAS/PANS families everywhere. We are all volunteers. Our formal mission statement: PANDAS/PANS Advocacy and Support strives to build public awareness of PANDAS/PANS, and to provide support for families dealing with the medical, educational, social, emotional and financial hardships of this disorder. Our purpose is to raise funds to alleviate a portion of the financial burden encountered by families when treating their children, while also increasing the knowledge amongst medical providers, educators and legislators at the local, state and national levels.

**Trudie:** How has your nonprofit evolved since its inception?

**Wendy:** We started out with support group meetings and by providing informal 24/7 support in a private Facebook group. But, very quickly, we knew that further action would be needed to make real change. How many times can you hear that parents went to their doctor for help and had their concerns dismissed? We knew awareness and education needed to be broadened to include all physicians, as well as schools and therapists. And other parents, too! Our first try at increasing awareness and understanding was through requesting a proclamation for an awareness day in Illinois. We were successful and held an awareness day activity locally where we educated as many passersby as we could. We felt so empowered to take further action, and the very next awareness day, we began to talk seriously about meeting a dire need in the community at large.

We knew that science might take years to catch up with treating physicians, and we knew that insurance coverage for a disorder and syndrome that insurers were waiting for science to elucidate might take even longer; but in the meantime, children and families were suffering greatly without adequate diagnosis and treatment. We decided to provide grants to families so they could get what they needed for their children to get better.

**Trudie:** What are some of the key initiatives you are working on now?

**Wendy:** We are continuously working on providing support and mentorship through our local group, as well as financial support through our grants nationally. We are also focused on increasing the understanding of PANDAS/PANS by hosting educational meetings, grand rounds for physicians and exhibiting at conferences. We collaborate with groups of parents all over the country to work on advocacy. And, lastly, we are working on finding a way for families to get the standard treatments for PANDAS/PANS covered by insurance.

**Trudie:** How did your work as a social worker prepare you for your role today?

**Wendy:** I have a unique perspective on what it takes to be in a family with someone who has many different medical needs, having grown up as the sibling of a brother with disabilities. I watched my parents fight to have my brother’s needs met, and my mother was a founding member of an international association. That is what drove my interest in social work from a very young age. Before I had my own children, I practiced in a school for children with disabilities. I did assessments, family counseling and worked on an early childhood diagnostic team. So when my own children began to have their own unique medical needs, I had already witnessed firsthand how to navigate this type of challenge.

**Trudie:** How did starting the group help you personally?

**Wendy:** The group and the organization have given me a sense of purpose and saved me from some dark moments when I thought things might not ever change for my kids. Additionally, this life experience has taught me to trust my gut instincts about my children’s health. I have learned that parents need to be both dedicated researchers and fierce advocates for their children.

**Trudie:** What are your goals for the future?

**Wendy:** I view them not as my goals, but simply as goals for the entire community. To know that doctors are all aware of what PANDAS/PANS is and know what to do to help their patients. To see children with PANDAS/PANS get recognized and treated expeditiously. To have insurance companies understand that a bacterial or viral illness that impacts both the physical and mental health of children is worth treating, because they do not need to become a drain on the system later.

**Trudie:** How are your children today?

**Wendy:** They are doing very well. Our oldest son is in college and loves it. Our middle son is a senior in high school and is preparing to go off to college in the fall. Our youngest, a daughter, still has some health concerns they flare up. Before I had my own children, I practiced in a school for children with disabilities. I did assessments, family counseling and worked on an early childhood diagnostic team. So when my own children began to have their own

**TRUDIE MITSCHANG** is a contributing writer for IG Living magazine.
I AM terrible at waiting. Grocery store lines make me don my mean face. So, waiting to hear about my state of health is often more than I can deal with. If you’re like me, this scenario might sound familiar: You hate the gown, and you hate the room. You hate the hospital smell, a mixture of stale bodies and bland food, and you hate the look of pity on the nurse’s face. But more than anything, you hate what comes next: the waiting. Has the disease progressed? Is this indeed a flare? Is there a hidden mass? What will the tests show? When will the doctor call?

For chronically ill people, this isn’t our first rodeo. In fact, we are seasoned pros when it comes to all things testing and diagnostics, so we know the drill: Testing, waiting, followed by one of three outcomes: 1) fine 2) not fine 3) further testing needed. So, why is the waiting still so hard? Why, when we lay our heads on the pillow tonight will sleep not find us, but instead an endless litany of questions and possibilities? Will life be the same, we wonder? Will we have to endure the hellacious treatment again? Should we consult WebMD, our trusty medical guide? Should we remain hopeful for a positive outcome, or prepare ourselves emotionally for any and all possibilities? How can our spouses possibly sleep at a time like this? What in the world are we going to do with ourselves for the next 72 hours of waiting? What do we do while we’re wrestling with the waiting?

I’ve found a few things to be helpful: Staying busy. Keeping our minds occupied so they aren’t tempted to wander off into unhelpful territory can be a winning strategy. Like a straying toddler prone to destruction, the goal here is to keep our minds focused on happy and enjoyable things. Do we have a grown-up version of binge watching “Dora the Explorer” or “Sesame Street”? Whatever it is, let Netflix lead us to our happy place and away from unpleasant or unproductive thoughts.

Finding support. Who can we talk to about the anxiety we may be feeling? Who might be willing to meet us for a cup of coffee and some encouraging words? We most likely know from past experience who will offer support in these situations, or who will tell us the story of their friend who died of these very same ailments just 12 hours after their diagnosis. We want to choose wisely when we share the details of our medical lives. Speaking up about what I need. Sometimes while we wrestle with the waiting, we want and need space; other times, we crave connection. If we don’t want a text per hour from family members inquiring about the results of our tests, we need to set some boundaries up front. Who do we plan on telling when? It’s up to us to make these things plainly known. This way everyone experiences as little pressure and anxiety as possible.

When it comes to our health, unknowns are never fun. We want to know what we’re dealing with, and we want to know right this very second. Where is Dr. McCoy of “Star Trek” with his tricorder to scan us and offer his immediate report when we need him? If we skip to the next generation, we can receive diagnosis and treatment all in one skillful scan by the doctor onboard our space flight.

For now, the reality is this: Our medical journeys sometimes involve a great deal of waiting. While the outcomes remain unknown and out of our control, how we wrestle with the waiting is ours for the taming.
THE OTHER day, I was staring out a bright window into a parking lot, listening to the sound of my face vibrating as my dentist drilled into another tooth. I was at peace. There was a nice pillow under the back of my head. I’d just had a new port put in last week that my surgeon had wired through my neck, which made it difficult to lean back comfortably on my own. There was R&B and jazzy holiday music playing in the background. I could hear the whir of drills going into the mouths of other patients and their subsequent moans of terror. And I thought: I fear nothing. I am a mountain. I am unmoved by your torture, Dr. Katz. You think your drill is going to upend me? No, see, you don’t know what 2016 was like for me.

As a child, I was very sensitive. I feared throat cultures, contact lenses and IVs. I didn’t like other people having momentary control over my body. I didn’t like eye drops or teeth cleanings. But, somewhere along the way — maybe after the 10th surgery — I just let go. It wasn’t easy, but I slowly warmed up to the idea that having a chronic illness meant I was going to be chronically uncomfortable undergoing procedures I disliked, and I might as well just give in. Suddenly, sticking my fingers in my eyes to put in and pull out a little plastic lens seemed like a cakewalk — at least compared to the invasive procedure of having plastic splints pulled from the depths of my sinuses after septoplasty.

Needles become a constant in my treatment of both primary immune deficiency disease and dysautonomia. So, I could not handle the stress of being afraid every day. A big part of my transition away from fear occurred during the first few months of subcutaneous immune globulin therapy. Sticking subcutaneous needles into my abdomen? A horror show in my head, but in reality, not as many fireworks as I’d originally thought. I asked my doctors to allow me to practice inserting the needles myself. I got comfortable. I realized how very little could actually “go wrong.”

I’ve seen all kinds of horrifying procedures. Last week, I went to visit a friend in the hospital who has a gastrointestinal disease. She was doing poorly and after several surgeries, her doctors decided to place a nasogastric tube, a feeding tube that goes into the nose, down the back of the throat and into the stomach. Frankly, the idea of it makes me kind of pale. How could anyone live like that, even temporarily? But, then I remembered the look on my friends’ faces the first time they saw my port and realized I had a large needle in my chest that was accessed 24/7. Rarely can you imagine the kind of discomfort you can handle until they’re shoving the tube up your nose (or in other equally disquieting places).

Once, I accompanied my mother to an optometrist appointment after she had a retinal tear. She said the repair procedure was like something out of a horror movie, but she survived it.

We don’t know how strong we are until it’s happening to us, until the doctor sits us down in a chair and says: “I promise this won’t hurt at all.”

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ILANA JACQUELINE is a 27-year-old dysautonomia and primary immune deficiency disease patient from South Florida. She’s been writing professionally since 2004 on everything from health and wellness to celebrities and beauty. Her blog www.letsfeeltbetter.com is both a personal collection of anecdotes about life with chronic illness, as well as a resource for patients of all ages.
SUMMER IS almost here. It’s time for families to plan their summer vacations. While traveling with primary immunodeficiency disease (PI) kids may be a bit more complicated, it’s not impossible and doesn’t have to be avoided. With a little extra planning and some careful consideration, families with PI kids can still enjoy a special vacation and make lasting memories.

This past summer, my husband and I pulled off what I thought would be impossible: We took our four children, three of whom have PI, to Scandinavia for almost three weeks. To a “normal” parent, this might sound like a dream vacation. But to a mother of three PI boys, this felt like my worst nightmare. Of course, I thought of all of the things that could go wrong. First and foremost on my mind was: “What if one of the boys got sick?” We’d be so far from home and the doctors who treat them. I tried to convince my husband this trip was a bad idea, but he said he and the kids were going, and I could stay home if I wanted. Since that wasn’t an option, I figured I’d better start planning to make sure everything went as smoothly as possible. Here are some tips that helped us:

Schedule a pre-trip doctor visit. Parents of PI children should plan to visit the doctor one to two weeks before their vacation. This way, the doctor can make sure the child is healthy enough to travel, and check for any infections or conditions that could be treated before leaving home. While at the doctor’s office, ask for a prescription for a broad-spectrum antibiotic such as amoxicillin, which will cover a sinus infection or other typical infection that may develop before the child can get to a doctor. Most doctors will prescribe one if you explain your situation.

Plan infusions accordingly. For children receiving intravenous immune globulin (IVIG) therapy every three to four weeks, a trip could easily take place between infusions, eliminating concerns about infusing while away from home. But for those who receive subcutaneous IG (SCIG) infusions weekly, any trip longer than seven to 10 days will have to include at least one infusion, and supplies will need to be brought along. Long car or plane trips are a perfect time to administer SCIG infusions. Since children are strapped into their seats with no place to go for hours, it’s a perfect way to multitask!

Pack medications appropriately. One of the major concerns about traveling with PI kids is how to transport their SCIG medication, especially when flying. Liquids can be stored in checked baggage, but if the baggage is lost or damaged, this would pose a problem. Also, bringing the medication in a carry-on bag allows for immediate access. Most people with PI feel more comfortable keeping their IG with them — at least one infusion’s worth. But, since liquids taken on planes are limited to what can fit in a one-quart bag, does that include medication? Can it be brought on board the plane? According to the Transportation Security Administration (TSA), the answer is yes. According to TSA, travelers can bring medications in pill or solid form in unlimited amounts as long as it is screened. Liquid medication is allowed “in carry-on bags in excess of 3.4 ounces in reasonable quantities for the flight.”

Medically required liquids don’t need to be placed in a zip-top bag like other carry-on liquids, but it’s still a good idea in case the bottle leaks or the bag shifts during flight. However, parents of PI kids must tell the TSA officer they are carrying medically necessary liquids on board at the start of the screening checkpoint process. Per the TSA’s website, “Medically required liquids will be subjected to additional screening that could include being asked to open the
It’s also a good idea to bring along several copies of a note, written and signed by the child’s doctor, stating the child’s name, the name of the medication and dosage amount, and the reason the child needs the medication. This eliminates any doubt the TSA agent may have during the screening process.

**Find travel-friendly versions of therapy.**

Many children with PI have medical equipment they use on a daily basis such as nebulizers or airway clearance systems like the VEST. Bringing these along isn’t a big deal when traveling by car. But when flying, it could mean another check-in bag, and another piece of luggage to drag from airport to hotel to train station, etc. And, airport baggage handlers aren’t always known for being gentle with luggage. Is an expensive piece of medical equipment something that should be thrown into a plane’s cargo hold?

Since most vacations are relatively short, parents should ask their child’s doctor if certain therapies can be skipped for a week or two, or if a smaller, handheld device could be substituted for the more cumbersome (and expensive) medical equipment. We asked our doctor for an alternative to our son’s VEST that weighs 35 pounds. He gave us a handheld device called an Aerobika, and it worked just fine.

**Plan for disaster.**

Hopefully, no natural disasters will occur while on vacation, but when it comes to PI, medical disasters can strike at any time.

**Check your insurance policy.**

It’s a good idea to check if the patient’s insurance policy covers care overseas. Most regular health insurance plans provide partial coverage for policyholders who are traveling in another country, but some offer none. Countries with universal healthcare might offer financial assistance with minor needs, but they are under no obligation to do so for foreigners. In the event of a major medical crisis abroad, families from the U.S. may find themselves with a hefty hospital bill, or the added expense of emergency travel back home.

The Centers for Disease Control and Prevention (CDC) suggests purchasing additional insurance policies designed uniquely for those with chronic illness who are traveling abroad. These include trip cancellation insurance, in the event of an illness or medical emergency that might require rescheduling or cancelling travel plans, and travel health insurance, which covers the cost of healthcare received in other countries.

**Avoid tummy troubles.**

Children with weakened immune systems are at increased risk for something called travelers’ diarrhea. According to CDC, carefully selecting the foods and beverages your child eats and drinks while on vacation may help lower the risk of gastrointestinal troubles. CDC recommends avoiding tap water, especially in developing countries, and drinking bottled and canned beverages instead. Hot foods should be safe to consume because bacteria that causes diarrhea is killed with high heat, but food that sits

### References

A Patient’s Guide to Healthcare Apps

By Trudie Mitschang

HEALTH-RELATED MOBILE apps are rapidly becoming mainstays for tracking, managing and maintaining health. For the chronically ill, technology can offer practical and moral support, and facilitate everything from interacting with physicians and filling prescriptions to monitoring symptoms and tracking medication side effects. Even better, many of these apps are completely free (or available for a nominal fee) to download on a smart phone or tablet, and most are very easy to use, even for the not-too-tech-savvy.

Practical Help to Make Life Easier

When it comes to self-managing chronic illness, data collection is usually one of the first things to master. Collecting data about symptoms, reactions and overall health is time-consuming and monotonous, and for those suffering from brain fog (common among the chronically ill), it could be that much more challenging. That’s where a monitoring app can really help. Depending on the app, things like sleep habits, food consumption and reactions, medication usage, activities and vitals signs can be tracked. These apps even log the data and may send information directly to a patient’s physician. Some apps will track vitals manually or through the use of wearable sensors, and reminders such as for taking prescribed medications can be set up.

Spoon Tracking

Many patients with invisible chronic illness identify themselves as “spoonies,” a reference to the Spoon Theory analogy touted by But You Don’t Look Sick founder Christine Miserandino. According to the theory, spoons are a visual reference to the amount of energy an individual has to expend on any given day; when the spoons run out, the person is spent. To better assess what activities seem to zap energy reserves, patients can consider a tracker app that helps index overall activity for designated periods of time. They can then use the index to see which physical, emotional and mental activities consistently leave them feeling drained. Keeping records like this over a period of time can help to make informed lifestyle choices that will positively impact both health and spoon count.

Goal-Setting and Motivation

Every year, millions of people set goals to exercise more and eat healthier. Somewhere into the first few weeks, reality tends to sink in and that initial push to succeed is lost. While few can afford the motivation that comes from working with a personal trainer or chef, thanks to mobile technology, downloadable apps offer ongoing support, goal tracking, meal plans, grocery lists and customizable workouts. Having daily reminders that prompt people to take a walk, drink more water or set aside 15 minutes to pursue a personal goal may be just the push they need to achieve short- and long-term aspirations.

Feeling Empowered

Patients living with chronic illness may feel very dependent on their healthcare team and caregivers. One of the significant benefits of today’s mobile healthcare apps is that they can put a measure of control back into the hands of patients. By becoming more aware of various symptoms, triggers, medication reactions and vital signs, patients will feel much more empowered, knowledgeable and prepared for regularly scheduled physician appointments.

Whether already technologically savvy or relatively new to the app world, patients are managing health and monitoring illness with phone, tablet and computer-based apps that become welcome and even indispensable members of an ongoing healthcare team.

TRUDIE MITSCHANG is a contributing writer for IG Living magazine.
**Apps Worth Accessing**

**My Pain Diary**
My Pain Diary tracks chronic pain, symptoms, triggers and more to create detailed reports for doctors. Available for iOS and Android.
$4.99

**Symple**
Symple allows patients to monitor the ebb and flow of symptoms over long periods of time. It is designed by both patients and doctors. Available for iOS and Android.
Free, with in-app upgrades

**TracknShare**
TracknShare is a series of apps allowing patients to track everything from bowel movements, habits, autism health needs, mindfulness and happiness. Available for iOS and Android.
Free

**Flaredown**
Flaredown is a comprehensive symptom tracker for autoimmune and invisible illnesses. It is built by patients, for patients. Available for iOS and Android.
Free

**ME/CFS Diary Pro**
This app monitors not only symptoms but also activities. It’s designed to help patients manage activities and fatigue by tracking things such as sleep, diet, activity pacing and immune system support. Available for iOS and Android.
Available for seven-day free trial

**Shift Wheel**
Shift Wheel lets patients see their whole self. Each day, they can create their own colorful life wheel that shows a view of life balance. The app tracks eight key life attributes: body, mind, soul, love, work, nature, gratitude and community. Available for iOS.
Free with $1.99 in-app upgrades

**Chronic Illness Assistant**
The Chronic Illness Assistant is a website and mobile app that offers comprehensive support for the management of chronic illness. Available for iOS and Android.
Free

**CareZone**
CareZone makes it easy to document symptoms, keep track of appointments and organize contacts for doctors, insurance, pharmacies and more. It will send reminders to take medications or refill them. A journal is included to document day-to-day symptoms, record doctor instructions and even privately share updates with family members. Available for iOS and Android.
Free

**GiBuddy**
GiBuddy
This app gives patients all the prompting and data needed to effectively manage GI conditions with healthcare providers. It has features to help track symptoms, treatment plans and diet, and it emails all the information needed for a constructive visit with the doctor. Available for iOS and Android.
Free

**My Medical Info**
My Medical Info lets patients easily organize all health information in one place, where they can view it, update it and share it with doctors. Available for iOS and Android.
99 cents

**Pillboxie**
Pillboxie allows patients to “visually” manage meds. Scheduling a reminder is as easy as dropping a pill into a pillbox. It is designed and developed by a registered nurse. Available for iOS and Android.
$1.99

**My Action Planner**
My Action Planner is a mobile implementation of the popular Action Plan of Stanford University School of Medicine’s Chronic Disease Self-Management Program. This goal-setting tool can help patients make changes to live a healthier and happier life. Available for iOS and Android.
99 cents
BOOK CORNER

Surviving and Thriving with an Invisible Chronic Illness: How to Stay Sane, Be Your Own Advocate, and Live Your Best Life
Author: Ilana Jacqueline
Publisher: New Harbinger

In this part-memoir and part-self-help book, Jacqueline shares the secrets she’s learned from living with two life-limiting diseases and offers tips for the “real stuff” patients deal with every day: taking charge of healthcare, managing relationships, building self-esteem and learning to thrive with a disability or invisible illness. The book helps to answer questions such as: How will my friendships, marriage and sex life survive frequent and unforeseeable symptoms? Why does the hospital think I have $4,000 to hand over to them when I’m on the verge of passing out in the ER waiting room? And, is this all just a phase, or are we looking at 10 or 20 years to life? Topics included in this amusing and informative book include explaining to family, friends and even coworkers what your disease is and how it impacts your life; how to work with your doctor to ensure your best treatment and prepare for the twists and turns that come with an unpredictable illness; coping with changes in your appearance such as weight gain, surgical scars or medical assistive devices; and how to continue striving for a better quality of life. The book will be available in early 2018.

The Autoimmune Wellness Handbook
Authors: Angie Alt and Mickey Trescott
Publisher: Rodale Books

The Autoimmune Wellness Handbook, from Mickey Trescott and Angie Alt of Autoimmune-Paleo.com, is a comprehensive guide to living healthfully with autoimmune disease. Trescott and Alt introduce a complementary solution that focuses on seven key steps to recovery: inform, collaborate, nourish, rest, breathe, move and connect. Each step demystifies the process to reclaim total mind and body health. With five autoimmune conditions between them, Trescott and Alt have achieved results using the premises laid out in the book, which goes well beyond nutrition and provides the missing link to help people get back to living vibrant, healthy lives.

Finding Hope in the Journey
Author: Heidi Tucker
Publisher: The Pickled Sunflower

Finding Hope in the Journey is written for anyone who has felt despair, yet yearns for assurance. Experience with depression, chronic pain, a son returning home early from a mission and other difficult journeys gave author Heidi Tucker reason to lose faith. But through her struggles, she found healthy patterns that positioned her heart to see God’s hand in her life. This book is written to teach readers how to see, hear and feel those quiet, tender moments of hope. The friendly style of writing is easy to embrace as principles are taught and reinforced through true stories. This book will inspire readers to rise up and find new strength, courage and determination to move forward as they implement tools to recognize messages of hope from God.

ACSM’s Exercise Management for Persons With Chronic Diseases and Disabilities, 4th Edition
Authors: American College of Sports Medicine, Geoffrey Moore, J. Larry Durstine and Patricia Painter
Publisher: Human Kinetics

Developed by the American College of Sports Medicine, this text presents a framework for optimizing patients’ and clients’ functionality by keeping them physically active. It provides evidence-informed guidance on devising individualized exercise programs for persons with chronic and comorbid conditions. Included is information on basic physical activity and exercise recommendations, exercise programming, counseling and socioecological factors, chronic conditions strongly associated with physical inactivity, as well as chapters focusing on 23 specific diseases and case studies involving 37 conditions.
“You can lament what is lost to you, whether it’s opportunity, a person or your health, but clinging to anger is no way to experience life.” — Rebecca Zook in “Life Lessons,” excerpted from Chronic Inspiration.

Download a daily dose of inspiration with this heartfelt compilation of writings on life with chronic illness. From coping strategies and parenting tips to “from the trenches” advice on dealing with family and friends who simply don’t get it, these personal stories are sure to uplift, challenge and inspire. Honest and candid, Chronic Inspiration: Heartfelt Perspectives on Life with Chronic Illness gives voice to those who refuse to let their diagnosis define who they are or what they can accomplish.

“For the patient community, this was invaluable. When I downloaded it, I knew this would be something I would refer to over and over again.”

— Jenny Gardner

Chronic Inspiration can be purchased on iTunes, Amazon and Barnes and Noble.com
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