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Knowledge Is Power, Especially for Patients

KNOWLEDGE IS power. Whether patients have a strong and supportive healthcare team or they are struggling to put one together, as the captain of that team, they must be armed with the knowledge of how the healthcare system works. And, they must stand up for themselves in their personal and social circles. It is our hope that many of the articles in this issue will help patients gain this powerful perspective.

First and foremost, patients need to be aware of what home healthcare services are available to them. While many patients receive intravenous or subcutaneous immune globulin treatment at home, they may also need other services that can be more conveniently received in the home rather than at a hospital or other facility. What may be surprising is how many services exist, including nursing; physical, occupational and speech-language therapy; home health aides; social workers; and personal, hospice and palliative care. We take a look at each of these support systems in our article “Homecare and Hospice Services for the Chronically Ill” (p.16), as well as what is needed to qualify for them. Importantly, these services benefit both patients and insurance companies since their cost is often considerably less than the cost of care at a facility.

One of the more mystifying parts of healthcare is insurance. And, those with a chronic illness often pay the price for misunderstanding terminology, benefits and appeals. To bring clarity to the subject, our article “A Guide to Health Insurance Terminology and Appeals” (p.20) defines some of the most common terms with which patients should be familiar. We also review what is included in the explanation of benefits statement sent to patients after an insurance company is billed, as well as what to look for to ensure patients are correctly charged. Of course, if coverage is denied, our breakdown of how to appeal arms patients with the proper steps to proceed.

Unfortunately, in addition to dealing with treatment and insurance, the social demands of life can be challenging. Caring for oneself in social situations can be particularly challenging. In our article “Practicing Self-Care Without Guilt” (p.24), we discuss why feelings of guilt are common for those with chronic illness who often find it difficult to do the things they and their friends and family want them to do — and why those guilty feelings are misplaced. Indeed, learning to say no and how to employ coping strategies are key to putting patients’ needs rightfully ahead of everyone else’s.

As always, we hope you enjoy these articles, as well as the many more educational and insightful topics presented in this issue of IG Living.

Ronale Tucker Rhodes, MS
HEALTHCARE HAS been a hot political topic for a number of years, with both political parties vying for control. A large part of the discussion revolves around eliminating burdens posed by regulations. Yet, while healthcare is without a doubt one of the United State’s largest and most regulated industries, representing 16 percent of the economy, whether there is a need to reduce the number of regulations is complicated.

Our complex system of health regulations can be traced back 150 years when they were first implemented for public health reasons and have since evolved to include quality of care, finance and access issues. Today, regulations provide basic oversight of many of the central players in the healthcare system, including physicians, hospitals and insurance companies. This multi-layer system is regulated by public-private partnerships that include federal, state and local agencies and private organizations such as the American Medical Association. Implementation or elimination of regulations is overseen by the U.S. Department of Health and Human Services (HHS), which has the multifaceted mission of enhancing the health and well-being of American people through planned rule-making.

Many calls for change are due to the belief that regulations are too burdensome and represent additional expenditures that impede innovation and drive up costs for private industry. And, while it is true regulations are complicated and cost money to implement, inadequate regulations can amount to a hidden subsidy for risky behaviors that put patients at risk.

Further, regulation is not always a bad thing. Industry has benefited from regulations in many ways. A good example is the development of the pharmaceutical industry. When the U.S. Food and Drug Administration (FDA) was created early last century to approve the safety of drugs, public faith in new medications increased, allowing the pharmaceutical industry to grow.

But, before implementing deregulation of any kind, policymakers need to carefully consider who is going to benefit. Change should not be considered by simply looking at the bottom line, but rather what the overall benefit is to the public. A recent example of how fewer regulations might benefit patients is a revision in FDA requirements for new drug approval. Many feel the time needed for approval, particularly for experimental therapies for chronically and terminally ill patients, was onerous. These restrictions have been challenged in many states with the introduction of right-to-try legislation that would allow terminal patients to try experimental therapies not approved by FDA.

The National Right to Try Movement cites “FDA red tape and government regulations restricting access to promising new treatments” as a serious problem that leaves many patients without hope.

In fact, for these reasons, national right-to-try legislation was passed in June, giving terminally ill patients the right to use experimental medications not yet approved by the FDA.

While economic consequences are important when considering healthcare regulations, they shouldn’t be the primary focus. Deregulation should not be a question of partisan politics but rather who is going to benefit from change. The end goal should always be patient safety and accessibility to care. HHS encourages public participation and welcomes comments about proposed healthcare rules, which can be found at www.HHS.gov/regulations.

ABBIE CORNETT is the patient advocate for IG Living magazine. She can be reached at patient advocate@igliving.com or (800) 843-7477 x1366.
After you spend day after day, year after year at home, somehow time becomes a bit altered.
— Katie M

Sadly, yes, some days it is that. Get up, have coffee, read the threads, watch the news, take a shower. Read some more, watch TV, back to the next day — because that is all I can manage for that day.
— Janet S-D

I feel like my body is 90 years old. No offense to all those who are 90! And, yes, often illness makes our brains condense time as it’s easier to deal with.
— Birgit C

Do you ever feel like you are living the same day over and over again?

Let’s just put it this way: I always thought I should have had a part in the movie “Ground Hog Day”. Seriously, though, I sometimes think it gets very discouraging that I’m either answering the same questions over and over or that someone wants to tell me what is wrong with me. Then, I realize that if you do not live the life of a “groundhog,” it is very hard to understand and live this life. As my dad always said: “Patience is a virtue!”
— Jenny G

After you spend day after day, year after year at home, somehow time becomes a bit altered.
— Katie M

Sadly, yes, some days it is that. Get up, have coffee, read the threads, watch the news, take a shower. Read some more, watch TV, back to the next day — because that is all I can manage for that day.
— Janet S-D

I feel like my body is 90 years old. No offense to all those who are 90! And, yes, often illness makes our brains condense time as it’s easier to deal with.
— Birgit C

How do you manage your healthcare?

Patients must be alert to their medical situation and cannot leave it strictly up to the doctor. I am the most fortunate person to have an excellent primary care physician and neurologist. With me very involved and compliant, we work together for the best … treatments for myasthenia gravis. Our biggest headache is the insurance authorization process and approval. My doctors spend enormous amounts of time on my case and work with me to get the authorization required for me to maintain a life outside the hospital and home. It takes having a team, with you the patient knowledgeable [and] doctors who are interested in working with you.
— Judy S

It has only been in recent years that I have realized I need to be an active advocate for my own health. For some reason, I used to think that doctors have the only say in my care. I am not disrespectful in any way with any of my healthcare professionals, but I do ask questions or research things pertaining to my healthcare. I think this is so important.
— Jenny G

Is depression related to your immune system?

I would say the answer is twofold. Physically, we aren’t born with everything we need in our bodies, so it stands to reason that we are deficient in other areas. Secondly, the sheer magnitude of coping with this disease gives way for depression to walk through our doors. Added to that is the stress of friends, family, doctors and society not really understanding the disease. That’s very isolating to say the least. The icing of misdiagnosis, broken relationships, severely strained finances and social stigma makes the batter for a nice cake.
— Kelly D

From time to time, I have experienced depression. I have always thought it was because there were naysayers about whether or not I was really sick — especially before I was diagnosed. I have finally realized I can’t control what someone else thinks, and what is important is to focus on me. Enjoy the good days and accept them as a gift, and when the bad days happen, focus on taking care of myself. It’s sad that it took me so long to realize this.
— Jenny G

Join the conversation! Connect with other immune globulin patients through IG Living’s Facebook page at www.facebook.com/IGLivingMagazine. See our daily posts of interesting articles and facts, as well as thought-provoking questions that you can chime in on. Following are some snapshots of what’s being discussed.
**Leslie**

The levels you report are considered low. While you may be asymptomatic, many immunologists would consider starting IG therapy to ensure you have adequate levels to protect you against developing infections. The next step would be to test how your immune system functions in response to the pneumovax and diphtheria/tetanus vaccines. I would recommend following up with your immunologist to ask if additional tests are necessary to determine if starting IG therapy is appropriate. If you aren’t currently being seen by an immunologist, you may consider seeking an opinion from one who is familiar with treating immune deficiencies. You can search for an immunologist close to your location on the American Academy of Allergy, Asthma and Immunology website (www.AAAAI.org).

**Abbie**

I spoke with one of our experts, and he said the side effects you describe are atypical for IG infusions, but may be a delayed type of inflammatory reaction. The first thing to try would be to change the product, which you have already done. A second suggestion is to break up the SCIG infusions into smaller, more frequent doses — maybe three times per week, or possibly even small daily doses with a different 20% product (Cuvitru) or possibly one of the 10% products approved for subcutaneous administration. Those products are Gammaked, Gamunex-C or Gammagard Liquid. It should be noted that Gammagard Liquid is the same IG product found in HyQvia. Dosing more frequently would keep a very stable level of IgG and may prevent the side effects.

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

**LESLIE J. VAUGHAN**, RPh, is senior vice president of clinical programs at NuFACTOR Specialty Pharmacy.

**ABBIE CORNETT** is the patient advocate for IG Living magazine.
DiGeorge Syndrome: Thymus Development and the Initiation of T Lymphocyte Development, Part 3
By Terry O. Harville, MD, PhD

In previous issues, we discussed features of DiGeorge syndrome (DGS) and partial DGS (PDGS) resulting from the consequences of improper timing of the sequence of events during early phases of embryonic development. In the last issue, we began with the migration of the cells destined to become T lymphocytes and NK cells, that leave the bone marrow to travel to the thymus.

For persons with normal thymus development, this process works well. Pre-thymocytes enter the subcapsular cortical region of the thymus that is just inside the outer covering (capsule) of the thymus (Figure 1). These cells, known as subcapsular cortical thymocytes, begin the process of developing the T-cell receptor (TcR), which is used by the immune system for self-recognition and for recognition of foreign protein antigens such as from viruses and bacteria. Concomitantly with the TcR expression is the cell-surface expression of CD3, which identifies thymocytes and T lymphocytes. There are other very specific cell-surface proteins expressed that define the developmental stages of the thymocytes, as well as when they have developed into mature but naïve T lymphocytes.

The majority (greater than 95 percent) of subcapsular cortical thymocytes eventually express the cell-surface protein marker known as CD45RO that typically identifies mature and activated T lymphocytes. As such, the marker’s presence early in thymocyte development seems contradictory. It is now understood this process is identifying the thymocytes that have failed to produce a viable TcR and are thus being marked for death. Therefore, only approximately 5 percent of developing thymocytes instead express on the cell surface the protein CD45RA (indicating naïveté) since they were able to develop a viable TcR, and these proceed to further develop into cortical thymocytes.

Cortical thymocytes must undergo an education process to recognize self, and they also have the potential to recognize foreign protein antigens. Recognition is via parts of the TcR (Figure 2) binding to special proteins expressed on cell surfaces known as HLA. HLA is comprised of two categories: Class I, which is found on nearly all cells to help protect against viral infections, and Class II, which is primarily found on specific white blood cells and is involved with the initiation of the immune response. The binding groove of the TcR (Figure 2) is where peptides from either self-proteins or foreign proteins are recognized. If a foreign protein is presented by the HLA proteins, which the TcR can recognize by tight binding in its binding groove, then the immune response can be initiated.

Next time, we will further discuss the TcR and normal developmental stages of thymocytes as they become educated to recognize self, with the potential to recognize foreign pathogens.

---

**Figure 1. Tissue Layers of the Thymus**

The thymus arises from tissues on both sides of the neck, which meet in the midline. Thus, there are basically two lobes. The thymic capsule is a tough, fibrous tissue surrounding the thymus. Just inside the capsule is the subcapsular cortex. The main tissues inside the thymus are the cortex and medulla. To visualize this, consider the peach. Just under the skin of the peach would be the subcapsular cortex or subcapsular cortical region. The remainder of the juicy, fleshy part of the peach would be analogous to the cortex. The medulla of the thymus is just as soft and fleshy as the cortex (the eatable part of the peach), but is analogous in position with the peach pit. Pre-thymocytes begin entering the thymus in the subcapsular cortical region and undergo developmental processes while migrating through the cortex and the medulla before exiting the thymus.

**Figure 2. The T-cell Receptor (TcR)**

The TcR is comprised of two protein chains on the cell surfaces of thymocytes and T lymphocytes. The major form is the alpha-beta TcR, which is generally present on approximately 95 percent of thymocytes and T lymphocytes. The minor form looks the same as the alpha-beta TcR, but is instead comprised of different protein chains, gamma and delta. At the top of the alpha and beta protein chains (and gamma and delta) are surfaces that can bind to the person’s HLA proteins. This provides for self-recognition. In between these is a binding groove, which allows for specific recognition of foreign protein antigens such as from viruses and bacteria in order to initiate the activation of T lymphocytes and the immune system toward the specific pathogen being recognized.
AT ONE TIME, myasthenia gravis (MG) lived up to its name, and its prognosis truly was grave. Thanks to modern immunomodulatory treatments, the mortality rate for this autoimmune neuromuscular junction disease is a fraction of what it once was. But, not every treatment works for every patient, and many treated patients still have uncontrolled disease. As a result, drug manufacturers continue to strive for new treatments that may help these poorly controlled patients.

Standard Treatments
While treatment goals for MG are individualized depending on severity, patient age, serology status, thymic pathology, concurrent medical issues, patient and physician preference and physician experience, the standard treatment options are sufficiently effective for most patients. And, while they don’t provide a cure, they do provide muscle strength improvement and, in some cases, result in remission.

Standard treatments include:
• Corticosteroids (such as prednisone) and immunosuppressive agents (such as Imuran) suppress the abnormal action of the immune system that occurs with MG.
• Thymectomy surgically removes the thymus gland, which is behind the breastbone, to lessen the severity of MG weakness that occurs after months or years. In some cases, thymectomy causes weakness to completely disappear, causing the MG to go into remission.
• Plasmapheresis (plasma exchange) removes the abnormal antibodies from the plasma in the blood, which often improves muscle strength but is often short-lived since production of abnormal antibodies continues. Plasmapheresis frequently requires repeating.

New and Investigational Treatments
In many cases, MG patients fail to respond to standard treatments. Fortunately, one new treatment — Eculizumab (Soliris; Alexion) — was recently approved by the U.S. Food and Drug Administration (FDA) to treat generalized MG (gMG). In addition, one investigational treatment — intravenous immune globulin (IVIG) — is currently being studied.

Eculizumab (Soliris; Alexion) was approved by FDA in October 2017 to treat gMG in adult patients who are anti-acteylcholine receptor (AChR) positive. Eculizumab is a monoclonal antibody, which is an antibody that has one specific target such as a specific receptor on a cancer cell. This is in contrast to IVIG, which is considered polyclonal, meaning it has many different antibodies to a variety of different targets. A monoclonal antibody can be considered a precise weapon versus the inexact approach of IVIG.

Monoclonal antibodies can be synthesized in a lab, and many are now used to treat various indications. Eculizumab inhibits complement, which has a role in many immunological and autoimmune diseases. It is currently indicated for two rare blood disorders (paroxysmal nocturnal hemoglobinuria and atypical hemolytic uremic syndrome) in addition to gMG, and is delivered via a weekly or biweekly infusion. Because this drug affects the immune system, serious side effects have been noted such as meningitis and other infections.

To obtain FDA approval, Alexion studied the efficacy and safety in patients who have gMG that is resistant to treatment. The randomized, double-blind, placebo-controlled, multicenter trial, called REGAIN, examined the effect of eculizumab on the MG-ADL (activities of daily living) scores in 125 AChR-positive gMG patients who failed at least two immunosuppressants or who failed one immunosuppressant and required chronic IVIG or plasmapheresis. Patients were randomized to either eculizumab or placebo, and dosing was a weekly 900 mg infusion during the induction phase for four weeks, followed by a maintenance phase of a 1,200 mg infusion every two weeks until patients completed 26 weeks of treatment. While the study did not demonstrate a difference in efficacy between eculizumab and placebo in the primary endpoint (MG-ADL), statistical significance was reached in most secondary endpoints, including MG composite score and MG-QOL15 (18 to 22 predefined endpoints reached statistical significance).

IVIG, a solution of antibodies derived from human plasma, is currently being studied to treat MG. IVIG is indicated for treating other autoimmune neuromuscular diseases such as chronic inflammatory demyelinating polyneuropathy and multifocal motor neuropathy. While previous studies have shown efficacy of IVIG in both maintenance of gMG and treatment of acute exacerbation, they were small, lacked placebo control and were
limited in generalizability. As such, several larger studies are now being conducted.

Grifols, a manufacturer of IVIG, is studying the efficacy, safety and tolerability of IVIG in gMG patients in a multicenter, placebo-controlled trial in hopes of securing an FDA-approved indication. Subjects are randomized to a loading dose of 2 g/kg of IVIG followed by seven maintenance dosages of 1 g/kg every three weeks for 21 weeks, or a placebo on the same dosing schedule.8

Grifols is also studying IVIG treatment for acute exacerbation in gMG patients. Due to ethical issues associated with a placebo-controlled arm in acute medical emergencies that occur with MG exacerbation, this is an open-label study that does not include a placebo arm. The subjects in this study are receiving a single total dose of 2 g/kg of IVIG over two consecutive days.9

Another IG manufacturer, CSL Behring, is conducting a small open-label study to assess the efficacy and safety of subcutaneous IG (SCIG) in treating MG. SCIG offers an important option for patients who experience adverse events with IVIG, have poor venous access or simply prefer the convenience of shorter, flexible infusions. Participants are receiving a weekly SCIG dose and rate depending on the visit and how each tolerates the drug.10

Treatment Guidance

Treatment guidelines for MG were developed by a Myasthenia Gravis Foundation of America (MGFA)-appointed task force in 2013. Within those guidelines, definitions were developed for the following goals of treatment.3

• Remission: The patient has no symptoms or signs of MG. Weakness of eyelid closure is accepted, but there is no weakness of any other muscle on careful examination. Patients taking cholinesterase inhibitors every day with reasonable evidence to support symptomatic benefit are excluded from this category.

• Minimal manifestation status: The patient has no symptoms or functional limitations from MG, but has some weakness on examination of some muscles. This class recognizes some patients who otherwise meet the definition of remission have mild weakness.

• Ocular MG: Any ocular muscle weakness. The patient may have weakness of eye closure. Strength in all other facial, bulbar and limb muscles is normal.

• Impending myasthenic crisis: The patient has rapid clinical worsening of MG that, in the opinion of the treating physician, could lead to crisis in the short term (days to weeks).

• Manifest myasthenic crisis: The patient has worsening of myasthenic weakness requiring intubation or non-invasive ventilation to avoid intubation, except when these measures are employed during routine postoperative management.

• Refractory MG: The patient is unchanged or worse after corticosteroids and at least two other immuno-suppressant agents, used in adequate doses for an adequate duration, with persistent symptoms or side effects that limit functioning, as defined by patient and physician.

ELISSA RITT, DHSc, is the medical science liaison, and MICHELLE GREER, RN, is senior vice president of sales for NuFACTOR Specialty Pharmacy.

References


What Is Myasthenia Gravis (MG)?

• MG is a chronic autoimmune disorder in which antibodies destroy the communication between nerves and muscle, resulting in weakness of the skeletal muscles.

• MG affects the voluntary muscles of the body, especially those that control the eyes, mouth, throat and limbs.

• The disease can strike anyone at any age, but is more frequently seen in young women (ages 20 to 30) and men ages 50 and older.

• An MG crisis can involve difficulty in swallowing or breathing.

• The cause of MG is unknown and there is no cure, but early detection and prompt medical management can help people live longer, more functional lives.

IN THE NEWS

Research
Prometic’s Phase III IVIG Trial Shows Positive Results

Prometic Life Sciences’ Phase III clinical study of its intravenous immune globulin (IVIG) 10% product has met its primary and secondary endpoints in adult patients with primary immunodeficiencies (PIs). The primary endpoint was less than one serious bacterial infection (SBI) per person per year. An SBI is defined as bacterial pneumonia, bacteremia and sepsis, osteomyelitis/septic arthritis, bacterial meningitis or visceral abcess. Secondary endpoints included episodes of fever (100.4 degrees Fahrenheit or less), number of missed days from work, number of days of hospitalization due to infection, number of days on antibiotics, number of infections other than SBI and trough IgG levels comparable to other commercial products. With Prometic’s IVIG, only 4.94 days per subject per year were lost from work, which was significantly less than the rate observed while on another commercial product. In addition, the proportion of infusions for which at least one treatment-emergent adverse event was well within the U.S. Food and Drug Administration (FDA) guidance threshold across all time points within 72 hours post-infusion.

“The results with Prometic IGIV 10% met the FDA guideline requirements for both safety and efficacy. This is the second plasma-derived therapeutic clinical program to generate pivotal Phase III results,” said Pierre Laurin, president and CEO of Prometic.


Research
New 10% IVIG Being Tested for Pediatric and Adult PI Patients

Evolve Biologics has dosed the first pediatric patient in its Phase III multicenter clinical trial of PlasmaCap IG (intravenous immune globulin [IVIG]), in addition to having administered half of the infusions required for the adult portion of the study, which completed enrollment in February. The study received approval to proceed from the U.S. Food and Drug Administration and Health Canada last summer.

PlasmaCap IG is an investigational IVIG replacement therapy being studied in both adult and pediatric patients with primary immunodeficiency diseases (PI). It has been developed utilizing Evolve’s PlasmaCap EBA technology, which allows for the efficient capture of plasma proteins and offers the potential of higher yields and purities. Existing plasma protein products available in the market and derived from human plasma are still primarily produced using the traditional Cohn manufacturing process developed in the 1940s.

The clinical trial has 13 study centers in the U.S. and Canada. Titled “A Prospective, Open-Label, Multicenter Study of the Efficacy, Safety, Tolerability, and Pharmacokinetics of Evolve PlasmaCap IG in Adults and Children with Primary Immune Deficiency Diseases,” the study will determine, based on historical control data, how PlasmaCap IG compares with other 10% IVIG products currently licensed in the U.S. and Canada for the treatment of PI patients.

“We are pleased to announce we have now dosed the first pediatric patient in this important study of PlasmaCap IG. In addition, we have successfully reached the mid-point for the adult portion of our study, having administered half of the total infusions,” said Blaine Forshage, Evolve’s CEO. “These events mark important progress in this study. PlasmaCap IG is the first product in our portfolio to be studied in a clinical setting and demonstrates our commitment to bringing modern and innovative technologies to the growing global market for plasma-derived therapeutics, as well as developing new therapeutic options for both adult and pediatric patients with a number of rare chronic diseases, including PI.”
IN THE NEWS

Research

SCIG Therapy Is Cost-Saving Versus IVIG for PI Patients

A first-ever prospective economic analysis by Canadian investigators found that, from both hospital- and health system-based perspectives, home-based subcutaneous immune globulin (SCIG) therapy was associated with significantly lower average total nondrug costs than hospital-based intravenous immune globulin (IVIG) therapy for patients with primary immunodeficiency (PI) disorders.

The analysis included 30 adult patients in the IVIG group and 27 patients in the SCIG group. The average age and baseline weight were not significantly different between the two groups. Patients on IVIG therapy typically came to the hospital every three to four weeks where a nurse inserted an intravenous line for infusions that generally required about two to three hours. Initiation of SCIG treatment required training by a qualified nurse, generally in a single one-on-one visit. Once patients had been trained, they infused the product on their own at home, generally in small volumes ranging from one to seven times per week. For patients transitioning from IVIG to SCIG at the beginning of the study, treatment was initiated at a dose equivalent to the previous IVIG dose, given once a week.

Over the 12-month study period, all nondrug hospital costs (including hospital nurses and technicians) and physician visit costs were respectively $1,836 and $84 for the SCIG group, and $4,187 and $744 for the IVIG group. “SCIG has significantly decreased costs for the Canadian health care system compared with IVIG,” the investigators concluded. “It should be considered in patients who are currently on IVIG and in those who are to start immunoglobulin replacement therapy.”


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FDA Approves Tavalisse to Treat Chronic Immune Thrombocytopenia

The U.S. Food and Drug Administration (FDA) has approved Tavalisse (fostamatinib) to treat patients with chronic immune thrombocytopenia (ITP) who have had insufficient response to another therapy. Approval is based on findings from three trials that enrolled 150 patients who had received prior ITP treatment that consisted of corticosteroids (84 percent), immune globulin (53 percent), thrombopoietin receptor agonists (48 percent) or splenectomy (35 percent), nearly half of which were on stable concurrent ITP therapy (4 percent).

In the first randomized study known as FIT-1, 18 percent of patients treated with Tavalisse experienced a platelet response compared with none in the placebo arm. In the second study known as FIT-2, a stable platelet response was seen in 16 percent of patients in the Tavalisse group compared with 4 percent treated with placebo. Patients from these trials were also included in an open-label expansion cohort known as FIT-3 in which 23 percent of those who received prior placebo in FIT-1 or FIT-2 had a platelet response to Tavalisse. In all studies, Tavalisse was started at 100 mg twice daily with a dose escalation to 150 mg twice daily based on platelet counts and tolerability. Most patients (88 percent) were dose-escalated at week four or later. The primary endpoint was stable platelet response, which was defined as at least 50 x 10^9 platelets per liter of blood on at least four of six visits between weeks 14 and 24 of the study.

"Chronic ITP is challenging to treat because the heterogeneity of the disease makes it difficult to predict how an individual patient will respond to available treatments, and not all patients can find a treatment that works well for them," said lead investigator of the trials James Bussel, MD, professor emeritus of pediatrics at Weill Cornell Medicine. "The FDA approval of fostamatinib arms physicians with a new treatment option, which works via a novel mechanism."


Autistic Children Treated with IVIG Show Improvement

Significant improvements in cognitive and behavioral function were observed in 14 children with autism spectrum disorder and evidence of immune dysfunction, who were administered high-dose intravenous immune globulin (IVIG) treatment over a period of 30 weeks, according to a pilot study conducted by U.S. investigators.

A select group of autistic children with a diagnosis of autistic disorder, Asperger’s disorder or pervasive developmental disorder and evidence of a dysregulated immune system received 1 g/kg of 5% IVIG (Gammaplex, Bio Products Laboratory) for 10 21-day treatment cycles. The primary endpoint was pre- and posttreatment disease improvement assessed using standardized cognitive and behavioral tests (e.g., Children’s Communication Checklist [CCC-2], Social Responsiveness Scale [SRS], Aberrant Behavior Checklist [ABC], Clinical Global Impressions-Severiry [CGI-S] and Improvement [CGI-I], and Autism Diagnostic Observation Schedule [ADOS]). A number of experimental biomarkers associated with neuroinflammation were also captured.

Significant improvements from baseline to study endpoint were observed in several sub-scales of the CCC-2, SRS, CGI-I, CGI-S and ADOS, including associated maladaptive behavior, reciprocal social interaction, communication and stereotyped behaviors and repetitive interests. Statistically significant reductions were also seen in numerous immunological biomarkers indicative of neuroinflammation. IVIG treatments were well-tolerated. These findings suggest inflammatory etiologies may play a role in some cases of autism, and IVIG treatment may, through an anti-inflammatory effect, exert a positive impact on its behavioral manifestations.

Research
Antibody Discovery Could Prevent Allergies

European researchers have discovered the mechanism behind the antibody immunoglobulin E (IgE) that can potentially inactivate the body’s allergic processes. It is hoped the breakthrough will help to develop a universal treatment to prevent allergic reactions.

When an allergic response to a compound occurs, the body’s immune system produces IgE molecules that bind to receptors on mast cells, causing the release of histamines that result in allergic symptoms. But, this new research shows anti-IgE antibodies can prevent the allergen-induced IgE molecules from binding with the histamine-producing mast cells to effectively stop all allergic symptoms regardless of the volume of IgE molecules generated by the external allergen. “Once the IgE on immune cells can be eliminated, it doesn’t matter that the body produces millions of allergen-specific IgE molecules,” said Edward Spillner from the Department of Engineering at Aarhus University in Denmark. “When we can remove the trigger, the allergic reaction and symptoms will not occur.”

However, the antibody has only been shown to be effective in ex vivo laboratory models. While the researchers believe the method should be effective in almost all allergic reactions in humans, it is still years away from being deployed in general medicine.

Receiving care in the home is by far less costly than in a hospital, and many homecare options are available to consider.
HOME IS WHERE the heart is, and given the choice, most people would prefer to stay at home than be confined to a hospital or skilled nursing facility to receive medical care. Additionally, risk of infection is frequently better controlled in a patient’s own environment than in a novel setting with other sick individuals, despite earnest control measures. Fortunately, there are oftentimes available options for patients to do both: remain at home and receive the healthcare or personal care assistance they require.

Many patients receiving immune globulin (IG) therapy are already somewhat familiar with home health, and may have even received infusion treatments by a nurse at home. However, they are also likely unaware of other available skilled and personal care services available at home and how to access them.

Home Health
The primary aims of home health are to help patients continue their recovery from an acute illness and transition back into the community and/or help maintain their current chronic health conditions and prevent further decline to the point they are no longer able to remain in their home. In addition to skilled nursing, home health services may include rehabilitation services (physical therapy, occupational therapy and speech-language therapy), social work and/or home health aides. Each discipline specializes in helping patients remain safe and as independent as possible at home.

Medicare, Medicaid, Veterans Affairs and most private insurance all have a home health benefit. However, to access the benefit, at least Medicare and a number of private insurance require a patient be homebound. By Medicare’s definition (which also tends to be the standard used by other insurers), being homebound doesn’t mean someone cannot leave home, but it does have to be a “considerable and taxing effort.” Patients can leave home for medical appointments and certain other activities (e.g., church, a funeral, graduation or wedding), but if they are driving themselves, able to access the community independently or assume their normal daily activities outside of home, they most likely would not meet the homebound requirement. It is important to note that some state Medicaid and private insurance plans do not require patients be homebound as long as it can be demonstrated that the home is the most appropriate place for patients to be seen.

Accessing home health services typically requires a doctor’s order. Medicare recipients must also have had a face-to-face visit with the physician who will be signing the home health plan of care within the 90 days prior to, or 30 days following, the beginning of a home health episode. Although other insurers may cap the number of home visits allowed as part of a member’s benefit and/or charge a copay, there is not currently a home health copay for Medicare A beneficiaries, and the number of visits are constrained only by homebound status and the medical necessity and appropriateness of care. It’s also important to note that Medicare patients don’t have to demonstrate the potential to improve their medical condition as long as skilled intervention is necessary to help maintain health and function and/or slow further decline.1

One of the most important things for patients to remember about home health is they have the right to choose their service provider. Even though a physician may encourage patients to utilize a specific agency, requiring its use is strictly against Medicare regulations and should be reported to the Centers for Medicare and Medicaid Services and/or to the local ombudsman. Patients should also not be afraid to ask an agency for a different caregiver if they are unable to remedy concerns they have about a clinician or home health aide. If patients wish to change agencies, they may do so at any time, although it is often best to try to resolve concerns first. The following sections describe typical services offered by a home health agency:

Nursing. Home health nurses can administer IG therapy and other medications, and assist with most any care that would normally be performed by a nurse in a skilled nursing facility or hospital setting. Although most home health nurses are able to triage, provide education and attend to any number of health conditions, patients should feel comfortable asking specifically for a caregiver who is experienced with their particular diagnosis and needs.
Physical therapy. Physical therapy’s focus in home health is often to help patients improve transfers and mobility (e.g., getting up from a chair and walking), balance and strength related to functional activities. One of the most important components of any home health plan of care is the home exercise program, which should always be established by the therapist so patients are able to actively continue their program on nontherapy days.

Occupational therapy (OTs). OTs are experts at activities of daily living and can help patients improve their function and safety at home. Therapeutic activities may include training with bathing, dressing, toileting and eating. As part of their initial assessment, OTs will likely conduct a home safety evaluation and make recommendations for alterations (e.g., picking up throw rugs or installing a grab bar). They may also make recommendations and help to acquire adaptive equipment to increase safety and function. Examples may include bathtub transfer benches, elevated toilet seats, adaptive graspers or adaptive utensils.

Speech-language therapy. Speech-language pathologists (SLPs) do much more than treat receptive (comprehensive) and language (speech production) deficits. One of their greatest assets in a home setting is their expertise related to cognition. Together with OTs, SLPs can provide therapy for those struggling with memory, cognition and other cognitive skills.

Home health aides. Home health aides, usually made-up of certified nursing assistants (CNAs), provide valuable personal care services to patients who are unable to perform tasks safely on their own. In the home health industry, those services are usually restricted to basic care such as bathing, toileting, dressing, light meal preparation and perhaps some light housework. Patients who require additional assistance with nonmedical tasks may consider contracting a personal care agency.

Social work. Social workers in the home health industry can help patients learn how to access benefits and community resources. They are also often key to assisting families through the home health process, and at looking into other options when home no longer seems the most appropriate place for patients to receive the care they need.

Personal care. Personal care, or private duty, services are not covered by insurance and, consequently, are usually an out-of-pocket expense to clients or their families (however, many states have Medicaid programs that may help to pay for at least some of the services for eligible recipients). Services are usually paid at an hourly rate, and cost varies by the number of hours needed, which can range from someone coming to assist with bathing for an hour several times a week to 24/7 care. According to www.payingforseniorcare.com, “Nationwide in 2017, the average cost for nonmedical home care [was] $20 per hour with the state averages ranging from $15 - $27 per hour. It should be noted that these are average costs from home care agencies. Private individuals can be retained to provide most of the same services with fees that are 20% - 30% lower. However, independent caregivers are typically uninsured, do not go through background checks and may be unable to provide alternatives in case they are not available to work on short notice.”

Unlike home health aide services, personal care agencies are not restricted to basic personal care. I have heard it described that a personal care agency’s motto is “Yes,” meaning they can (with some obvious exceptions) provide any service needed by clients. Can they do their shopping? Yes! Do the laundry? Yes! Wash the dishes? Yes! Most any market has a number of personal care agencies offering such services. It is recommended to interview several and compare the cost of services, and to remember cost does not necessarily reflect quality.

Another option to using a personal care agency is to hire a CNA privately. Some families even choose to provide room and board as part of compensation to a private aide when significant services are needed.

Hospice and palliative care. Oftentimes, hospice is a misunderstood service with a negative stigma for many people due to its end-of-life nature. Although patients must be certified by a physician as having a medical prognosis of six months or less to live, hospice should be viewed as a service that richly improves quality of life during whatever mortal time patients have left.

Hospice care teams consist of nurses, hospice aides, social workers and chaplains (for interested patients) representing
some of the most compassionate people on the planet. The focus of hospice is palliative, rather than restorative, in nature, meaning the emphasis is on reduction of pain and management of symptoms instead of treating to cure the underlying medical condition. Patients must agree to forego restorative medical treatment related to the diagnosis that has qualified them for hospice, but may still receive treatment for other conditions and receive care to help manage symptoms of the hospice-related diagnosis. This is usually performed by the hospice nurse, but therapists (PTs, OTs and SLPs) may also be involved, at least temporarily, to manage symptoms, train family and other hospice staff in safe transfer and handling techniques, help order adaptive equipment, or perform other skilled tasks. Social workers and chaplains are key to preparing and educating families and patients about hospice, and helping them through every step of the process, including the acceptance and grieving stages before and after patients’ passing.

Sometimes, patients will decide to return to active treatment for their hospice-qualifying condition, perhaps after a reverse in course of their medical diagnosis. Although frequently misunderstood by the public, this is a perfectly acceptable practice, as patients may revoke their hospice election at any time and decide to invoke it again at a future date as long as they still meet eligibility criteria.

For many of those who are not interested in or ready for hospice, there is often another option. Some home health agencies are now offering one of several different forms of nonhospice palliative care programs, which are covered under patients’ insurance benefits (e.g., Medicare maintenance services), on an out-of-pocket basis or as a free service of the healthcare network or insurance provider to reduce long-term costs and risk of decline.

Palliative programs that do not fall under the hospice benefit are usually designed to provide minimally necessary care to help patients manage their condition. Some innovative programs designed for patients with chronic health conditions make use of telemonitoring/telemedicine technology to track patients’ vital signs daily and/or conduct visits with their healthcare providers via video conferencing. Periodic live check-ins are also usually a part of the program. The frequency of services may vary from once a month to several times a week.

The Future May Be in the Home

Too often, patients are discharged from a hospital or skilled nursing facility to home, only to end up back in the hospital days to months later due to another exacerbation of their condition or noncompliance to prescribed precautions/restrictions and self-care directions (e.g., medications, diet, exercise). Home health and personal care agencies are wonderful, comparatively inexpensive tools to help prevent rehospitalizations or other unnecessary harm and expense.

Healthcare.gov reports the average cost of a three-day hospital stay is around $30,000. The average national cost for a private room in a skilled nursing facility ranges from approximately $7,400 to $8,500 per month, depending on whether the room is shared (semi-private) or private. Medicare’s standardized 60-day episode payment for homecare is just over $3,000. Imagine how much morbidity, mortality and money could be saved by preventing even one hospital stay as a consequence of healthcare networks and insurers using homecare. With inherent savings and a growing number of homecare options for patients and physicians to consider, the future of healthcare just may be in your own home.

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References
Navigating the world of health insurance can be complex, but by understanding some important terms and exercising due diligence, patients can access the care they need.
FOR THE CHRONICALLY ill, access to care can be challenging, frequently the result of misunderstanding health insurance language, benefits and appeals. Without full understanding of terms commonly used in policies, patients may have difficulty choosing a plan that best meets their individual needs or comprehending what a plan covers. And, because chronic illnesses often require expensive medications and more than one specialist, an uninformed choice regarding insurance could cost patients a lot of money or, worse yet, leave them without care. So, while taking the time to learn the language of health insurance and appeals is time-consuming, it will save money and stress in the long run.¹

Understanding Commonly Used Terminology

Becoming literate in the language of insurance is the first step toward making the best decision about plan coverage and care. The following are the most common terms chronically ill patients should be familiar with and how they can affect access to care:

A **premium** is the amount paid each month for health insurance. Most people, when looking for a plan, focus on less-expensive premiums. But, that isn’t always the best choice for individuals with chronic illness. Oftentimes, policies with lower premiums have higher deductibles, greater out-of-pocket expenses and frequently include coinsurance. By choosing one of these plans, patients might end up spending more on medication, doctor visits and equipment than if they had invested in a more comprehensive plan with a higher premium. Before selecting a plan, a cost-benefit analysis should be conducted to determine the best option.²

**Out-of-pocket expense** refers to the charges for medical treatment that patients are financially responsible for until the plan pays the cost of covered benefits. This includes deductibles, copayments and coinsurance, but does not include the premium or services the plan doesn’t cover. The maximum limit for out-of-pocket expenses for 2018 is $7,350 for an individual and $14,700 for a family.

**Deductible** is the amount patients pay before the plan will pay for treatment.

**Specialty tiers**, also known as specialty tiering, entail a cost-saving method employed by payers that places prescription drugs into different categories for payment. Depending on the plan, there may be three to five tiers. Medications placed in any of the lower tiers have a fixed copay (for example, a flat rate of $20 per prescription). However, for medications placed in the top tier, patients are usually switched from traditional copay to coinsurance.

**Copayment** (or copay) is a fixed amount patients pay for doctor visits, medication or lab work after the deductible is met. Many plans have different copays for services. The required copayment is something patients need to consider when choosing a plan. As a rule, plans with lower premiums have high copays.³

**Coinsurance**, or cost-sharing, comes into play when the patient pays a percentage of the cost of a treatment instead of a flat rate or copay. This percentage can range from 20 percent to 50 percent. A study conducted in 2013 by the Kaiser Family Foundation on employer health benefits found that 81 percent of covered workers are in a plan with three or more tiers, and that coinsurance is the most common form of cost-sharing in the highest tier. There are many consequences to this policy, but the most notable is that while the policy reduces the cost to the payer, it can be devastating to the patient.⁴

**Formulary** refers to a list of prescription drugs covered by a health plan, including both generic and brand-name medicines. Understanding what is covered under a formulary is very important for patients who require medications for which there are no generics. A formulary is used to encourage doctors to prescribe less-expensive medications. It’s important to be aware that many plans require prior authorization for medications on a formulary.⁵

**Prior authorization** is the process of obtaining approval for coverage from the patient’s insurance for a medication listed on a formulary.

**Step therapy**, a practice also known as fail first, is another cost-saving method employed by insurers. Step therapy mandates patients fail on a less-expensive medication before they can be prescribed a different drug that is more expensive but that may be more appropriate to their condition or that has a higher rate of effectiveness.⁴

Becoming literate in the language of insurance is the first step toward making the best decision about plan coverage and care.
Understanding the Explanation of Benefits Report

An Explanation of Benefits (EOB) report shows how health plan benefits are applied to healthcare services received. Specifically, it explains how an insurance claim from a healthcare provider was paid. Claims can include bills for hospital or clinic treatment, lab work or diagnostic charges. An EOB is sent to the patient after an insurer receives a bill from a provider.

An EOB will include the following:

1) The name of the provider who performed the services for the patient, which may be the name of a doctor, laboratory, hospital or other provider.

2) The amount the provider billed the insurance company for the service.

3) The allowed charge for the service. Each insurer has its own list of allowed charges, which includes discounted fees an insurer negotiates with doctors, hospitals and other healthcare providers in its network. Unlike providers outside the network, in-network providers have agreed to accept discounted fees as full payment for services rendered. Insurers create incentives for patients to see in-network providers by charging more for services provided by out-of-network providers. Negotiating charges reduces costs for patients and insurance companies.

4) Total patient cost for the service. This is the amount of money a patient owes as his or her share of the bill. This amount depends on the plan’s out-of-pocket requirements such as an annual deductible, copayments and coinsurance. And, when a patient has received a service that is not covered by the plan, the patient is responsible for paying the full amount.

Patients need to be vigilant about what their health plan covers. Mistakes happen. They should keep track of what procedures they undergo, as well as the dates of treatment. And, those procedures and dates should match what is listed on the EOB.

In addition, patients should check to see if there is a “remark code” indicating the insurance company needs more information to process a claim. For example, it may inquire if treatment was for a work injury that should be covered by workers’ compensation.

If a claim is denied, there should be a denial code that specifies the reason for denial. For example, if an out-of-network provider was inadvertently used, part or all of a claim may be denied.

“Going over your EOB without any context of what coverage you have is a wasted effort,” says Sarah O’Leary, founder and CEO of Exhale Healthcare Advocates. “You must have a thorough understanding of the parameters of your insurance plan when reviewing the EOB, so if something is denied, you’ll know how to appeal it. And, there may be errors — according to one estimate, 30 percent to 40 percent of medical bills have errors in them; other estimates are even higher.”

Understanding and Appealing Denials

Denials are the refusal of an insurance company to pay for healthcare services obtained from a provider. Three types of denials can be appealed:

• Denials for services, supplies or prescriptions that a patient has already received such as for a test conducted during a medical visit.

• Denials for a healthcare service, supply or prescription such as a wheelchair.

• Denials for a request to pay a discounted price for a prescription drug (for example, a discount for an expensive medication because the available lower-cost drugs are not effective for the patient’s condition).

When a claim is denied, the insurer must notify the patient in writing within 15 days of seeking prior authorization for a treatment, 30 days for medical services already received or 72 hours for urgent care cases. And, it must explain why the claim is denied.

When a claim is denied, the patient has the right to an internal appeal and an external review, if necessary. An appeal is a request to the insurance company to conduct a full and fair review of its decision. And, if the case is urgent, the insurance company must speed up this process. A patient can...
also file an expedited appeal if the timeline for the standard appeal process would seriously jeopardize his or her life or ability to regain maximum function.

An internal appeal must be filed within 180 days (six months) of receiving notice that the claim was denied. In urgent health situations, a patient can ask for an external review at the same time as the internal appeal.

To file an internal appeal, the patient must complete all forms required by the health insurer, or a letter can be sent to the insurer with the patient’s name, claim number and health insurance ID number. Also, the patient may want to submit any additional information that he or she wants the insurer to consider such as a clarification letter from the doctor. It’s also possible to have the state’s Consumer Assistance Program file an appeal on behalf of the patient.

For services not yet received, the insurance company must provide the patient with a written decision within 30 days. For services already received, the insurer must provide a written decision within 60 days. In urgent situations, a final decision about the appeal must come as quickly as the medical condition requires, and at least within four business days after the request is received. This final decision can be delivered verbally, but must be followed by a written notice within 48 hours.9

If the appeal is denied, the patient can ask for an external review. And, the insurance company’s final determination must explain how to ask for one.

In an external review, the insurance company no longer decides whether the claim must be paid. Instead, the decision is made by an independent third party. There are two steps in the external review process:

1) A written request for an external review must be made within the time frame specified in the health insurer’s notice. In most instances, insurers require an external review be filed within 60 days of the date the insurer sent a final decision; however, some plans may allow more than 60 days to file.

2) The external reviewer issues a final decision that either upholds the insurer’s decision or decides in the patient’s favor. The insurer is required by law to accept the external reviewer’s decision.10

It’s Up to the Patient

A study published in the Journal of Health Economics found most Americans don’t have a comprehensive understanding of the types of cost-sharing that are at the heart of most major health insurance plans.11 That is troublesome, especially for those with chronic illness who need vastly more care than those who are healthy, and who heavily rely on health insurance coverage. In addition, most patients are unsure what to do when an insurance claim is denied.

When a claim is denied, the patient has the right to an internal appeal and an external review, if necessary.

Health insurance companies are now required to include a summary of benefits, which includes relatively simple definitions of common terms such as copay, coinsurance, deductible and out-of-pocket maximum. And, with the Affordable Care Act, national standards allow everyone who is denied treatment coverage to appeal that decision to the insurance company and, if necessary, to a third-party reviewer.

Ultimately, patients must take the time to ensure they understand insurance terminology so they can be sure to choose the best plan that will meet their healthcare needs.

And, they must exercise due diligence by keeping track of their care and standing up for their rights to ensure justifiable claims are rightfully paid. 

ABBIE CORNETT is the patient advocate and RONALE TUCKER RHODES, MS, is the editor-in-chief for IG Living magazine.

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Practicing Self-Care Without Guilt

Learning to put your own needs ahead of everyone else’s is a challenge for even the healthiest. When chronic illness is a factor, the hurdles are even higher.

By Trudie Mitschang

LIVING WITH A chronic illness can be extremely difficult. You may struggle with feelings of anxiety, loss of control of your own body, pain, anger and exhaustion. All of these feelings are normal and expected, and most individuals find this range of emotions is all part of the “new normal.” In the midst of all of this upheaval, it is also common to face feelings of guilt when it becomes necessary to prioritize your own needs over everyone else’s demands. Yet, doing so is often exactly what mental health experts and healthcare practitioners advise. In fact, learning to set reasonable boundaries and practicing self-care is essential to developing much-needed coping skills.

“So many people in the chronic illness community feel guilt over all the things we can’t do — guilt because we have to say no to doing things with our kids, our families, our friends. Things we used to be able to do, things we want to do. But our illness — the pain and the fatigue — means we can’t,” says health and disability advocate Lene Anderson, who also believes it’s important to keep guilt in perspective.

“Guilt is an appropriate feeling if you’ve deliberately hurt someone, or shoplifted or done something else illegal or immoral simply because it gave you a rush. Being in too much pain to go for a hike is not the same as consciously doing something wrong. Remembering that can help chip away at the guilt.”

Learning to Say No

You can’t care for yourself in the truest sense if you don’t understand what it is you need — what comforts and nourishes you. Self-care is about consciously taking responsibility for your happiness. That means taking care of your physical, emotional, psychological and social needs by doing everything possible to be fulfilled in these areas. And, in many cases, it begins by simply saying “no.”

Setting boundaries is necessary when it comes to reducing stressors and maintaining self-care. You need to let friends and family know that while you would love to participate in social outings, you’re not able to at the time. Saying no does...
not make you a bad person, and it certainly doesn’t mean you don’t care. Saying no means giving yourself the space needed to heal.

It’s also important to remember that saying yes just to make others happy can cause resentment. If friends, family or coworkers continue to pressure you or try to persuade you into doing activities that make you uncomfortable, you may need to put some distance between you and those individuals. There is no need to feel guilty about this; it will only help your physical and mental health in the long run.

Wisdom From Others Who Understand the Challenge

Mary England, who blogs about mental health and self-esteem at Uncustomary.org, recently hosted an e-course in which she asked participants to share the most difficult aspects of self-care. And, she was surprised to discover more than a third of respondents referenced chronic illness in their answers. “I was blown away by how common that answer was. I realized I had no resources like blog articles or podcasts to reference for these people. I didn’t have any specific answers for them because I don’t have chronic illness, but I really wanted to have those answers, so I outsourced it,” she says.

England interviewed eight individuals living with various types of chronic illness and posed this question: “What’s the hardest part of practicing self-care while dealing with chronic illness?” The answers were varied and insightful, including:

“I think the hardest thing about learning self-care is learning to accept that something is wrong with you, even when doctors (and others) say otherwise. It’s learning to listen to your body first and foremost. Those two lessons were the hardest, and I still forget when I think one day I can just be normal, but that’s not the case. I always pray for good days. It’s learning to accept and work with yourself first that was the hardest.” (Cody)

“Not beating myself up when I can’t do the things I feel like I should be doing or when I have to cancel plans last minute because I’m in pain is an ongoing struggle for me.” (Kaitlyn)

“I have very unpredictable income. Those living with chronic illness do best under the ‘treat yourself’ mentality for self-care because amenities make our quality of life exponentially better. I like to be able to order takeout so I don’t have to cook or clean up after, but I can’t always afford it even if I don’t have the energy to cook.” (Currie)

England’s survey participants went on to provide a helpful list of self-care tips based on their own life experience. Among the highlights:

• Drink water/take a bath. It seems simple but when you’re dehydrated, it’s difficult for your body to heal or even maintain your new normal. A healing bath has given respite even when my pain levels were off the charts.
• Remember that self-care is an important investment. This investment requires time, money and energy. Allow yourself to invest in self-care.
• Communicate. You have to tell your friends and family what you need or else they won’t be able to help you get that time.
• Don’t be afraid to spend extra money on something if it is going to make your life easier.
• Have a self-care plan. Know that self-care doesn’t have to take a long time. You can do something in three minutes or you can take an hour. A self-care plan will help you look at what you can do in the time you have.
• Think of all the tremendous things your body is doing right instead of beating yourself up for the things that aren’t working so well. Focusing on the positive things and expressing gratitude (even if it’s just in your head) changes your entire perspective and boosts your mood.
• Accept that your illness might get better, but it might not. Working with yourself where you are is the first start.
• Make a self-care basket. This way when you really need to take a moment for yourself, everything will be in one place.

Cultivating Coping Strategies

Chronic illness sufferers often find themselves navigating a roller coaster of emotions. You may feel accepting one day and angry the next. It may help to remind yourself that these feelings are normal and will likely ease with time. Mental health experts advise that an effective coping strategy is to practice facing your diagnosis head-on.

This strategy was evident in a study of women with breast cancer that found women who felt resigned to their fate were psychologically less well-adjusted three years later, compared to women who actively confronted their diagnosis. Another study, also of women with breast cancer, found those who sought social support and used active coping strategies — such as developing a plan of action — reported more inner peace and satisfaction with life two years later, compared to women who tended to deny or avoid their diagnosis.

To actively face your illness, a good place to start is by writing down all of your questions and discussing them with your physician. Ask your doctor what specific steps you can take to optimize your health. Getting as much knowledge as
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If you are at high risk of blood clots, your doctor will prescribe Hizentra at the minimum dose and infusion rate practicable and will monitor for signs of clotting events and hyperviscosity. Always drink sufficient fluids before infusing Hizentra.

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Hizentra is a prescription medicine used to treat:

- Primary immune deficiency (PI) in patients 2 years and older
- Chronic inflammatory demyelinating polyneuropathy (CIDP) in adults

Treatment with Hizentra might not be possible if your doctor determines you have hyperprolinemia (too much proline in the blood), or are IgA-deficient with antibodies to IgA and a history of hypersensitivity. Tell your doctor if you have previously had a severe allergic reaction (including anaphylaxis) to the administration of human immune globulin. Tell your doctor right away or go to the emergency room if you have hives, trouble breathing, wheezing, dizziness, or fainting. These could be signs of a bad allergic reaction.

Inform your doctor of any medications you are taking, as well as any medical conditions you may have had, especially if you have a history of diseases related to the heart or blood vessels, or have been immobile for some time. Inform your physician if you are pregnant or nursing, or plan to become pregnant.

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

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Immediately report to your physician any of the following symptoms, which could be signs of serious adverse reactions to Hizentra:

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2. Hives that spread, swelling of the lips, throat, tongue, or face
3. Rash that is different from the rash you have had before
4. Swelling or pain of the legs
5. Severe blood in the stool
6. Difficulty swallowing, or other signs of a blood clot
7. Severe or persistent abdominal pain
8. Blood in your urine
9. Pain or swelling in your arm or leg
10. Changes in your vision

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Voice2Voice gives you an opportunity to connect with others who have been in your shoes. Dealing with PI can be a challenge, and knowing someone who truly understands what you’re going through can mean a lot.*

It’s good to know you’re not alone.

Sign up at Hizentra.com/V2V

You may also call 1-877-355-IGIQ (4447) Monday–Friday, 8 AM to 8 PM ET

- Reduced urination, sudden weight gain, or swelling in your legs (possible signs of a kidney problem).
- Pain and/or swelling or discoloration of an arm or leg, unexplained shortness of breath, chest pain or discomfort that worsens on deep breathing, unexplained rapid pulse, or numbness/weakness on one side of the body (possible signs of a blood clot).
- Bad headache with nausea; vomiting; stiff neck; fever; and sensitivity to light (possible signs of meningitis).
- Brown or red urine; rapid heart rate; yellowing of the skin or eyes; chest pains or breathing trouble; fever over 100°F (possible symptoms of other conditions that require prompt treatment).

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

The most common side effects in the clinical trials for Hizentra include redness, swelling, itching, and/or bruising at the infusion site; headache; chest, joint or back pain; diarrhea; tiredness; cough; rash; itching; fever, nausea, and vomiting. These are not the only side effects possible. Tell your doctor about any side effect that bothers you or does not go away.

Before receiving any vaccine, tell immunizing physician if you have had recent therapy with Hizentra, as effectiveness of the vaccine could be compromised.

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.

*Voice2Voice advocates are not healthcare providers or medical experts. For medical questions, please contact your physician. Voice2Voice advocates are compensated by CSL Behring LLC for their time and/or expenses.

Can IgIQ help you?

If you answer YES to any of these questions, call 1-877-355-IGIQ (4447) Monday–Friday, 8 AM to 8 PM ET.

| Have you had a lapse in your insurance coverage? | Are you unable to afford Hizentra? | Would you like to connect with other Hizentra patients? | Do you need help paying for Hizentra? | Are you unable to afford Hizentra infusion supplies? |

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.

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**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.

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**INDICATIONS AND USAGE**

HIZENTRA is indicated for:

* Treatment of primary immunodeficiency (PI) in adults and pediatric patients 2 years and older.
* Maintenance therapy in adults with chronic inflammatory demyelinating polyneuropathy (CIDP) to prevent relapse of neuromuscular disability and impairment.

Limitation of Use: Maintenance therapy in CIDP has been systematically studied for 6 months and for a further 12 months in a follow-up study. Continued maintenance beyond these periods should be individualized based on patient response and need for continued therapy.

For subcutaneous infusion only.

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**DOSAGE FORMS AND STRENGTHS**

0.2 g per mL (20%) protein solution for subcutaneous injection

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**CONTRAINDICATIONS**

- Anaphylactic or severe systemic reaction to human immune globulin 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

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**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, including HIZENTRA 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.

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**ADVERSE REACTIONS**

The most common adverse reactions observed in ≥5% of study subjects were local infusion site reactions, headache, diarrhea, fatigue, back pain, nausea, pain in extremity, cough, upper respiratory tract infection, rash, pruritus, vomiting, abdominal pain (upper), migraine, arthralgia, pain, fall and nasopharyngitis.

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.

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**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.

Based on March 2018 revision
you can will help you feel empowered. It’s also a good idea to try to manage the elements in your life that are within your control. You may not be able to control certain aspects of your disease, for example, but you can choose to eat healthy meals, take medications as prescribed and spend less time with people who aren’t supportive.

Another aspect of self-care that can go a long way toward improving coping skills involves scaling back your schedule of commitments. You can significantly minimize stress by letting go of unnecessary obligations. While it may be difficult to let go of activities you once enjoyed, taking inventory of the aspects of your schedule that are draining and detrimental to your health is a necessary step. “There is so much to do in a life. Everyone I know is getting busier and wishing for a magic wand to slow down time. I looked at my to-do list for today, and it has 11 items on it, three of which will take several hours each. Not even the healthiest person would be able to do everything on my list. Setting attainable goals is a big part of managing pain and fatigue,” says Anderson.

You also may need to humble yourself and ask for more help from family and friends. Lastly, try to build a strong support network of people you can rely on, and communicate with them regularly about how they can best support you as you manage your disease.

Taking a Holistic View

Jennifer Mulder is a psychologist who lives with her chronic health issues and frequently writes on the topic. Mulder advises it’s important to think beyond bubble baths when it comes to defining what self-care actually looks like on a day-to-day basis. According to Mulder, “Self-care can be described as all the actions you take to look after your physical, mental, emotional and social needs. It’s much more than having a bubble bath after a long day. Self-care also refers to leading a healthy lifestyle, managing chronic conditions and preventing further illness or injury.”

Mulder identifies three types of self-care:

• **Basic self-care.** These are the small acts you have to do every day to tend to your basic needs: eat, drink, sleep and take care of personal hygiene. It sounds simple, but when you’re chronically ill, keeping yourself and your home relatively clean can be a full-time job.

• **Specific health practices.** This type of self-care includes all the things you do to manage your health, from taking your medicines and vitamins to following therapy, joining an exercise program and avoiding stress or other triggers. The particular practices are different for everybody, depending on your illness and personal situation.

• **Indulgent self-care.** These are the activities often touted in self-care articles. Doing things you enjoy is vital for a happy and healthy life, but reading a good book and getting a manicure can only be done after you’ve taken care of your basic needs and health practices first.

“The irony is the moment we need self-care in all its forms the most is when it’s the hardest time to do it,” says Mulder. “When you’re healthy, it’s difficult to imagine that getting ready for the day — a quick wash, getting dressed, having breakfast — could take up so much of your energy that there’s little left to do anything else. Doing the things that make living possible can take the place of actual living itself.”

In addition, she says, self-care isn’t just about crossing tasks off a checklist; it’s more about developing a mind-set of treating yourself with kindness on a regular basis: “Self-care is not just about doing things to feel better right now, but also constructively working on your long-term well-being.”

There’s No One-Size-Fits-All Method

Obviously, self-care means different things to different people; there is no one-size-fits-all method. Everyone’s journey is unique, so finding the hobbies, practices and activities that make you feel refreshed, while eliminating the things that create fatigue, stress or physical pain are essential. By following these guidelines, you cannot only learn to better cope with the symptoms of chronic illness, you may also find that over time, caring for yourself becomes a guiltless pleasure.

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

References

Plasma: A Finite Resource with Infinite Value

Understanding the plasma donation and manufacturing processes to develop lifesaving therapies such as immune globulin can provide a greater appreciation for the products and the donors who make them possible.

By Rachel Colletta, RN, VA-BC, CRNI, IgCN

PLASMA HAS BEEN a valuable resource and lifesaving therapy since it was first used on the battlefields during World War II. Through science and technology, the use of plasma products has expanded to treat many diseases. Today, millions of people rely on a safe and continuous supply of plasma to manufacture products that have a positive impact on their lives.

The demand for plasma products continues to grow. The immune globulin (IG) market, specifically, has increased an average of 8 percent per year. With this increase in demand for plasma products comes an increase in the demand for the plasma donations needed to maintain the supply. In 2016, more than 38 million individual plasma donations were collected at the hundreds of plasma donation centers across the U.S.

While most primary immunodeficiency disease (PI) patients treated with IG therapy are aware this lifesaving therapy is derived from plasma donations, it’s likely many are unaware of the strict guidelines in place for donations and manufacturing. Those who have experienced a manufacturer product shortage can relate to the anxiety and uncertainty associated with the possibility of not receiving a scheduled infusion. Therefore, understanding plasma donation and the IG manufacturing process may increase appreciation for these products and the donors they may never meet.

What Is Plasma?

Plasma is the starting material for all plasma-derived products (Figure 1). More than 50 percent of blood is composed of plasma, a straw-colored fluid that contains water, salts and proteins. Proteins contain antibodies, known as immunoglobulins, that play an essential role in helping the immune system to fight infection. If a person has missing or defective antibodies, they are more susceptible to infections and a variety of other chronic medical conditions. These antibodies can’t be manufactured in a lab. Instead, qualified plasma donors are needed to continually replenish the supply so new and existing patients will not experience a disruption in therapy.
The Qualified Plasma Donor

The plasma donation process begins with healthy, compensated volunteers who must meet strict physical and medical requirements. Potential donors must live within a defined recruitment area, provide proof of residence and a valid photo ID. Prospective donors are checked to determine whether they have been entered into the National Donor Deferral Registry (NDDR) before being allowed to donate. The NDDR, one of many safety measures in place to protect both donors and recipients, is a database of donors who have been permanently deferred from donating plasma. Individuals can be deferred from donating plasma for a variety of reasons, including feeling unwell such as with cold or flu symptoms, having an immune or sexually transmitted disease or are pregnant, and the deferment can be either temporary or permanent.

Donor screening begins with a medical history and physical examination. The extensive donor history questionnaire examines the medical and surgical history of donors, as well as any risk factors that may exclude them from donating. This includes a thorough sexual history and exposure to any person infected with HIV. Information regarding current or past drug use, recent tattoos and body piercings must also be provided. Donors are educated about the risks and hazards of donation, as well as about HIV/AIDS and activities that may put them at risk. Keeping donors healthy and informed is a key function of donor facilities, and donors are encouraged to lead a healthy lifestyle and must receive a yearly physical exam. The donor questionnaire can be viewed at www.ppta.global.org/images/dhq/2016/1_Full_Length_DHQ_V2.0_July_2016.pdf.

Following the medical screening, a fingerstick test is completed to evaluate protein and hemoglobin levels. If these levels meet the requirements, donors can begin the collection process known as plasmapheresis (Figure 2).

The Plasma Collection Process

Plasmapheresis is the process of separating plasma from other components in the blood. To accomplish this, whole blood is passed through a series of filters that collect the plasma, after which the red blood cells and platelets are returned to the donor. The initial collection process may take up to several hours, with subsequent sessions lasting approximately 45 minutes each. An individual’s body replenishes its plasma supply within 24 hours to 48 hours.

Each unit of plasma is given a unique identification number so it can be tracked throughout the process. All initial donations are placed in storage until the donor returns to provide a second donation within a period of 60 days. One-time donations will not proceed to the manufacturing stage. Instead, that plasma is discarded if the donor does not return. The second and subsequent donations allow for an additional health screening and sample testing, and they demonstrate a level of commitment on the part of the donor. Plasma can be donated up to two times per week with at least 24 hours between donations.

Ensuring the safety and quality of plasma products takes time. On average, it takes seven months to 12 months to manufacture plasma-derived products from the time of
donation to the finished product. Multiple voluntary and mandated processes are in place to monitor products and donation centers for safety and quality issues. The U.S. Food and Drug Administration (FDA) must approve plasma before it can be used to manufacture products and routinely inspects plasma donation facilities. In addition, the Plasma Protein Therapeutics Association establishes internationally accepted standards and conducts separate facility inspections.

Figure 3.

Source: Plasma Protein Therapeutics Association
All plasma donations are held for a period of 60 days after collection. During this period, samples are tested at several stages for viruses such as HIV, hepatitis B, hepatitis C and others. The testing methods can detect levels of viruses at an early stage, even before a person has developed symptoms. Over the years, this technology has greatly improved the quality and safety of the plasma supply.

Manufacturing Plasma Products

When plasma is approved for manufacture, the individual units are frozen for transport to a facility where they are pooled (mixed) with thousands of other individual units. Pooling of plasma allows for patients to receive a wide variety of antibodies with each infusion. Once the batches are pooled, they are tested again for viruses.

Plasma proteins are used to treat a variety of illnesses from bleeding disorders to immune deficiencies and autoimmune disorders. Plasma proteins are separated during the fractionation process, which uses various methods such as temperature, pH and alcohol concentrations. Today’s technology allows for little waste in the fractionation process.

Once separated, plasma proteins go through a series of steps to filter and inactivate any pathogens that may remain (Figure 3). FDA requires a minimum of two viral removal steps during manufacturing. A multitude of product safety and quality assessments are also conducted along the way. After a final filtration process, the product is bottled and ready to ship.

The End Result: A Healthier Patient

Plasma products are unlike many pharmaceuticals that can be produced in large quantities and in a short amount of time. Those products start with raw materials rather than with human plasma.

Donor screening and testing and the many quality and safety steps built into the manufacturing process have resulted in plasma products such as IG that are safe and effective for treating many diseases and that have improved not only patients’ quality of life, but their life expectancy. For example, the 10-year survival rate of a person with common variable immunodeficiency, the most prevalent form of PI, has increased from 37 percent in 1971 to 90 percent in 2008.

Plasma products would not be possible without people who regularly commit their time and energy to give this gift of life. Without a doubt, plasma is a finite resource. To ensure plasma availability for the future, patients should encourage the people close to them to consider donating. Truly, it all starts with people.

RACHEL COLLETTA, RN, VA-BC, CRNI, IgCN, is a clinical nurse educator for Bio Products Laboratory.

How Can PI Patients Get Involved?

PI patients can get involved in the PI community through a variety of programs established by the Immune Deficiency Foundation (IDF; www.primaryimmune.org): 

IDF Plasma Center Partners Program. In this program, patients are matched with local participating plasma donation centers, where patients can get a better understanding of the donation process, how the centers function and what safety measures are in place for both patients and donors. Patients are able to speak to other donors and center employees to see firsthand how important their jobs are.

Share Your Story. Patients with PI often feel alone and isolated, so IDF encourages patients to make videos that can be uploaded and viewed by other patients who may be experiencing something similar in their lives.

IDF PI Connect. PI Connect allows patients to become a part of research by confidentially sharing their information and experiences as a patient with an immune deficiency. The information will help to advance research in the field and allow patients to see how their experience with PI compares to those of others.

IDF Outreach Initiative. Patients can become IDF liaisons or Get Connected leaders to learn about new research and developments in the PI community.

IDF Advocacy Center. Through this program, patients can help advocate for legislation such as government policy changes, access to products and assistance with copayments, to name a few.

Sources

Plasma Fractionation: 
The Challenge of Keeping Pace with Global IG Demand

By Keith Berman, MPH, MBA

TRY TO NAME an injectable drug or biopharmaceutical available more than 30 years, whose prescribing activity has increased year after year without interruption — including a doubling in demand over the last decade. If you came up with polyvalent human immune globulin (IG) — which comprises intravenous immune globulin (IVIG) and essentially the same product formulated for subcutaneous delivery (SCIG) — you are correct. If no others come to mind, it is because no other U.S. Food and Drug Administration (FDA)-approved drug entity has experienced anything resembling this sustained record of near-continuous demand growth* since FDA approved the first IVIG product in 1981 (Figure 1). Today, 15 IVIG and SCIG products compete for a share of a U.S. hospital, clinic and home infusion market currently growing at more than 8 percent annually.

After a new drug is introduced, it typically goes through a market life cycle that culminates either with market maturity — demand stagnation once a product reaches its clinical applicability and market size limits — or with market decline, as providers switch to better new drug alternatives. Why has this not been the case with polyvalent IG? Industry experts have identified at least four reasons:

* Excepting a product supply shortage period that extended from 1998 through 2001.

Figure 1. The U.S. Polyvalent IG Market (IVIG/SCIG) from 1986 to 2016

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<thead>
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<th>Year</th>
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* Source: The Marketing Research Bureau, Inc. (Orange, CT)
1) IG is essentially a concentrate of the most critical portion of the humoral immune systems of not one but thousands of individual plasma donors. Unlike single molecular entities, IVIG and SCIG products contain many thousands of highly specific IgG antibodies with a diversity of incompletely understood immunoregulatory, anti-inflammatory and infectious disease-targeting functions.

2) The clinical utility of IG across an ever-broadening spectrum of serious or life-threatening autoimmune, inflammatory, immunodeficiency and other immune-mediated disorders continues to be documented in patient studies and case reports now numbering in the thousands.

3) There is a trend toward more aggressive treatment with high-dose IG — 1 to 2 grams per kilogram of body weight or more per month — in autoimmune neurologic diseases in particular, based on evidence of superior effectiveness in relation to lower-dose regimens. Additionally, long-term IG usage appears to account for a steadily increasing proportion of patients.

4) While per capita utilization lags far behind North America and Europe, there has been a recent surge in IG demand in many countries in southeastern Asia. From 13 percent of global IG demand in 2008, just six years later, Asia accounted for 18 percent of the global IG market.

In 2016, 35 years after IVIG was first introduced, U.S. demand for polyvalent IG products grew 8.7 percent, from 67.3 million grams to just over 73 million grams. Preliminary data indicate this trend continued through 2017, with product shipments exceeding 80 million grams. The global IG market mirrors this growth pattern: Over the eight years between 2008 and 2016, worldwide demand for IVIG and SCIG more than doubled, with an average annual growth rate of 9 percent (Figure 2).

IG demand growth on this scale presents two special challenges for the plasma fractionation industry. The first is to forecast and invest in plasma collection facilities to assure sufficient additional IgG-containing donor plasma is available to process into IG products. The second challenge is to plan, invest and provide adequate lead time to construct and secure regulatory approval to operate new or expanded fractionation and related IG production facilities.
It All Starts with the Plasma

Pooled donor plasma contains an average of around 9 grams of IgG per liter, but historically, most of that IgG was unrecoverable as a result of the process used to isolate it. The original Cohn plasma fractionation process, first developed in the 1940s to purify albumin, relied on sequential precipitation steps using increasing concentrations of cold ethanol, at the cost of a significant IgG yield loss.

As IVIG demand climbed in the 1990s, manufacturers began modifying their purification processes to try to improve the yield of IgG per liter of plasma. Today, most manufacturers employ just a single cold ethanol precipitation, substituting anion exchange chromatography and processing with agents such as caprylic acid to remove impurities.5,6 “Over the last 25 years, plasma processing advances have improved IgG yield by roughly 60 percent on average, from 2.5 grams per liter to 4 grams or more per liter today,” said plasma industry analyst Patrick Robert, PhD.**

While improved IgG yield per plasma liter has certainly helped moderate plasma requirements, manufacturers still must expand plasma collections at a pace to stay ahead of growing IG product demand. Consider the industry’s four leading global manufacturers — Grifols, CSL Behring, Shire and Octapharma — which collectively supply nearly 70 percent of the world demand for IG products* and a similar share of the roughly 12 million additional IG grams purchased each successive year since 2012.

Assuming an IgG yield of 4 grams per liter, simple mathematics dictates that, in 2018, these four leading manufacturers will need to increase their combined plasma collections by approximately two million liters. As each individual plasma donation averages about two-thirds of a liter in volume, this translates into some three million additional plasma donations needed this year to keep up with growing global IG demand. That, in turn, translates into substantial investments in design and construction of new or expanded plasma collection centers, and additional equipment purchases and staffing.

Between 2004 and 2014, the global supply of plasma intended for fractionation doubled to nearly 40 million liters (Figure 3).

** The Marketing Research Bureau, Inc. (Orange, Conn.).
Looking forward, continuing investments in collection center construction, equipment and staffing will be needed to generate the additional three million or more liters of additional plasma required each year to meet the global IG demand forecast into the next decade.

Major Investments in New Fractionation Capacity

At least two studies have compared the cost structure of plasma protein therapeutics and various chemical-based pharmaceuticals. For pharmaceuticals, manufacturing and raw material costs on average account for only about 15 percent to 20 percent of total costs, dwarfed by sales and marketing, research and development and other costs unrelated to production. The picture is entirely different for plasma protein therapeutics: Raw materials and manufacturing expense account for roughly 60 percent to 70 percent of total costs.7,8

Fractionating and purifying IgG from starting batches of thousands of liters of plasma requires custom-designed, scaled-up equipment housed in large physical plants operated by hundreds of specialized, highly skilled personnel. Often depending where existing production capabilities are located, a manufacturer may decide, in order to maximize operating efficiency, to situate all components of its IG manufacturing expansion — plasma fractionation, IgG purification, filling/finishing and final product testing — at a single facility or at multiple sites commonly spread across different continents. In scale, complexity and lead time, this investment dwarfs the typically $2 million to $3 million per-facility cost and two to three years to plan and open a single facility or at multiple sites commonly spread across different continents. In scale, complexity and lead time, this investment dwarfs the typically $2 million to $3 million per-facility cost and two to three years to plan and open a single facility or at multiple sites commonly spread across different continents.

Every major plasma fractionator is actively investing in new production capacity to keep ahead of forecasted future IG demand growth. One example of the scope and long planning time horizons involved is a nearly complete U.S.-based fractionation plant first announced in April 2012 by Baxter International,9 prior to the spinoff of its plasma collection center.

Baxter budgeted a capital investment in excess of $1 billion over a five-year period to build a facility with up to three million liters of annual plasma fractionation capacity when fully operational. In August 2012, ground was broken on the company’s new state-of-the-art manufacturing facility in Covington, Ga., near Atlanta.10 In December 2017, on schedule five years later, Shire filed for approval to manufacture its IVIG product, Gammagard Liquid, at the new facility. Commercial production is expected to start at the new Covington facility sometime in 2018.

A Commitment with a Higher Purpose

It’s difficult to overstate the importance of the industry’s commitment to proactively plan and invest in new plasma collection and IG production capacity. With the global IG market forecast to grow about 7 percent — nearly 15 million grams — annually through the year 2024, inadequate raw material or capacity, or both, could lead to a significant product shortage. A shortage would inevitably drive up prices and, more importantly, jeopardize the health of many thousands of thousands of patients who rely on IVIG and SCIG, both in the U.S. and across the globe.

In addition to the “big four” of Shire, Grifols, CSL Behring and Octapharma, a number of other experienced fractionators are stepping up their efforts to capture a piece of the growing IG market. South Korea-based Green Cross, for example, is completing construction of a plasma fractionation plant in Canada that will expand its 1.7 million-liter fractionation capacity by one million liters. Biotest in Germany is engaged in a project anticipated to double its current plasma processing capacity.

IG manufacturing is a costly, complex and globalized enterprise, but in the end, its success serves one higher purpose: assuring that today and in the future, patients in need have access to this unique therapeutic.

KEITH BERMAN, MPH, MBA, is the founder of Health Research Associates, providing reimbursement consulting, business development and market research services to biopharmaceutical, blood product and medical device manufacturers and suppliers. He also serves as editor of International Blood/Plasma News, a blood products industry newsletter.

References

Trudie: When did your health challenges begin?

Jessica: In 2010, I began to have odd symptoms with seemingly no connection to each other. I had digestive issues, I was fatigued, my hands cramped when I typed or wrote, I had a feeling of pins and needles in my legs. It was a strange compilation that didn’t make sense. Initially, I attributed it to my busy lifestyle. I was a wife, mother, full-time employee and part-time student. But, as my symptoms progressed, I began to seek the advice of multiple specialists, none of whom had answers. My doctor merry-go-round continued for two years until I was referred to a neurologist, Dr. Amer Awad. He listened to me, believed me and started the workup to figure out the puzzle.

Trudie: What led to your diagnosis?

Jessica: After undergoing a spinal tap, it was determined I had chronic inflammatory demyelinating polyneuropathy (CIDP) and I needed intravenous immune globulin (IVIG) as treatment. We began the insurance approval process for home infusion, but on Sept. 19, 2012, I was admitted to the hospital for an attack that paralyzed me from the waist down. Tests revealed I had both central and peripheral nervous system disease. Dr. Awad immediately started me on IVIG and high-dose steroids, which reversed the paralysis. I now have an umbrella diagnosis of demyelinating disease under which I have subdiagnoses of transverse myelitis (affecting the central nervous system) and CIDP variant multifocal motor neuropathy (affecting the peripheral nervous system).

Trudie: What other issues did the IVIG treatment uncover?

Jessica: The revelation of my immune deficiency was due to me being placed on IVIG for my nervous system disease. Since birth, I’ve had chronic ear, sinus and respiratory infections. Doctors rotated me from one antibiotic to the next trying to keep infections at bay. I’ve had three sets of ear tubes, mastoiditis, too many bouts of sinusitis and bronchitis and two cases of severe pneumonia. It was thought that I was just “sickly” from being born prematurely, or that I had allergies. The dots were never connected. However, the IVIG infusions created a noticeable difference nearly stopping the infections. It was concluded I had an undiagnosed immune deficiency, possibly common variable immune deficiency (CVID), prior to IVIG therapy.

Trudie: What is your current treatment plan?

Jessica: Currently I’m on biweekly IVIG infusions plus medications to help control pain and muscle spasms. In the beginning, IVIG alone wasn’t enough to control my symptoms, and I continued to decline, at which point my neurologist added Solu-Medrol (steroids) to my infusion regimen. While the steroids helped, the side effects were so drastic I had to stop taking them. In 2015, my neurologist added rituximab, a monoclonal antibody, to my treatment plan. I received eight infusions over a two-year period, which stabilized my decline. No two
Trudie: How do you keep your illnesses from defining who you are?
Jessica: That’s a really hard question because a part of me is defined by my illness. At first, the complexity of my situation was so much in the forefront, I was truly overwhelmed. It took a long time to make peace with the fact that I will always have this in my life, and I could either let it overrule me or I could turn it around and use my experience for the benefit of others. In 2016, I began a mission to help patients like myself and joined the GBS/CIDP Foundation as a volunteer. I’m now the patient point of contact for Baton Rouge, La., and surrounding areas.

Trudie: Tell us about your work as an author.
Jessica: My book Fragile Grounds: Louisiana’s Endangered Cemeteries, co-authored with Mary Manhein, was released in September 2017. It highlights a research project in which we documented 138 threatened cemeteries in Louisiana that will eventually be lost to the Gulf of Mexico through forces such as coastal erosion, storm surge and sea level rise. I’ve always been fascinated by cemeteries and how communities are culturally connected to these sites. Conducting this research and writing this book with Mary has allowed me to delve into my passions: anthropology, history and the geography of coastal Louisiana.

Trudie: What motivates you and keeps you positive?
Jessica: My two best motivators are my husband, John, and my son, Cameron. They encourage me daily, and I am so very grateful for both of them. My faith also guides me. I believe that God put me on this path for a reason, and I try to remember that whether I’m in the valley or on top of the hill.

Trudie: What has been your biggest struggle, and how did you overcome it?
Jessica: My biggest struggle was having to medically retire from my job at age 40 and to resign from the degree I was working toward. I was not ready to submit to either one of those realities. It took those first few months at home to realize I could not have sustained that pace in the long run. In retrospect, I was able to overcome these struggles by reaching out and befriending other patients in similar situations, which led me to volunteering in patient advocacy, a humbling and rewarding experience.

Trudie: What advice do you have for others with chronic illness?
Jessica: My advice is when it comes to your health, you are your own best advocate. Create a folder with your diagnosis, test results and a current list of your medications, and take it with you to your appointments. If the doctor needs the information, you already have it in hand. Also, most important, listen to your body and rest when needed.

Trudie: What have you learned about yourself?
Jessica: I’ve learned I’m stronger than I previously believed and even though I have chronic illnesses and disability, I still have a lot to offer.

Trudie: What are your goals for the future?
Jessica: I plan on continuing my volunteer work with the GBS/CIDP Foundation and promoting my book and research. In May, I participated in the Grifols Patient Community Open House in Los Angeles, Calif., where I was able to experience the entire process from plasma donation to the creation of lifesaving medications, including IVIG. While there, I was able to meet several people while they were donating plasma. It was a humbling moment; I was able to say thank you and tell each of them that their selfless gift was giving me a better quality of life. One fact I learned is that it takes approximately 465 plasma donors to treat one CIDP patient (like me) for one year. That’s astounding! I’m thankful for my experience at Grifols because it opened my eyes to the impossibly large number of donors needed for the creation of these medications. I hope to take what I’ve learned and use it to encourage the public to help fill this need. I’m not sure where else the path will take me, but I’m looking forward to the journey.

TRUDIE MITSCHANG is a contributing writer for IG Living magazine.
PATIENT PERSPECTIVE

Dad Jeans and Doctor Dates

By Stacey Philpot

MY HUSBAND and I were matched through a dating website called eHarmony. His kindness, maturity and wit stood out against the e-masses. I was his 1,700th match. He was my third. We started out cautiously. After flying through the eHarmony communication steps (which I initiated, a big step for me!), we began exchanging daily novels via email and eventually worked our way up to chatting via Facebook.

One day, my phone rang as we were messaging, and the words “I’m calling you” pinged across my computer screen. I was mortified. With shaking hands, I answered the phone and our first hours-long conversation began. The next morning, I threatened my best friend with imminent death if she ever repeated the words I was about to entrust her with: “I think I spoke to my future husband on the phone last night.”

It was true. Within six months, we were married. The rest has been a bit bumpy with my health continually testing our “in sickness and in health” bonds. However, my husband has continued to be everything I wanted in a partner, standing out against the masses each day.

I often wish I could select my physicians in a similar manner, allowing an online system to match me to them after an arduous interview process. After all, who else will be so intimately acquainted with my body and my life than my doctor and my husband? It seems I ought to be able to search for them in similar fashions.

The first time I met my husband in person, he came to the door in baggy dad jeans and freshly tinted white K-Swiss tennis shoes. I wasn’t sure our love affair could progress to the next level. Could I get past the freshly polished shining-brighter-than-the-sun K-Swiss? I ignored his phone calls and texts for approximately 24 hours while I processed. In truth, I was probably more afraid of my growing feelings for him than I was of his dad jeans or tennis shoes. Entering into a new relationship is scary.

It took me about six years to build my local team of doctors.

So is finding a new doctor. It took me about six years to build my local team of doctors. Six years of first dates, awkward callbacks, breakups and “it’s not me, it’s you” talks, before I finally found my “forever” medical team.

While looking for my husband, I often considered throwing my hands up in the air and quitting. Maybe a life of solitude, inviting a multitude of cats to live in my dwelling was better suited for me, I’d murmur after a particularly bad or awkward first date. Other times, I’d end things with a lovely human because the lovely human wasn’t who I was looking for in a life partner.

While searching for a medical team, I’ve often thrown my hands in the air and declared all doctors bad, uncaring or unknowledgeable about my various brands of illnesses. I’ve also chosen not to return to certain doctors because, while they were lovely, they simply weren’t what I was searching for in a physician.

This year, we moved from Florida to Virginia. Guess what? I’ll soon be going on a lot of medical first dates. I have an entire team to break up with and replace.

I feel actual pain at the thought of no longer having the people who have walked with me through some of the hardest seasons of my life as part of my team. And, I love that. It tells me there are still great doctors out there to be found. Whether I find them on the Internet or on blind doctor dates, whether I have to go on a thousand doctor dates to find them, they’re out there. I may have to talk myself past their K-Swiss shoes, but I have a feeling they’re worth it. That is, as soon as I break up with my current doctors. I haven’t been able to do it yet. We’re still long-distance dating. Which is a real test of our love.

So what about you? What do you look for in your doctors, besides a great pair of shoes and a lack of dad jeans, of course?

STACEY PHILPOT is an author, goofball and avid reader. You can find her blog at chronicallywhole.com, where she shares her journey of making the most of a life touched by common variable immunodeficiency, Lyme disease and rheumatoid arthritis.
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The Great Wait

By Ilana Jacqueline

GETTING BACK to life after a flare-up is a hardship in and of itself. Waiting to begin recovering from a flare-up is like watching paint dry. Will I ever get out of bed? Will I ever have to stop taking the medication that makes me want to laugh, cry and pass out at the same time? Will I ever get back to my job, have a chance to put on lipstick or have an occasion to wear a bra again?

These were my concerns over the past few weeks as I battled my second blood infection and port removal. Just when I thought I was ready to recover, I needed another surgery, or had a complication that added days to an already epic hospital stay.

I had survived the crisis, and now I was preparing to survive “the great wait.”

Patience has never been my strong suit, especially when it comes to doing things I don’t necessarily want to do. So, during my downtime, I tried to find ways to entertain my pain-medication-addled brain since I couldn’t use the rest of my body to do anything useful. I had survived the crisis, and now I was preparing to survive “the great wait.”

Here are a few suggestions for coping with near-traumatic periods of uselessness and boredom:

Watch mindless TV and movies. Several years ago, I had about a week of bed rest after surgery. I watched the entire series of “Gossip Girl.” Thanks to the mother lode of painkillers and anesthesia working its way out of my system, I have absolutely zero memory of what happened in that show. The main character? She could be a tree in a fancy dress. The plot? There was gossip. There was a girl. That’s about all I can recall. Moral of the story? Entertain yourself with shows you won’t necessarily care about recalling at a meeting of the minds a few weeks later.

Do your digital spring cleaning. Once a week, my husband finds me on the floor of my closet, organizing my clothes, shoes and bags. Twice a week, he finds me organizing the cabinet under my bathroom sink. I think I had closet and cabinet organization withdrawal during these last few surgeries. This activity is soothing for me, but between lifting and hanging and shuffling, it wasn’t one I was physically up to. So, I decided to do a digital cleanup instead. I emptied my laptop of old photos, files and programs that didn’t need saving — which freed up my screen and allowed me to watch old sitcoms with no current culture relevance.

Check in on everyone else. It’s nice when people bring you flowers in the hospital. Knowing people are thinking about you during their busy lives can make you feel loved and appreciated. Bed rest is a great time to return the favor! Go through your social networks and reconnect with people you haven’t checked in on in a while. Ask your cousins about their recent vacation. Get a run-down on your friend’s baby’s sleep schedule. Your days may be boring without much to talk about, so take some time to listen to the people around you. Give them that feeling of being loved and appreciated. Some days during recovery, you may feel especially useless, but being there as an ear for someone else to vent can give you a new sense of purpose.

A few last words of warning:

• Don’t take up a hobby you have to learn (like knitting) during recovery. Learn to knit before the flare-up, and enjoy the activity when it’s second nature.

• Don’t take on any activities that will create a huge mess. You hardly have the energy to bake a new recipe, let alone wash the dishes.

• Don’t dive into serious work or work-related tasks before you’re ready. The last thing you want to do is send an incoherent document to your boss that made perfect sense to you while you were in the OR’s recovery room.

Remember, your life, your family, eight baskets of dirty laundry, an empty pantry and 412 missed emails will all be waiting for you when you’re ready. So take your time!

ILANA JACQUELINE is a 28-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.letsfeelbetter.com is both a personal collection of anecdotes about life with chronic illness, as well as a resource for patients of all ages.
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WE’VE ALL SEEN them on the playgrounds with their kids: moms or dads who rush to their children while they’re playing, calling out, “Wait a second, honey, your shoe’s untied. Let me get that for you.” Did I mention the child is 8 years old and could have easily tied his own shoe?

These parents are known as “helicopter parents.” The name comes from the incessant hovering they do, always feeling the need to step in and interfere with their children’s life or decision-making, instead of standing back and letting their kids choose for themselves and face the consequences. I know from my own experience the urge to step in comes from fear, plain and simple. Fear that my children will get hurt, fear that my children will somehow fail or fear that they will be unhappy. Yes, I’ll admit it; I am a major helicopter parent.

What makes matters worse is three of my kids have a primary immunodeficiency disorder (PI). If anyone could say their hovering is justifiable, I should be entitled. I have concerns other parents don’t. My boys could get an infection by simply playing outside, so I have to be nearby — just in case! For example, if they’re outside, I make sure I keep pretty close tabs on them. My youngest son loves to dig in dirt, but I don’t want him digging in damp, rotting soil, or anywhere near bird droppings in case he comes in contact with a terrible fungus. If my boys are playing in tall grass or in the woods, I have them come in every 10 minutes for a tick check. If they’re standing around a campfire — which happens often in the summer — I’m always close by to make sure they’re standing away from the smoke. I wouldn’t want them breathing in particulate matter — not with their lung condition.

Deep down, I believe I’m a good mom. I love my kids more than anything, and I really do have their best interests at heart. I also know that despite my good intentions, my hovering and over-involvement is doing my boys more harm than good. But, how do I back off and let them live a little, especially when they have a life-threatening illness that really could harm them if I’m not there to intercede?

Deal with the Root: Fear

Parents who are prone to worrying often project their biggest fears onto their kids. In my case, I worry mostly about my kids’ health and safety. For another parent, the biggest concern may be their children’s self-esteem. Maybe a mother who was shy or lacked self-confidence as a child wants to make sure her own children don’t turn out the same way.

No matter what the issue, if parents are constantly looking for signs that something’s not OK, once they feel their fears are confirmed (and they will eventually), they may try to step in and fix things. After years of this behavior, the children will likely come to rely on that extra focus and attention. This over-sensitive focus on their kids can actually lead to anxiety in the children, as well as the parents.

According to Debbie Pincus, a licensed mental health counselor, “When you expect something, you will find it. And, when you try to fix what you worry about, you inadvertently create it. This is a self-fulfilling prophecy in action, and it’s exactly what leads kids to feel self-conscious and insecure about themselves. You see, children often believe that, ‘If my parent is worrying about me, then there must be something about me to be worried about!’”

So what should parents do? Pincus advises: “Stop looking for evidence to confirm your worries. Realize that your worrying gets in your child’s way.”

Here are some other things to keep in mind if you hear the constant whirring of rotors and realize it’s coming from you:
1. Don’t hover. Parents should avoid doing things for their children they can easily do on their own. For example, if a 5-year-old is learning to tie his shoes, parents should hold back on stepping in to do it for him. It might take a frustratingly long time for him to complete the task, but he’ll have to learn how to do it eventually. Parental interference only delays mastering the skill. Parents of young kids should also encourage them to take on small responsibilities like picking out clothes, dressing themselves and making their own snacks. Parents should avoid hovering and holding their children back from normal “risks” that kids at that age would take. Yes, they might get hurt, but pain and discomfort are part of growing up. It’s not healthy to prevent children from ever struggling, or to rescue them from life’s hardships. Kids can’t learn if their parents do everything for them.1

2. Don’t transfer your own fears onto your children. As hard as it is, parents should try not to imagine the worst outcomes for their children. Instead, they should let go of negative thoughts about the future such as, “What if my son doesn’t get good enough grades to get into college? What if he can’t get a job with healthcare and can’t afford his medication?” Parents should also avoid interrogating their kids when they get anxious by constantly asking, “Are you OK?” “Are you sure?” I do this whenever my oldest son says he has a headache. After Googling the symptoms of “brain aneurisms in children,” I’ll be stuck to his side like glue for the rest of the evening until the headache is gone.

With the explosion of cyberspace and media in general, “Parenting information is available 24/7,”2 notes Christie Barnes, author of The Paranoid Parents Guide: Worry Less, Parent Better, and Raise a Resilient Child. “You can go online and find out every scary thing that could happen to your child. You can also investigate every illness. So there’s endless opportunity for fear.”2

This uber-availability of information isn’t a good thing for me, because it feeds my anxiety. It’s also not helping any of my sons, since I’m not a doctor and can’t properly diagnose them, even though I try. It’s best for everyone if parents try not to look for evidence to confirm their worst fears about their children.1

3. Don’t make your children the center of your universe. Parents need to make sure they aren’t looking to their kids to meet all their emotional needs. If parents are right there at the children’s beck and call, doing for them what they can do for themselves, they will have a difficult time functioning when they’re on their own.1 One study showed parents who base their own self-worth on their children’s accomplishments report sadness and are less contented with life in general. According to Margaret Nelson, a professor of sociology at Middlebury College in Vermont, these parents also have less happy marriages. After interviewing approximately 100 parents, she found as the amount of time they spend with their children rises, personal relationships begin to suffer.3

Instead of allowing their children’s achievements to determine their self-worth and validation, parents should be sure they have their own interests, hobbies and activities that fulfill them and that they can do without their children. This makes it much easier to transition emotionally when the children leave the nest, and ensures their relationships with others are healthy and functioning.

Let Go and Prepare Them for Adulthood

Letting your children grow up without your constant, hovering interference doesn’t mean they won’t need you. Children of all ages need their parents to serve as positive role models and to offer love, support, encouragement, safety and shelter.3 But, one of the most important jobs parents have is to teach and guide their children as they transition into fully functioning, independent adults. When children have a chronic illness such as PI, parents should prepare them to take charge of their own healthcare, which includes performing infusions alone and managing medications. If parents hold the children’s hands throughout life, it will be quite difficult for them to make the transition into adulthood. Increasing their children’s responsibility gradually throughout the early years, learning to let go and eventually handing over the reins completely will better prepare children for adulthood.

References

JESSICA LEIGH JOHNSON is a stay-at-home mom and mother of four kids, three of whom have X-linked agammaglobulinemia. She is a member of American Christian Fiction Writers and has written one book about the loss of her son to a primary immunodeficiency.
Protecting Your Pearly Whites

By Trudie Mitschang

FOR INDIVIDUALS diagnosed with primary immunodeficiency (PI), maintaining optimal oral health can be a challenge since their lack of antibodies or immune cells makes it difficult to fight infections, especially those impacting the mouth and gums.

Understanding the Risks

Individuals diagnosed with PI are at higher risk of experiencing oral bacterial infections such as staph abscesses, viral infections like herpes simplex, and oral fungal infections (also known as candidiasis or oral thrush). These infections, in turn, can lead to a higher incidence of gingivitis, gum disease, periodontitis and dry mouth syndrome.

Gingivitis is a common, chronic gum infection involving the soft tissue surrounding the teeth. Signs of infection include gums that bleed during brushing or flossing, swelling around the teeth and halitosis (bad breath). If left untreated, gingivitis can lead to periodontitis, a serious gum infection that causes supporting bone under the teeth to resorb, leaving loose and painful teeth.

Medications that can cause decreased saliva flow, leading to a condition called dry mouth syndrome are another risk factor. It’s important to note that adequate saliva flow is necessary to keep the mouth free of food particles, maintain proper lubrication of the teeth and soft tissues, and ensure the mouth has a chemically balanced environment rich in calcium, phosphate and acid-buffering agents. All of these factors help to reduce the risk of dental cavities.

Staying Safe During Invasive Procedures

For PI patients, the risks of complications from invasive dental work can be significant. For example, if patients are prescribed high-dose steroids, they may not be able to cope with the stress of invasive dental work since their adrenal glands may not adequately produce the hormones needed to protect against trauma. In addition, dental procedures that involve local anesthetics and/or deep drilling into teeth can cause bleeding in the oral cavity. People with PI are at higher risk for bacterial blood infection (sepsis) since bacteria can be introduced into the blood stream from the mouth. Symptoms of sepsis include fever, chills or shaking. In severe cases, septic shock can occur, requiring immediate medical intervention and hospitalization. If there is an underlying cardiac condition, artificial joints or an oral bacterial infection, patients may require antibiotics prior to undergoing invasive dental work.

All PI patients should be carefully monitored prior, during and after any invasive dental procedure. A primary care physician or immunologist should also be consulted during the treatment-planning stage to ensure the dentistry will be delivered in a safe manner.

Also keep in mind that patients who are treated with monthly intravenous immune globulin (IG) or weekly subcutaneous IG must ensure their blood IgG levels are above 600 mg/dL before undergoing invasive dental work. If levels are below 600 mg/dL, it is possible to receive a booster dose of IG prior to the procedure.

Dental Tips for PI Patients

Common sense dictates PI patients should be vigilant when it comes to dental hygiene and get regular dental checkups. It’s also advisable to take extra care when brushing and flossing and to use antiseptic mouthwash. In addition, PI patients should:

• Tell their dentist about all medicines they are taking prior to undergoing any invasive dental procedures.
• See their doctor right away if they notice signs of dental abscesses, cold sores or thrush. The doctor can prescribe antibiotics and/or antiviral or antifungal medication to treat these infections so they do not become severe.

PI patients are more susceptible to dental problems because of their high risk of infections. Good oral hygiene and ongoing communication with a dentist are crucial to ensure the risks of infection are minimized. As with all other aspects of healthcare, a team approach is ideal; partnering with a dentist, physician and periodontist can ensure a healthy oral outcome.

TRUDIE MITSCHANG is a contributing writer for IG Living magazine.
Dry Mouth Relief

XyliMelts for Dry Mouth is an all-natural oral adhering disc that time releases a 500 mg amount of xylitol and oral lubricant to relieve dry mouth and reduce tooth decay. XyliMelts is the only dry mouth remedy for use while sleeping when dry mouth is worst. It comes in a three-pack with 40 discs each. $24.89; walmart.com

Making Flossing Fun

Cocofloss describes itself as a “loofah for your smile.” The product uses hundreds of filaments to scrub away plaque and grime and promises to leave gums purified. It contains coconut oil and tropical fruit fragrances for a more pleasant experience. It comes in a three-pack in multiflavors. $22; cocofloss.com

Shopping Guide to Dental Products

High-Tech Toothbrush

Kolibree uses technology to show people how well they’re brushing and tracks progress. Kolibree has partnered with Colgate to launch the Colgate Smart Electronic Toothbrush E1 with Artificial Intelligence, which is sold exclusively through Apple. $99; apple.com

Rinse and Refresh

Biotene Dry Mouth Oral Rinse uses the LP3 salivary enzyme-protein system to help prevent tooth decay and oral disease, soothe minor irritation, fight bad breath and refresh and moisturize the mouth throughout the day. It is alcohol-free, so it will freshen breath without leaving a stinging sensation behind. It comes in a three-pack. $7.19; amazon.com

Turn on the Water Works

Waterpik Complete Care 5.0 Water Flosser and Triple Sonic Toothbrush is a combined water flosser and toothbrush to keep teeth clean and healthy. It features three brushing speeds and modes for flexible dental care. $99; bestbuy.com

Total Mouth Care

Dr. Tungs Stainless Steel Tongue Cleaner glides on the tongue to remove harmful bacteria and debris even from the back of the tongue. Dental experts say it’s about five times more effective for tongue cleaning than a toothbrush. $6.19; vitacost.com
Showcasing the important role of dreams and their power to detect and heal illness, Dr. Larry Burk and Kathleen O’Keefe-Kanavos share research and true stories of physical and emotional healings triggered by dreams. The authors explore medical studies and ongoing research on the diagnostic power of precognitive dreams, including Dr. Burk’s own research on dreams that come true and can be medically validated. They share detailed stories confirmed by pathology reports from subjects in medical research projects whose dreams diagnosed illness and helped heal their lives, including Kathleen’s own story as a three-time breast cancer survivor whose dreams diagnosed her cancer even when it was missed by her doctors.

Written as a narrative short story, the author shares her candid insights as she journeys through surviving with autoimmune diseases. Suffering from chronic daily pain, infections and extreme fatigue, her outlook was one of frustration and hopelessness. As her life journey down the autoimmune highway took twists and turns, she learned to read the signs and listen to her body, mind and spirit. She continues on the journey but has replaced pain with vitality, infections with health and extreme fatigue with immense energy. Her outlook is now one of hope and happiness, and she considers herself blessed to live with the autoimmune diseases of rheumatoid arthritis, systemic lupus erythematosus and oral lichen planus. She no longer suffers and survives but rather thrives and shares hope and inspiration to those who are looking for a better healthier way to live.

This companion cookbook to the New York Times bestseller The Autoimmune Solution is intended as a healthy alternative to cope with and conquer inflammatory-related symptoms and diseases. It contains more than 150 grain-free nutritious, easy-to-prepare, everyday recipes to heal symptoms of inflammation and autoimmune disorders, including allergies, obesity, asthma, cardiovascular disease, fibromyalgia, lupus, irritable bowel syndrome, chronic headaches, fatigue, multiple sclerosis, colitis, Graves’ disease and Hashimoto’s thyroiditis.

Poor gut health can be caused for a number reasons and is not solely related to diet even though it’s a big factor. Autoimmune disease and digestive problems often go hand in hand. And, genetics, stress and environmental toxins can all be responsible for leaky gut and digestive issues. The gut microbiome is where 80 percent of the immune system lives, which is the reason the gut is the most effective place to treat before trying to conquer any underlying health issue. Additionally, a more alkaline diet that lowers inflammation is where the focus should be.
Download the IG Living eBook today—now available for iPad, Nook and Kindle!

“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
**Ataxia Telangiectasia (A-T)**

**WEBSITES**
- A-T Children’s Project: www.atcp.org

**Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)**

**WEBSITES**
- GBS/CIDP Foundation International: www.gbs-cidp.org
- The Foundation for Peripheral Neuropathy: www.foundationforpn.com
- GBS Support Group: www.gbs-cidp.org
- GBS/CIDP Foundation International Website: www.gbs-cidp.org

**Evans Syndrome**

**ONLINE PEER SUPPORT**
- Evans Syndrome Research and Support Group: www.evanssyndrome.org

**Guillain-Barré Syndrome (GBS)**

**WEBSITES**
- GBS/CIDP Foundation International: www.gbs-cidp.org
- The Foundation for Peripheral Neuropathy: www.foundationforpn.com
- GBS Support Group: www.gaincharity.org.uk
- GBS/CIDP Foundation International: www.gbs-cidp.org
- GBS/CIDP Foundation International Website: www.gbs-cidp.org

**Idiopathic Thrombocytopenic Purpura (ITP)**

**WEBSITES**
- ITP Support Association – UK: www.itpsupport.org.uk
- Platelet Disorder Support Association: www.pdsa.org

**Kawasaki Disease**

**WEBSITES**
- American Heart Association: www.heart.org/HEARTORG/Conditions/More/CardiovascularConditionsOfChildhood/Kawasaki-Disease_UCM_308777_Article.jsp#:~:text=117244e38c1f9e442e59f03d1e84a07089e3e
- National Institute of Child Health and Human Development (NICHD): www.nichd.nih.gov/Pages/index.aspx
- Immune Deficiency Foundation: www.primaryimmune.org
- Immune Deficiency Foundation: www.IDFCommonGround.org
- American Autoimmune Related Diseases Association Inc.: www.aarda.org
- Johns Hopkins Scleroderma Center: www.hopkinsscleroderma.org
- Scleroderma Research Foundation: www.srfcure.org

**Mitochondrial Disease**

**WEBSITES**
- United Mitochondrial Disease Foundation: www.umdf.org
- Mitochondrial Support Group – UK: www.myositis.org.uk

**Multifocal Motor Neuropathy (MMN)**

**WEBSITES**
- The Foundation for Peripheral Neuropathy: www.foundationforpn.com

**Multiple Sclerosis (MS)**

**WEBSITES**
- All About Multiple Sclerosis: www.mult-sclerosis.org/index.html
- Multiple Sclerosis Association of America: mymsa.org
- Multiple Sclerosis Foundation: www.msfocus.org
- National Multiple Sclerosis Society: www.nationalmssociety.org

**Myositis**

**WEBSITES**
- The Myositis Association: www.myositis.org
- Myositis Association Community Forum: www.myositis.org.uk
- The Cure JM Foundation: www.curejm.org
- Myositis Support Group – UK: www.myositis.org.uk

**Myasthenia Gravis (MG)**

**WEBSITES AND CHAT ROOMS**
- Myasthenia Gravis Foundation of America (MGFA): www.myasthenia.org
- Genetic Alliance: www.geneticalliance.org

**Peripheral Neuropathy (PN)**

**WEBSITES**
- Neuropathy Action Foundation: www.neuropathypaction.org
- Western Neuropathy Association: www.pnhelp.org
- Neuropathy Alliance of Texas: neuropathyaliancebx.org
- The Foundation for Peripheral Neuropathy: www.foundationforpn.com

**Primary Immune Deficiency Disease (PI)**

**WEBSITES**
- Immune Deficiency Foundation: www.primaryimmune.org
- Jeffrey Modell Foundation: www.info4pi.org
- The National Institute of Child Health and Human Development (NICHD): www.nichd.nih.gov/Pages/index.aspx
- American Academy of Allergy, Asthma & Immunology: www.aaaai.org
- International Patient Organisation for Primary Immunodeficiencies (IPPO) — UK: www.ipoopi.org
- New England Primary Immunodeficiency Network: www.nepin.org
- Rainbow Allergy-Immunology: www.uhospitals.org/rainbow/services/allergy-immunology

**Scleroderma**

**WEBSITES**
- Scleroderma Foundation: www.scleroderma.org
- Scleroderma Research Foundation: www.srfcure.org
- Johns Hopkins Scleroderma Center: www.hopkinsscleroderma.org
- Scleroderma Support Forum: curezone.com/forums/Scleroderma.html

**Stiff Person Syndrome (SPS)**

**WEBSITES**
- Scleroderma Foundation: www.scleroderma.org
- Scleroderma Research Foundation: www.srfcure.org
- Johns Hopkins Scleroderma Center: www.hopkinsscleroderma.org
- Scleroderma Support Forum: curezone.com/forums/Scleroderma.html
- Stiff Person Syndrome: www.stiffpersontsyndrome.net

**Pediatric Autoimmune Neuro-psychiatric Disorder Associated with Streptococcus (PANDAS)**

**WEBSITES**
- PANDAS/PANS Advocacy and Support: www.pans.care
- PANDAS Network: www.pandasnetwork.org
- Midwest PANS/PANDAS Support Group: www.midwestpans.com

**Pemphigus and Pemphigoid**

**WEBSITES**
- The International Pemphigus and Pemphigoid Foundation: www.pemphigus.org
- Genetic Alliance: www.geneticalliance.org
- Living with Stiff Person Syndrome (personal account): www.livingwithsp.com
- Stiff Person Syndrome: www.stiffpersontsyndrome.net
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- Shortcuts to frequently purchased products
- FFF Sales Team contact information
- Detailed product pages
- Product alternatives if products are back-ordered or unavailable
- Convenience and accessibility to drop-ship products
- Shopping Cart feature displays account number and shipping address to minimize purchasing errors
- My Favorites feature for frequently ordered products
- BioVision reporting tool provides analysis of purchasing patterns

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F: (800) 418-4333
E: customerservice@ffenterprises.com

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