GAMUNEX®-C
Immune Globulin Injection (Human) 10% Caprylate/Chromatography Purified

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use GAMUNEX®-C safely and effectively. See full prescribing information for GAMUNEX-C.

GAMUNEX-C, [Immune Globulin Injection (Human) 10% Caprylate/Chromatography Purified]
Initial U.S. Approval: 2003

--- WARNING: ACUTE RENAL DYSFUNCTION and FAILURE ---
See full prescribing information for complete boxed warning.

- Renal dysfunction, acute renal failure, osmotic nephrosis, and death may occur with immune globulin intravenous (IGIV) products in predisposed patients.
- Renal dysfunction and acute renal failure occur more commonly in patients receiving IGIV products containing sucrose. GAMUNEX-C does not contain sucrose.
- For patients at risk of renal dysfunction or failure, administer GAMUNEX-C at the minimum concentration available and the minimum infusion rate practicable.

--- INDICATIONS AND USAGE ---
GAMUNEX-C is an immune globulin injection (human) 10% liquid indicated for treatment of:
- Primary Humoral Immunodeficiency (PI)
- Idiopathic Thrombocytopenic Purpura (ITP)
- Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)

--- CONTRAINDICATIONS ---
- Anaphylactic or severe systemic reactions to human immunoglobulin
- IgA deficient patients with antibodies against IgA and a history of hypersensitivity

--- WARNINGS AND PRECAUTIONS ---
- IgA deficient patients with antibodies against IgA are at greater risk of developing severe hypersensitivity and anaphylactic reactions. Have epinephrine available immediately to treat any acute severe hypersensitivity reactions.
- Monitor renal function, including blood urea nitrogen, serum creatinine, and urine output in patients at risk of developing acute renal failure.
- GAMUNEX-C is not approved for subcutaneous use in ITP patients. Due to a potential risk of hematoma formation, do not administer GAMUNEX-C subcutaneously in patients with ITP.
- Hyperproteinemia, with resultant changes in serum viscosity and electrolyte imbalances may occur in patients receiving IGIV therapy.

--- ADVERSE REACTIONS ---
- PI - The most common adverse reactions (≥5%) with intravenous use of GAMUNEX-C were headache, cough, injection site reaction, nausea, pharyngitis and urticaria. The most common adverse reactions (≥5%) with subcutaneous use of GAMUNEX-C were infusion site reactions, headache, fatigue, arthralgia and pyrexia.
- ITP - The most common adverse reactions during clinical trials (reported in ≥5% of subjects) were headache, vomiting, fever, nausea, back pain and rash.
- CIDP - The most common adverse reactions during clinical trials (reported in ≥5% of subjects) were headache, fever, chills, hypertension, rash, nausea and asthenia.

To report SUSPECTED ADVERSE REACTIONS, contact Talecris Biotherapeutics, Inc. at 1-800-520-2807 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

--- DRUG INTERACTIONS ---
- The passive transfer of antibodies may transiently interfere with the response to live viral vaccines, such as measles, mumps and rubella. Passive transfer of antibodies may confound serologic testing.

--- USE IN SPECIFIC POPULATIONS ---
- Pregnancy: no human or animal data. Use only if clearly needed.
- Geriatric: In patients over 65 years of age do not exceed the recommended dose, and infuse GAMUNEX-C at the minimum infusion rate practicable.

--- ADVERSE REACTIONS ---
- Thrombotic events have occurred in patients receiving IGIV therapy. Monitor patients with known risk factors for thrombotic events; consider baseline assessment of blood viscosity for those at risk of hyperviscosity.
- Aseptic Meningitis Syndrome (AMS) has been reported with GAMUNEX-C and other IGIV treatments, especially with high doses or rapid infusion.
- Hemolytic anemia can develop subsequent to IGIV therapy due to enhanced RBC sequestration. Monitor patients for hemolysis and hemolytic anemia.
- Monitor patients for pulmonary adverse reactions (transfusion-related acute lung injury [TRALI]).
- Volume overload
- GAMUNEX-C is made from human plasma and may contain infectious agents, e.g., viruses and, theoretically, the Creutzfeldt-Jakob disease agent.
- Passive transfer of antibodies may confound serologic testing.

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Talecris Biotherapeutics, Inc.
Research Triangle Park, NC 27709 USA
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Important Safety Information for GAMUNEX-C

Gamunex-C, Immune Globulin Injection (Human), 10% Caprylate/Chromatography Purified, is indicated for the treatment of primary humoral immunodeficiency disease (PI), idiopathic thrombocytopenic purpura (ITP), and chronic inflammatory demyelinating polyneuropathy (CIDP).

Renal dysfunction, acute renal failure, osmotic nephrosis, and death may occur with immune globulin intravenous (IGIV) products in predisposed patients. Patients predisposed to renal dysfunction include those with any degree of pre-existing renal insufficiency, diabetes mellitus, age greater than 65, volume depletion, sepsis, paraproteinemia, or patients receiving known nephrotoxic drugs. Renal dysfunction and acute renal failure occur more commonly in patients receiving IGIV products containing sucrose. Gamunex-C does not contain sucrose. For patients at risk of renal dysfunction or failure, administer Gamunex-C at the minimum concentration available and the minimum infusion rate practicable.

Gamunex-C is contraindicated in individuals with acute severe hypersensitivity reactions to Immune Globulin (Human). It is contraindicated in IgA deficient patients with antibodies against IgA and history of hypersensitivity.

Gamunex-C is not approved for subcutaneous use in patients with ITP or CIDP. Due to the potential risk of hematoma formation, Gamunex-C should not be administered subcutaneously in patients with ITP.

Hyperproteinemia, increased serum viscosity, and hyponatremia may occur in patients receiving IGIV therapy.

Thrombotic events have been reported in association with IGIV. Patients at risk for thrombotic events may include those with a history of atherosclerosis, multiple cardiovascular risk factors, advanced age, impaired cardiac output, coagulation disorders, prolonged periods of immobilization and/or known or suspected hyperviscosity.

There have been reports of noncardiogenic pulmonary edema [Transfusion-Related Lung Injury (TRALI)], hemolytic anemia, and aseptic meningitis in patients administered with IGIV.

The high dose regimen (1g/kg x 1-2 days) is not recommended for individuals with expanded fluid volumes or where fluid volume may be a concern.

Gamunex-C is made from human plasma. Because this product is made from human plasma, it may carry a risk of transmitting infectious agents, e.g., viruses, and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent.

After infusion of IgG, the transitory rise of the various passively transferred antibodies in the patient’s blood may yield positive serological testing results, with the potential for misleading interpretation.

In clinical studies, the most common adverse reactions with Gamunex-C were headache, fever, chills, hypertension, rash, nausea, and asthenia (in CIDP); headache, cough, injection site reaction, nausea, pharyngitis, and urticaria with intravenous use (in PI) and infusion site reactions, headache, fatigue, arthralgia and pyrexia with subcutaneous use (in PI); and headache, vomiting, fever, nausea, back pain, and rash (in ITP).

The most serious adverse reactions in clinical studies were pulmonary embolism (PE) in one subject with a history of PE (in CIDP), an exacerbation of autoimmune pure red cell aplasia in one subject (in PI), and myocarditis in one subject that occurred 50 days post-study drug infusion and was not considered drug related (in ITP).

*CIDP=Chronic inflammatory demyelinating polyneuropathy; PI=Primary immunodeficiency; ITP=Idiopathic thrombocytopenic purpura.


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.

Please see adjacent page for brief summary of GAMUNEX-C full Prescribing Information.

To get GAMUNEX-C call 1-888-MY GAMUNEX (694-2686)
USA Customer Service: 1-800-243-4153
www.gamunex-c.com

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IG Living is the only magazine dedicated to bringing comprehensive healthcare information, immune globulin information, community and reimbursement news, and resources for successful living directly to immune globulin consumers and their healthcare providers.

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Exercise Techniques for Relaxation

“Just about any type of exercise can help to relieve stress, so even if you have a chronic illness, you shouldn’t worry if you aren’t able to participate in more strenuous forms of exercise.”

SAMI JANKINS
Patient and Chair of a Chronically Ill Children’s Nonprofit

IG Chronicles: Life Gives You Lemons and Sometimes Bedazzled Walkers

“I never want to look at a moment in my life and feel like something bad happened to me, as if I was a casual observer and not an active participant.”

MYRON LIEBHABER, MD
Allergist and Research Director, Sansum – Santa Barbara Medical Foundation Clinic

DENTAL PROBLEMS AND IMMUNE DEFICIENT PATIENTS

“Immune deficient patients are extremely susceptible to dental problems because of their high risk of infections.”

SUE ROMANICK, MD
Rheumatologist

FIBROMYALGIA: THE MYSTERY OF CHRONIC PAIN

“It’s no small wonder that, when working with such a complex collection of symptoms, healthcare providers are truly challenged.”

NICHOLAS WENDT
IG Teen Patient
Teen Talk: Indebted to the Doctor Who Saved My Life

“Today, I am a rather rakish young man of 16, and every day, I dedicate a thought or two to the kind, brilliant Southern belle who saved my life and my family’s livelihood for decades to come.”

Connect with Other IG Living Readers through Monthly Teleconferences!

IGL’s Readers Group Teleconferences allow readers to connect with others to share their experiences living with chronic diseases. Here’s how you can participate:

• Email IG Living to be added to our email invitation list for the teleconferences.
• IG Living will send you invitations to let you know when the monthly, hosted, toll-free teleconferences will be held, as well as what topic relevant to the IG community will be discussed.
• The moderated, hour-long calls will be filled on a first-come, first-served basis and will be limited.

In addition to connecting with others, IG Living’s patient advocate can help you determine if there’s a patient organization support group in your area.

Sign up for the Teleconferences now by emailing akazemi@IGLiving.com or calling (800) 843-7477, ext. 1366.

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Our Facebook page: www.facebook.com/IGLivingMagazine
Issues with Access to IG

In recent years, researchers have been studying immune globulin (IG) for the treatment of an increasing number of diseases. And, with the success of more and more of these studies, many of which are still in early stages of clinical trials, it is unquestionable that the need for greater access to IG is, and will become, paramount.

Currently, perhaps the largest increase in IG therapy for other than primary immunodeficiency diseases (PIDDs) is attributed to the treatment of autoimmune diseases. In this issue, we examine two different types of myopathies — polymyositis and dermatomyositis — as well as another disorder — stiff person syndrome — which are believed to be autoimmune diseases that are successfully being treated with IG. Yet, while many with these diseases characterized by progressive muscle weakness have been allowed access to IG, which enables them to regain their lives, getting this drug prescribed often proves difficult, and obtaining reimbursement even more cumbersome or, in many instances, impossible.

So, what are the issues surrounding IG access? Primarily — while there is currently enough supply to meet demand — as more IG is needed, the supply will have to be ramped up. Manufacturers are working to meet this predicted demand with capacity enhancements such as increasing the number of plasma donation centers and building larger processing plants. But, it is possible that these efforts may not produce enough to cover expanding demand. Fortunately, there are new IG products on the horizon. We report on recent product developments by ADMA Biologics in this issue on page 8. While the drug, RI-002, now in Phase III clinical testing, is not being tested for new diseases, it is being tested for the safety and efficacy in treating PIDDs. And, there are other manufacturers in clinical testing to introduce other new IG products.

Another limiting issue is the high cost of the drug. At this point, IG is manufactured from human plasma by fractionation — a lengthy, expensive process that takes approximately nine months from the time an individual donates plasma to when the finished product is ready for use. However, costs would go down substantially if it were possible to make a recombinant (or synthetic) version. As was reported in the last issue of IG Living, development-stage biopharmaceutical company Sorrento Therapeutics has acquired the rights to apply its G-MAB antibody library technology to produce recombinant intravenous IG (rIVIG). Not only would this bring down the costly production costs of fractionation, but it would reduce the current potential supply constraint and decrease purification and quality control challenges.

What is more, extensive research is needed to determine the safety and efficacy of IG for different disease states. Only then will the thousands of people who could benefit from this drug be assured of its help.

Fortunately for the majority of our readers, access to IG continues to be available. But, as always, we will continue to monitor and report on access to IG, as well as other issues impacting our readers in every issue of IG Living.
Immunology 101:
Diagnosing an Antibody Deficiency: Case 4, Part 2: Do Frequent, Recurrent Respiratory Infections Always Mean an Antibody Deficiency Is Present?

By Terry O. Harville, MD, PhD

IN THE LAST issue, we began the discussion of a 3-year-old boy with chronic/recurrent respiratory infections. He began having recurrent respiratory illnesses between 3 months and 6 months of age, and he is reported to have been given courses of antibiotics every four to eight weeks. He had been diagnosed with upper-respiratory infections, as well as sinusitis and pneumonia; however, he had not required hospitalization. Further, he had not been diagnosed with any other forms of infection.

Self-reporting of sinusitis tends to be exaggerated by most, whereas a specific diagnosis made by a physician utilizing explicit criteria can be considered more reliable. A diagnosis of pneumonia by a physician also should be considered a reliable finding. Yet, in infants and children, asthma often may be misdiagnosed as pneumonia. Antibody deficiency disorders have a hallmark of recurrent/chronic sinopulmonary infections. Therefore, diagnoses of sinusitis and pneumonia may be harbingers of a diagnosis of an antibody deficiency.

Still, it’s necessary to consider the extrinsic factors that result in increased irritation of the respiratory system, which could secondarily result in bacterial infections in an immunocompetent infant or child. For example, exposure to cigarette smoke while already having a viral infection could secondarily result in sinusitis and/or pneumonia, despite an intact otherwise normal immune system. Allergic disease also may increase the irritation of the respiratory tract, potentially resulting in secondary bacterial infections. Stomach acid reflux irritation of the upper-respiratory tract could further exacerbate the situation. Therefore, while overall very important in making a diagnosis, the child’s history is only one of the pertinent factors. And for this patient, pertinent features of the history are worrisome for an antibody deficiency.

The physical examination revealed a relatively normal-sized child without major features suggestive of specific disease entities, except for the allergic shiners, lower-eyelid creases, a crease across the lower nose (due to chronic rubbing of the nose in the so-called allergic salute), and open-mouthed breathing that characterize a child with allergic disease. It is important to note that the child was growing normally for his age. Children with significant immune abnormalities tend to be smaller, growing below the expected pace for age.

Having the facial features typical for a child with allergic disease does not exclude the possibility of an antibody deficiency, but it does suggest that allergic disease could be contributing to the apparent respiratory infections.

The final steps in making a diagnosis include appropriate testing. The history was worrisome for an antibody deficiency. This was based on the time of onset of symptoms (3 months to 6 months of age), recurrent/chronic nature of the respiratory symptoms (occurring any time of the year, not just during the winter months), increased usage of antibiotics and diagnoses made of sinusitis and pneumonia with treatment provided. The physical examination suggested that allergic disease also could be contributing to the symptomology.

To expedite the process, all pertinent testing was performed at the initial visit. Skin testing was performed and indicated that this child was allergic to multiple aeroallergens; some grass, tree and weed pollens; mold spores; and dust mites. Additionally, soy and peanut skin tests were positive, indicating the possibility of a contributing food allergy. The white blood cell count was normal for his age, as were the lymphocyte and neutrophil counts. Testing for complement deficiencies was normal as indicated by a normal CH50 test. Serum IgG, IgA and IgM values were normal for his age. The serum IgE was elevated, as may be seen in allergic disease. Spot-testing of the diphtheria and tetanus toxoid titers revealed both to be in the normal protective range. Testing for HIV was not performed since his mother had tested negative early in her pregnancy and again negative at his delivery. Testing for HIV always should be considered during the workup for a possible immunodeficiency. In this situation, though, testing was deferred, but would have subsequently been performed if there had not been an appropriate resolution of the issues.

Next, we will discuss the specific antibody testing results.

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

Disclaimer: This case report is intended as an illustration for education purposes only. It does not necessarily represent an individual or precise information from patient files.
Phase III Clinical Study of New IVIG Product Commences

ADMA Biologics Inc. has started a Phase III clinical study of its RI-002 intravenous immune globulin (IVIG), a specialty plasma-derived, polyclonal IVIG derived from human plasma containing naturally occurring polyclonal antibodies, as well as high levels of antibodies targeted to respiratory syncytial virus. The study will evaluate the efficacy and safety of RI-002 as a novel IG for the treatment of patients with primary immune deficiency diseases (PIDDs). Sixty to 70 patients diagnosed with PIDD will be enrolled for a 12-month treatment period followed by up to 90 days of safety monitoring and follow-up in centers across the U.S. “We are excited to be working with leaders in the PIDD community to evaluate the safety and efficacy of RI-002,” said Adam S. Grossman, president and CEO of ADMA. “RI-002 will offer PIDD patients additional treatment options, while providing clinicians who see all types of immune deficient patients with greater flexibility.”

In Study, Remicade Doesn’t Improve Treatment Resistance for Kawasaki Disease

A recently completed study shows that the monoclonal antibody infliximab (Remicade) works no better than a placebo to combat treatment resistance in children suffering an acute episode of Kawasaki disease.

In the Phase III, randomized, double-blind, placebo-controlled trial that began in April 2009 and concluded in August 2012, researchers enrolled 196 children with Kawasaki disease who were patients at Rady Children’s Hospital in San Diego and Nationwide Children’s Hospital in Columbus, Ohio. Children 4 weeks to 17 years of age were enrolled if they were experiencing acute Kawasaki disease based on clinical or echocardiography evidence. Patients were randomly assigned treatment with infliximab at a dose of 5 mg/kg plus intravenous immune globulin (IVIG) at a dose of 2 g/kg or to a placebo plus IVIG. Both groups also received aspirin. Treatment resistance was defined as fever 36 hours to seven days after the end of the first IVIG infusion between the placebo-plus-IVIG/aspirin group and the infliximab-plus-IVIG/aspirin group. IVIG plus aspirin treatment is the standard of care for acute Kawasaki disease episodes.

While there were favorable symptomatic and laboratory findings, the percentage of children experiencing fever 36 hours to seven days after treatment was 11 percent in both arms of the trial — essentially no clinical difference. And, there was no difference in serious adverse events. “While the clinical endpoints in this case were certainly not positive, it does not take the question of whether infliximab should or could be used and how it should or could be used off the table. It requires additional research,” said David Kimberlin, MD, professor of pediatrics at the University of Alabama at Birmingham.
**Meetings**

**IDF National Conference Scheduled for June 27–29**

The Immune Deficiency Foundation’s (IDF) national conference is scheduled for June 27-29 in Baltimore, Md. The meeting brings together the primary immunodeficiency disease (PIDD) community for three days of learning, discussing and sharing. Highlights of the conference include healthcare and life management presentations, the Stars & Zebra Stripes Gala, an exhibit hall and youth programs. Also on the schedule is the Update in Diagnosis and Management of Primary Immunodeficiency program hosted by IDF and the Clinical Immunology Society. This special medical track for healthcare professionals will feature sessions about PIDDs and offer continuing medical education credits for participants. Conference participants also are invited to attend IDF Advocacy Day on Capitol Hill on June 27. Registration information can be found at www.idfnationalconference.org.

**Medicines**

**Biotest Voluntarily Recalls One Lot of BIVIGAM**

Biotest has voluntarily recalled one lot of BIVIGAM immune globulin intravenous (human) 10% liquid after visible particles were observed during a routine annual reserve inspection. The recalled lot number is 120016 with an expiration date of Mar. 31, 2014. Inspections of other lots of product have not shown the presence of visible particles.

BIVIGAM is indicated for the treatment of patients with primary humoral immunodeficiency. Those who have purchased any of lot 120016 product are asked to discontinue distributing or using it and promptly return the vials to Biotest's Boca Raton, Fla., facility. Healthcare professionals and patients also are encouraged to report adverse events or side effects related to the use of this product lot to the FDA's MedWatch Safety Information and Adverse Event Reporting Program at www.fda.gov/MedWatch/report.htm.

**Medicines**

**FDA Approves New Vial Size for Privigen**

In February, the U.S. Food and Drug Administration approved a 40 g (400 mL) vial size for Privigen, immune globulin intravenous (human). The new vial size, which was introduced in June, will simplify preparation and administration of the product when high volumes of it are required. With the addition, Privigen is now available in four sizes in the U.S., including 5 g (50 mL), 10 g (100 mL) and 20 g (200 mL). Manufactured by CSL Behring, Privigen is approved for the treatment of patients with primary immunodeficiency disease and chronic immune thrombocytopenic purpura.

“CSL Behring strives to bring new innovations to the healthcare marketplace and deliver products that enhance the patient experience,” said Val Romberg, senior vice president, research and development. “The 40 gram vial size for Privigen continues that commitment by reducing the complexity of administration and increasing time savings for healthcare providers.”
Takeda Pharmaceutical Company Ltd. and Resolve Therapeutics LLC have partnered to develop compounds for the treatment of lupus and other autoimmune diseases. The lead compound, RSLV-132, a nuclease (a general term for enzymes that hydrolyze nucleic acid into nucleotides) Fc fusion protein, will begin clinical development later this year. Additional Resolve clinical candidates that target the degradation and elimination of autoantibody-containing immune complexes thought to be the most proximal pathophysiological trigger of lupus are in the preclinical proof-of-concept stage. Resolve will conduct all development work under the collaboration until completion of the first RSLV-132 Phase Ib/IIa trial in lupus patients. Takeda has the exclusive option to license the lead compound and all other compounds from the Resolve platform upon the completion of the Phase IIIb/IIa trial.

“This collaboration with Resolve is very exciting as its innovative pipeline of nuclease fusion proteins has the potential to provide a new approach to helping lupus patients,” said Tetsuyuki Maruyama, PhD, general manager of the pharmaceutical research division at Takeda.
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Exercise Techniques for Relaxation

Everyone experiences stress, but there are many exercises that can be performed to reduce stress — even for those who cannot participate in strenuous activity.

By Matthew D. Hansen, DPT, MPT, BSPTS
Unfortunately, much of the stress that we experience today is self-induced. We seem to find a way to create our own giants. Many years ago, someone’s greatest stressors may have included finding their next meal, building shelter from the weather and avoiding predatory animals. Today, someone may describe the day’s most stressful moments as their football team losing a big game, losing their Internet connection or unwittingly having been charged the nonsale price on an item at the grocery store. That’s not to say that we don’t all face very real and legitimate stressors in our lives. Nobody understands this better than the patients and their families who depend on immune globulin (IG) treatments and who must arrange to pay for them. Yet, regardless of its cause, the results of prolonged and/or intense stress can be damaging.

Symptoms of stress can include, among other things, headaches, tense muscles, insomnia, gastrointestinal problems, high blood pressure, a pounding pulse, rapid breathing, sweatiness, low energy, loss of libido and sexual performance, nervousness, tremors, agitation/moodiness, low self-esteem and depression, an impaired immune system, increased use of commercial and/or recreational drugs, social avoidance, forgetfulness, inability to focus, altered judgment and poor eating habits.

Ironically, the anguish caused by stress frequently leads to more stress in what can become a seemingly hopeless cycle. We’re not unarm ed, however. We have been given tools to combat stress — one of which is exercise.

**How Exercise Helps Our Bodies Relax**

Our bodies reward us when we exercise by improving many of our physiological responses. These benefits include essentially the opposite of those symptoms of stress already described. How else could we explain why humans are willing to perform what would otherwise be seen as pretty silly activities: push-ups, sit-ups, jumping jacks, glute squeezes (remember the Thigh Master?). What’s worse, these activities often leave us sweaty and stinking.

Happily, the benefits of exercise are many, they are real, and they have a scientific explanation. For instance, exercise reduces levels of the body’s “stress hormones,” including cortisol and adrenaline. Adrenaline (epinephrine) is one of the primary hormones responsible for our fight-or-flight response. It is released in response to physical threats (or perceived threats), excitement, anticipation and intense stimuli (such as loud music, bright lights and certain types of touch). Adrenaline works together with cortisol (hydrocortisone) to open airways in the lungs, cause the heart to pump harder and narrow blood vessels so that a great supply of blood is diverted to major muscle groups. These reactions prepare someone to either run or confront a threat, or perform in an extraordinary way when called upon. However, when the stress hormones remain in the body at an abnormally high level, they can have very detrimental effects on our health and mental well-being.

In addition to decreasing stress hormone levels in the body, exercise also increases endorphin production and release. Generated in the pituitary gland and hypothalamus of the brain, endorphins interact with neuron receptors to elevate the mood and reduce the perception of pain (the receptors that endorphins bind to also bind to some pain medications). The resulting euphoria, commonly referred to as a “runner’s high,” is a gratifying feeling similar to that produced by morphine — but naturally.

**Our bodies reward us when we exercise by improving many of our physiological responses.**

Exercise is relaxing for other reasons as well. For instance, it can distract us from our worries, which can be self-defeating if we persevere thinking about them for too long. Many people describe the rhythmic motion of exercise and meditating as hypnotizing. For instance, people often say they are going to take a walk to “clear their mind.” Once exercise becomes a part of our daily lives, we begin to enjoy an improved self-image and increased self-confidence, taking pleasure in a sense of self-control and the understanding that we are doing something good for our bodies.

All of these reasons are why physical activity can be so relaxing. Just about any type of exercise can help to relieve stress, so even if you have a chronic illness, you shouldn’t worry if you aren’t able to participate in more strenuous forms of exercise. Some of the most relaxing activities can be done from your bed or armchair. Rather than trying to present a few of the hundreds of possible exercises, I’ve focused on a few that just about anybody can do, despite limited time or energy.
**Start with Breathing**

Stress can cause breathing to become shallow, rapid, erratic and, consequently, less efficient. When relaxed, we breathe more deeply, slowly and regularly, taking the full advantage of each lung full of air. By imitating a relaxed, diaphragmatic breathing pattern, you incite relaxation.

Here’s how:

1. Sit comfortably in a chair with your knees bent and your upper body relaxed; it’s best if you are able to maintain your spine in contact with the back of the chair. Alternatively, lie on your back with bent knees (you may choose to use a pillow under your head and/or knees).
2. Breathe in slowly and deeply through the nose so that your abdomen expands to its extreme and your chest remains as still as possible (this step normally takes 5 to 10 seconds, depending on lung capacity).
3. Hold your breath for a second or two.
4. Let your abdomen fall inward as you tighten its muscles and exhale through pursed lips. Remember to try to keep your chest as still as possible (exhalation should take about as long as inhaling did, 5 to 10 seconds).
5. Repeat the process at least 5 to 10 times, several times a day.

**Even if you have a chronic illness, you shouldn’t worry if you aren’t able to participate in more strenuous forms of exercise.**

If you are having a difficult time learning the technique, place one hand on your upper chest and the other over your belly button. This will help you feel the diaphragm expand as you breathe, and monitor the movement of your chest at the same time. If you begin to feel light-headed, stop and return to a breathing pattern that feels more natural to you. Wait until you have completely recovered before attempting the exercise again. As you begin to master diaphragmatic breathing, you can use it as a tool to help curb oncoming stress. Gradually increase the time spent performing it throughout the day. You can make the task more difficult by increasing the resistance of your hand on your abdomen or by placing a book in its place.

**Progressive Muscle Relaxation**

Progressive Muscle Relaxation (PMR) was developed in the first half of the 20th century by an American doctor named Edmund Jacobson. It is a method used to control tension in the muscles by contracting each of the major muscle groups and then allowing them to relax completely. Although the technique was not designed to be a physical exercise, it is similar to a type of strength training named isometrics in which the muscles are contracted in a static position instead of moving repetitively through a range of motion.

Once learned, the skill has been attributed to helping reduce anxiety, headaches, high blood pressure, insomnia, gastrointestinal disorders, pain and a number of other ailments. PMR is best performed when reclining or lying down on your back in a quiet room away from distractions. Many people like to close their eyes while performing the activity so that they can completely focus on the task and their body’s response to it.

1. Start by taking a deep breath as you contract the muscle group (without moving the part of the body that it controls). Some sources suggest holding each contraction for up to 20 seconds, but my recommendation is a 5- to 10-second hold time. The longer that a contraction is held, the more likely the muscle group is to cramp/spasm. To help avoid cramping, be sure to remain hydrated. However, if it is a frequent occurrence, your body may be low on one or more of the other elements necessary for muscle performance (such as potassium, sodium, calcium, magnesium and glucose), and you should consult with your doctor.
2. After holding the contraction for 5 to 10 seconds, exhale while allowing the muscle group to relax. Concentrate on the sensation of all the tension in your body being released.
3. Rest for 15 to 20 seconds, and then move on to the next muscle group.

See the Sample Progressive Muscle Relaxation Routine for one possible routine to perform.

**Getting Started**

Deep breathing and PMR may be a good place to start, but any regular exercise can lead to a reduction in stress. Stretching, yoga, biking, even household chores and yardwork, can help bring desired results. To maximize an activ-
Sample Progressive Muscle Relaxation Routine

The following is one possible progressive muscle relaxation routine. You may perform the entire succession or eliminate some of the steps to save time. Do not perform any motions that have been restricted for you by a medical professional or that cause pain.

**Head:**
1. Raise your brow (hold 5 to 10 seconds, then relax; repeat steps for all other actions)
2. Close your eyes tightly
3. Scrunch your nose
4. Frown
5. Smile
6. Open your mouth widely as if yawning (eliminate this step if you have a history of problems with the temporomandibular joint [TMJ])
7. Push your tongue firmly against the top of your mouth

**Neck and shoulders:**
1. Pull your chin down to your chest
2. Lift your head backward so you are looking at the ceiling if you are sitting
3. Elevate your shoulders toward your ears
4. Bend your head to the left
5. Bend you head to the right

**Back/chest:**
1. Round your shoulders forward and arch your back while contracting your chest. Alternatively, bend the elbows to 90 degrees and squeeze the arms firmly against the side of the trunk
2. Retract your shoulders as if you were trying to pinch your shoulder blades together and push your chest outward

**Arms:**
1. Flex your biceps
2. Tense your forearms and clench your fists
3. Open your hands and spread your thumb and fingers as wide as possible

**Abdomen:**
1. Contract your abdominal muscles

**Buttocks and thighs:**
1. Tense your thigh muscles (this is most easily done when your knees are extended)

**Calves, ankles and feet:**
1. Point your feet and toes downward
2. Pull you feet and toes upward

This particular routine should take approximately 10 to 12 minutes to complete, depending on the contraction hold times, once you have learned the progression. Try to perform it a couple of times a day, either at regular intervals or when you need it most. It may take a week or two until you begin noticing real differences in stress, but be patient.

Matthew David Hansen, DPT, MPT, BSPTS, is a practicing physical therapist in Utah, and president of a healthcare consulting and fitness product company, SOMA Health, LLC. The company's latest product, the Freedom2Move exercise program and video series, was inspired by an IG Living Readers Teleconference. Matt completed his formal education at the University of Utah in Salt Lake City.
Fibromyalgia: The Mystery of Chronic Pain

By Sue Romanick, MD

Pain can be mysterious — especially the pain of a chronic, widespread condition called fibromyalgia. Imagine the following situation: A patient is experiencing severe, debilitating pain associated with fatigue and is unable to work or concentrate in school. She is baffled; the doctors are baffled. She desperately seeks help, but instead she receives the ultimate insult: She is turned away from each medical clinic that she phones! She then turns to the Internet and is suddenly given hope while being bombarded by powerful advertising slogans such as: “Finally, a cure for fibromyalgia!” Gradually, as the months and years roll by, as treatments are tried and discarded, these slogans appear to look like empty promises.

The journey of one patient’s quest to be treated for fibromyalgia shows how difficult the condition is to diagnose due to its complex symptoms and a healthcare environment that often prevents providers from both seeing and treating these patients.
When Marie first walked in, I could tell that I was simply yet another doctor in the long line of doctors she had already seen. Marie’s otherwise pretty face was a mixture of frustration, fatigue and skepticism. She narrowed her eyes as I entered the examination room. Attempting to be upbeat as I approached her, I extended my hand as I introduced myself. To my surprise, she simply looked away. Her hands remained in her lap.

**Chronic Pain Is Not Just Any Pain**

Everyone has experienced some sort of pain. Pain teaches children to “be more careful next time.” They learn that a bandage is temporary and will come off as soon as things get better. Despite the pain, there is hope that things will get better. But it can be different with chronic pain. Unfortunately, with chronic pain, patients may suffer a loss of hope.

To some, fibromyalgia is something to dread. Many patients who have done their own research before landing in my clinic have pleaded with me: “Don’t tell me I have fibromyalgia!” Others weakly mumble: “Fibromyalgia doesn’t really exist, does it?”

I wish I could say that Marie simply belonged to yet another group of patients whose healthcare providers had casually tossed out a blanket statement: “It’s all in your head” followed by “Just live with it.” These are patients I can passionately empower in short order. However, Marie’s case was more troubling. Marie had not even managed to get through the door of any of the medical clinics that she had phoned for help. You see, in response to her being asked each time what her purpose was for calling, she had replied: “I have fibromyalgia.” And, each time, the same curt reply followed: “I’m sorry, we don’t treat fibromyalgia.”

This included clinics with rheumatologists, the very specialists trained to treat fibromyalgia in addition to pains associated with arthritis! Even more shocking, Marie had failed to get into medical clinics in two other cities before she finally made it to my clinic. Incredibly, it had taken Marie three months of phoning around for a medical appointment before she first presented to my medical clinic.

**Fibromyalgia: A “Real” Disease**

By definition, fibromyalgia is a chronic pain condition. Patients often describe their pains as muscular and diffuse. Classically, the pain distribution has been both above and below the navel, and involving both the right and left side of the body. In 1990, the American College of Rheumatology (a branch of adult or internal medicine overseeing healthcare providers responsible for diagnosing and managing pain and arthritis, as well as autoimmune disorders) recognized fibromyalgia as a specific, valid diagnosis. In addition, an official diagnostic code was assigned to this medical condition.

However, having just one diagnostic code doesn’t mean that one patient’s fibromyalgia presents with the same symptoms as another’s. The variety of symptoms encountered in patients with fibromyalgia can fool both patients and doctors alike. It’s no small wonder that the diagnosis of fibromyalgia has been looked upon suspiciously by some, including healthcare providers! For example, some chronic pain patients report multiple awakenings at night. At times, a formal sleep study may uncover specific sleep apnea. Other patients with fibromyalgia report intermittent bowel upset that may be referred to as “irritable bowel syndrome.” Still others report “fibrofog,” which is a popular term to describe mental fogginess that can lead to diverse memory issues such as forgetting dates or words, or even misplacing items. Yet other patients may report restless legs syndrome, which causes a need to shift legs repeatedly in the evening. Commonly, when given a form to check off symptoms experienced in multiple organ systems, patients having fibromyalgia characteristically check off an impressive list.

I sat down in front of Marie, scanning with amazement the intake form we had requested she complete as a new patient in our clinic. There wasn’t a spot of space left on the page to list any more symptoms! She had not only checked off all possible symptoms but had added more in the margins. These included generalized muscular pains, severe fatigue, headaches, dry eyes, constipation, diarrhea and cold fingers, among many others. Mornings were the worst. She woke up daily feeling as if she had been “run over by a truck.” These pains were not brought on by any specific injury. If she tried to exercise, it would make her hurt more. She felt increasingly miserable and began to chase answers as she methodically searched for medical help. But why was it so difficult for her to get help?

**Unfortunately, with chronic pain, patients may suffer a loss of hope.**

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The Trouble with Diagnosis

Certain pains can be diagnosed quickly. Diagnosing a stroke, stomach ulcer, heart attack or inflamed gallbladder is generally pretty straightforward. A doctor or healthcare provider orders a test or a battery of tests. The result is some sort of objective (measurable) evidence clearly showing that something is abnormal. Just how “abnormal” this test (or tests) turns out to be may guide how aggressive the treatment needs to be. What will it be? Surgery? Pills? Just wait and see? The benefits of any treatment have to be weighed against the risk or potential side effects of the treatment. But how does one approach treatment of a seemingly widespread condition when it's hard to prove on paper that you have it?

The variety of symptoms encountered in patients with fibromyalgia can fool both patients and doctors alike.

Fibromyalgia doesn’t cause an abnormality in a blood test. It doesn’t lead to an abnormal X-ray. And, it doesn’t lead to an abnormal brain scan. In fact, the mysterious pains of fibromyalgia leave no traces in standard medical tests. Yet, the pain can be so debilitating that patients feel they are unable to work or, for some, even get out of bed.

Marie was armed with pages and pages of carefully documented symptoms (which healthcare providers refer to as the “history”) and test results that included $3,000 worth of blood tests, in addition to a brain MR scan that had cost more than $1,000. It was an impressive bill, but the pain was no better. Indeed, Marie’s search for help had begun many years before. One doctor had worried that she could have multiple sclerosis. Another had diagnosed her with chronic fatigue syndrome. Worse still, she had been told by another: “It’s all in your head.” I really couldn’t blame Marie for looking like she dreaded coming to yet another medical appointment for her next medical opinion.

So, what can patients do when there is no one reliable test for a condition that can be as debilitating and confusing as fibromyalgia? In Marie’s case, the answer came in steps. Step No. 1 was to step back and take a look at all the symptoms Marie was reporting and to, literally, question whether these symptoms were truly due to a unifying diagnosis of fibromyalgia. So, the problem solving, or detective work, began.

Marie’s pains had gradually increased over a 10-year period. She had had a tough life living in farm country and had suffered from severe emotional stressors. Things got even rougher in the tight economy, and worries were keeping her awake most nights. She knew deep down inside that the stress was really starting to get to her. She even noted some skin rashes and dandruff appeared to be getting worse. Her pains had gotten so bad that she didn’t want to be touched. She also tried to avoid being hugged. Not only did she have pain in the morning, but some of her joints were so stiff that a warm shower was needed to help limber them up. Marie was scared of taking narcotics, but that seemed to be the only solution that had been offered by her general healthcare provider after over-the-counter painkillers just weren’t enough to handle the pain.

At first, Marie appeared dazed when I commented that she appeared to be a victim of discrimination. I quickly added that it wasn’t the kind of discrimination she might be thinking about. I explained that it appeared there were actually a few medical conditions going on with her, but because Marie named just one of them whenever she had called for a medical appointment, that appeared to have shut rather than opened doors. The trouble was, this interfered with her getting help with her other medical conditions. Now, Marie appeared perplexed but hopeful.

Step No. 2 was labor intense. Page by page, I meticulously reviewed Marie’s stack of lab tests. It was futile to look for a fibromyalgia test, as I know it doesn’t exist. On the other hand, I know that there are a number of conditions that can lead to widespread chronic pain that is not explainable by previous injury or due to fibromyalgia. Furthermore, I know that some of these conditions could be associated with fatigue.

With new energy, I poured through the tests looking for specific evidence of conditions that mimic fibromyalgia. For example, Marie’s hormones appeared to be OK — both thyroid and estrogen. A slow thyroid can lead to muscular pain. Menopause, a state of low estrogen, can interfere with sleep, which can affect pain threshold. We talked about this, and Marie was at the age where her hormone levels could be fluctuating. Next, I considered vitamin D deficiency. This is an issue that has been receiving a lot of press, particularly in climates where there isn’t a lot of daily sunshine. Vitamin D deficiency can cause muscle
Hizentra®, Immune Globulin Subcutaneous (Human), 20% Liquid
Initial U.S. Approval: 2010

INFORMATION FOR PATIENTS
These highlights do not include all the information needed to use Hizentra safely and effectively. See full prescribing information for Hizentra.

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

WARNING
These highlights do not include all the important information about Hizentra. Please read it carefully before using this medicine. This information does not take the place of talking with your healthcare professional, and it does not include all of the important information about Hizentra. If you have any questions after reading this, ask your healthcare professional.

What is the most important information I should know about Hizentra?
Hizentra is supposed to be infused under your skin only. DO NOT inject Hizentra into a blood vessel (vein or artery).

What Is Hizentra?
Hizentra (Hi – ZEN – tra) is a prescription medicine used to treat primary immune deficiency (PI). Hizentra is made from human plasma. It contains antibodies, called immunoglobulin G (IgG), that healthy people have to fight germs (bacteria and viruses). People with PI get a lot of infections. Hizentra helps lower the number of infections you will get.

Who should NOT take Hizentra?
Do not take Hizentra if you have too much proline in your blood (called “hyperprolinemia”) or if you have had reactions to polysorbate 80. Tell your doctor if you have had a serious reaction to other immune globulin medicines or if you have been told that you also have a deficiency of the immunoglobulin called IgA. Tell your doctor if you have a history of heart or blood vessel disease or blood clots, have thick blood, or have been immobile for some time. These things may increase your risk of having a blood clot after using Hizentra. Also tell your doctor what drugs you are using, as some drugs, such as those that contain the hormone estrogen (for example, birth control pills), may increase your risk of developing a blood clot.

How should I take Hizentra?
You will take Hizentra through an infusion, only under your skin. Make sure that the infusion is not into a blood vessel. You will place up to 4 needles into different areas of your body each time you use Hizentra. The needles are attached to a pump with an infusion tube. It usually takes about 60 minutes to do one infusion. You will need to have infusions once a week. Do not use Hizentra by yourself until you have been taught how by your doctor or healthcare professional.

What should I avoid while taking Hizentra?
Vaccines may not work well for you while you are taking Hizentra. Tell your doctor or healthcare professional that you are taking Hizentra before you get a vaccine. Tell your doctor or healthcare professional if you are pregnant or plan to become pregnant, or if you are nursing.

What are possible side effects of Hizentra?
The most common side effects with Hizentra are:
- Redness, swelling, itching, and/or bruising at the injection site
- Headache/migraine
- Nausea and/or vomiting
- Pain (including pain in the chest, back, joints, arms, legs)
- Fatigue
- Diarrhea
- Stomach ache/bloating
- Cough
- Rash (including hives)
- Itching
- Fever and/or chills
- Shortness of breath
- Dizziness

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. Tell your doctor right away if you have any of the following symptoms. They could be signs of a serious problem.
- Reduced urination, sudden weight gain, or swelling in your legs. These could be signs of a kidney problem.
- Pain, swelling, warmth, redness, or a lump in your legs or arms. These could be signs of a blood clot.
- Numbness or weakness of an arm or leg or one side of your face. Sudden confusion, or trouble speaking or understanding.
- Bad headache with nausea, vomiting, stiff neck, fever, and sensitivity to light. These could be signs of a brain swelling called meningitis.
- Brown or red urine, fast heart rate, yellow skin or eyes. These could be signs of a blood problem.
- Chest pains or trouble breathing.
- Fever over 100°F. This could be a sign of an infection.

Tell your doctor about any side effects that concern you. You can ask your doctor to give you more information that is available to healthcare professionals.

How do I use Hizentra?
Infuse Hizentra only after you have been trained by your doctor or healthcare professional.

Revised: October 2011
If you are a Hizentra patient or caregiver

Get connected through

Voice2Voice™

Voice2Voice is a peer-to-peer support program from CSL Behring, the maker of Hizentra. Voice2Voice connects Hizentra patients and caregivers with advocates who have direct experience with Hizentra and know what it's like to live with primary immunodeficiency disease (PIDD).

Find out what a Voice2Voice advocate can do for you.

A Voice2Voice advocate is someone you can share your story with. They can help answer your non-medical questions* and connect you to helpful resources. In addition, Voice2Voice advocates can share their own real-life treatment stories and offer encouragement as only someone who’s “been there” can do.

Sign up for Voice2Voice.
You can enroll online at Hizentra.com/V2V or call 1-877-355-IGIQ (4447) for assistance.

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

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

Hizentra should not be used if you have had serious negative reactions to immune globulin (Ig) preparations or a deficiency of an Ig known as IgA. Because Hizentra contains the amino acid proline as stabilizer, patients with hyperprolinemia (too much proline in the blood) should not take Hizentra.

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

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

Please see additional Important Safety Information on next page. Please see brief summary of full prescribing information for Hizentra on adjacent pages.
Backed by the expertise of CSL Behring, Hizentra 20% is currently being used by more than 10,000 patients and providers,¹ a number that’s growing every day

- Hizentra helps keep IgG levels stable with low-volume self-infusions
  - The first and only 20% Ig concentration delivers a consistent level of protection against infection
  - Individualized dosing means you can have confidence that you are getting the dose that’s right for you

Important Safety Information (continued)

Tell your doctor about any side effects that concern you. Your doctor will monitor for potentially serious reactions that have been seen with Ig treatment, including thrombotic events (blood clotting); aseptic meningitis syndrome (brain swelling); osmotic nephropathy (a kidney condition); hemolysis (a blood problem); and transfusion-related acute lung injury.

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

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

Vaccines (such as measles, mumps and rubella) might not work as well if you are using Hizentra. Before receiving a vaccination, tell the healthcare professional that you are being treated with Hizentra. Also tell your doctor if you are pregnant or nursing, or if you plan to become pregnant.

Please see brief summary of full prescribing information for Hizentra on adjacent pages.

You are encouraged to report negative effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

cramping or even widespread pain. We also considered Marie’s specific past history. We discussed that there were elements in her history that could place her at risk for chronic hepatitis B, hepatitis C or HIV infection. These tests were missing from her records, so these would be worthwhile tests still to be ordered.

**The physical exam for fibromyalgia classically has shown the presence of specific fibromyalgia tender points.**

Hidden among the pages of an impressive $3,000 lab workup was a surprise. One of Marie’s lab tests documenting inflammation was very abnormal. Because inflammation (classically producing warmth, swelling or pain somewhere in the body) is not typical of fibromyalgia, I suggested to Marie that there was probably more than one condition going on. Slowly, Marie’s eyebrows lifted and her eyes opened wide, as I could tell her hopelessness and resignation were slowly being replaced by the feeling that knowledge and control were closer to being within her own grasp.

The physical exam for fibromyalgia classically has shown the presence of specific fibromyalgia tender points. The examiner may check 18 different points on the patient’s body, and then record a score such as 14 out of 18 in the medical chart. The examiner presses gently on a spot just until the fingertip (or fingernail) starts to turn white (blanch). However, tender spots on physical examination are not enough to make a diagnosis of fibromyalgia. A history of chronic pain is one of the additional items necessary for diagnosis. To illustrate why: Two of the locations classically checked for fibromyalgia, each at the widest part of the hips, can be painful to touch due to local hip inflammation (bursitis). Interestingly, there has never been any proof that the number of tender points reliably decreases with treatment even when the patient is feeling much better. Not surprisingly, there has been some controversy surrounding the role of the tender points when diagnosing fibromyalgia.

One of the most important achievements of Marie’s first visit was to validate that she did, indeed, have fibromyalgia. She had the classic history of chronic pains with disordered sleep, multi-systemic complaints and all of her tender points being very tender to light touch. However, the second most important achievement of her first visit in my clinic was to discover why she had been unable to shake my hand as I had entered the examining room at the beginning of the visit.

I was aghast. Marie’s physical examination revealed severe swelling in every finger of each hand. In fact, some of her fingers looked like little sausages. In the medical profession, this is called “dactylitis.” What was particularly worrisome to me was that Marie had reported having had this dramatic swelling progress the past few months during which time she actually needed aggressive therapy but was unable to access medical care because she had been repeatedly turned away for another reason.

**Identifying What Needs Treating and How**

I was grateful that Marie had finally found her way into my clinic so that I could begin itemizing the issues needing to be addressed. However, it was not because of the fibromyalgia but because of her inflammatory arthritis (related to her aforementioned rashes) that we would have to move fast in order to get aggressive medication approved for her by her health insurance. We urgently needed to prevent severe joint damage in her hands from worsening. I pointed out that even the inflammation in her labs supported a sense of urgency. Understandably, Marie was devastated to learn of the second diagnosis. But, I reassured her that by her coming in, we could take immediate, aggressive steps to prevent joint damage.

It was important that Marie understand that it was not her fibromyalgia that I was worried about. Yet, I did reassure her that we would be taking steps to help her learn how to control the pain from her fibromyalgia. In fact, by discussing how we approach treatment of fibromyalgia in general, I could tell that Marie would be feeling a lot better by the time her first appointment came to a close. I started by explaining that the first important concept to convey when treating fibromyalgia was that it is a real diagnosis and deserves proper medical attention. We discussed that lifestyle changes, working on optimizing sleep quality, setting realistic goals and choosing appropriate forms of exercise are all very important. Marie began to understand that the answer to fibromyalgia was not simply in writing a prescription.

Important considerations before starting medication for fibromyalgia include correcting certain vitamin deficiencies, ensuring that there are no underlying, undiagnosed
chronic conditions and evaluating the patient for side effects arising from current medications. Marie had been exposed to several adverse childhood experiences that appeared to be impacting her coping skills with certain family members and her ability to manage current financial worries. Therefore, we talked about the role of counseling, to which she appeared to be very amenable. I explained that stress management or counseling could play a key role in helping her gain control over her fibromyalgia.

It was important that I address Marie's concerns about narcotic therapy. Scientific studies have shown that patients requesting narcotics for chronic pain syndromes, which include fibromyalgia, migraine headaches, irritable bowel syndrome and pelvic pain, have a greater likelihood of having been exposed to emotional, sexual and/or physical abuse. I shared my bias with Marie that narcotics should not play a prominent role in the routine, chronic management of fibromyalgia. In fact, in my own practice, I avoid their use in treating fibromyalgia whenever possible.

Therefore, we discussed medication alternatives that, unlike the medication she would need for her severe hand arthritis, do not work by addressing inflammation. Instead, we talked about nonaddictive pain medications that are not narcotics, but some of which are thought of as anti-depressants or muscle relaxants, as well as others that are frequently used for pain originating in nerves. I made it clear that such medications can take several months to really become effective against the pain.

By the end of the visit, Marie's diagnoses had names, and she had come to terms with the fact that fibromyalgia was only one of them. She understood that control over her fibromyalgia pain was within her reach but that it would take time. She appreciated hearing that psychosocial elements in addition to lifestyle would be at least as important as any medication taken for fibromyalgia. Finally, in understanding her medical conditions better, she was in a stronger position to start setting realistic goals for herself.

As Marie was leaving, I gently placed my hand on her right shoulder and said that I was so sorry that it had taken her so long for her to find my clinic. I added, however, that I really felt confident that we now formed a team to get her back on the right track. I figure her smile in response meant that she agreed.

SUE ROMANICK, MD, is board-certified, as well as recertified in both general internal medicine and rheumatology. She was involved with immunology research on cell clones at the German Cancer Research Institute in Heidelberg, Germany, and has worked in immunology and plasmapheresis at the University of California, San Francisco. Dr. Romanick is a public speaker and has spoken for the Arthritis Foundation, University of Washington and Overlake Hospital in Bellevue, Wash. She also has participated in lobbying efforts on Capitol Hill to support arthritis patients, both young and old, at the request of the American College of Rheumatology. She runs her own private practice clinic in Bellevue, Wash.

Editor’s note: The name of this patient has been changed to protect her privacy.
Myopathies: The Effects of IVIG Therapy

By Ronale Tucker Rhodes, MS, and Annaben Kazemi

Autoimmune disease affects some 23 million Americans. It’s an evolving area of medicine that has scientists puzzled — not just about what causes it but how to prevent it, because once it starts, autoimmune activity can be especially difficult to stop. Many autoimmune disorders, such as myopathies, are extremely rare. While there is no known prevalence of myopathies, they are believed to affect fewer than three to seven out of 100,000 persons each year.¹ There is no cure for myopathies, but they can be successfully treated and managed. In conjunction with other therapies, intravenous immune globulin (IVIG) has been shown to be an extremely effective treatment for two types of myopathies — polymyositis (PM) and dermatomyositis (DM) — which are characterized by muscle weakness due to dysfunction of muscle fiber.² Another disorder that has some similarities to myopathies is stiff-person syndrome (SPS), or stiff-man syndrome, for which IVIG has also shown to be an effective treatment.

While IVIG is not an FDA-approved therapy for myopathies, many cases illustrate its effectiveness. Still, more research is needed to determine its efficacy and to ensure access.
PM and DM

Myositis, which includes PM and DM, falls under the idiopathic inflammatory myopathies umbrella. It is estimated that there are about 40,000 people in the U.S. who have the disease, 3,000 to 5,000 of whom are children. The disease is characterized by persistent muscle inflammation that develops slowly over weeks to months and years, causing progressive weakening of the muscles. It can range in severity from mild to debilitating, and later in the course of the disease development, muscle wasting or shortening (contracture) may develop. While there is no known cause, it is believed to be caused by an autoimmune response in which the body’s immune system turns against its own muscles and damages muscle tissue. Currently, investigators are studying whether the disease is triggered by an allergic reaction, exposure to substance or medicine, another disease such as cancer or rheumatic conditions, or a virus or other infectious agent.

PM is a disease in which the inflammatory cells of the immune system directly attack muscle fibers. The disease affects skeletal muscles (those involved in making movement) on both sides of the body, which causes progressive muscle weakness that leads to difficulty swallowing, speaking, rising from a sitting position, climbing stairs, lifting objects or reaching overhead. Those affected may also experience arthritis, shortness of breath and heart arrhythmias. PM rarely occurs in people under age 18, with most cases occurring in those aged 30 to 60.

DM is a disease in which the inflammatory cells attack the small blood vessels that supply blood to the muscles and skin. The disease is characterized by a patchy skin rash, with purple or red discolorations, that typically develops on the eyelids and on muscles used to extend or straighten joints such as the knuckles, elbows, knees and toes. Red rashes may also occur on the face, neck, shoulders, upper chest, back and other locations, accompanied by swelling. The rash usually precedes or occurs simultaneously with progressive muscle weakness; however, sometimes there is no obvious muscle involvement. DM occurs in both adults and children. Adults may experience weight loss or a low-grade fever, have inflamed lungs and be sensitive to light, and the disease may be accompanied by tumors of the breast, lung, female genitalia or bowel. Children more often develop calcium deposits that appear as hard bumps under the skin or in the muscle (called calcinosis), which usually occurs one to three years after disease onset but may occur many years later. However, adults may also develop calcinosis.

The initial treatment for PM and DM is high doses of corticosteroids such as prednisone. For those who don’t respond well to prednisone, immunosuppressant drugs such as azathioprine, methotrexate and mycophenylate may reduce inflammation. Another therapy option is Acthar (ACTH), which recently received FDA approval for the treatment of both DM and PM. ACTH stands for adrenocorticotropic hormone, which helps the body stimulate the production and release of cortisol, a natural steroid involved in controlling the inflammatory process. IVIG is considered when first-line therapies are ineffective or contraindicated due to other conditions.

While there is no known prevalence of myopathies, they are believed to affect fewer than three to seven out of 100,000 persons each year.

SPS

SPS is considered an interneuron disorder. It is not a disorder of the muscle; rather, the symptoms are due to excessive motoneuron activation, which results in involuntary muscle contraction involving predominantly proximal muscles. Since the disorder presents in a similar fashion to other myopathies, it is sometimes categorized under the idiopathic inflammatory myopathies umbrella. The prevalence of SPS is unknown, but it is estimated to occur in fewer than one in one million persons, and it is believed to be underdiagnosed due to a general lack of awareness of the disease in the medical community.

SPS is a neurological disorder with features of an autoimmune disease characterized by fluctuating muscle rigidity in the trunk and limbs and a heightened sensitivity to stimuli such as noise, touch and emotional distress, which can set off muscle spasms. People with SPS often have abnormal posture and appear hunched over and stiffened. They can be too disabled to walk or move, and they may be afraid to leave the house because street noises such as the sound of a horn can trigger spasms and
falls. SPS is often associated with other autoimmune diseases such as diabetes, thyroiditis, vitiligo and pernicious anemia. Sixty percent of people with the disease have anti-GAD (glutamic acid decarboxylase) antibodies. The disease affects twice as many women as men, and symptoms typically begin between ages 30 and 50.7,8

Like PM and DM, there is no cure for SPS. However, people with SPS respond to high doses of diazepam, several anti-convulsants, gabapentin and tiagabine. In recent years, several studies have shown IVIG to be effective in reducing stiffness and lowering sensitivity to noise, touch and stress in people with SPS.8

IVIG for PM, DM and SPS

IVIG is not an FDA-approved therapy for PM, DM or SPS. However, numerous studies have shown it is effective in many cases as a treatment for all three. It is unknown why IVIG works in treating these autoimmune diseases, but there are many theories about how IVIG provides an immunomodulatory effect, which adjusts an individual’s level of an immune response.

One theory is complement fixation. Complement is a protein that is part of the immune system, which works in combination with antibodies to help destroy antigens such as bacteria. The activation of complement is called the complement cascade. In some autoimmune diseases, complement may combine with antibodies and attack a person’s own tissues. It is thought that IVIG may bind to complement and reduce the attack on self. Another theory is neutralization, which is similar to that of complement fixation. However, with this theory, IVIG is thought to bind directly to the antibody causing the attack on self rather than interfering with the complement cascade. A third theory is suppression of cytokines. Cytokines are proteins that are necessary for communication between cells. In the case of autoimmune diseases, some cytokines may become overactive. IVIG can bind directly to cytokines, or it can prevent the cytokines from completing their communication or message to other cells by blocking a receptor on the other cells. A final theory is that by receiving a large amount of donor antibodies through an IVIG infusion, that patient’s immune system may decrease the production of the destructive antibodies that attack their own tissue.9

For PM and DM, the typical starting dose of IVIG is 2 g/kg. At this dose, the improvement in strength has shown to be impressive and becomes noticeable even as soon as 15 days after the first infusion. Repeated infusions every five to eight weeks may be necessary to maintain the response.10 In a meta-analysis of 14 articles on the use, effectiveness and adverse effects of IVIG in patients with PM and DM, IVIG was used successfully. The standard dose was 2 g/kg given in two to five individual daily doses, with the course of treatment lasting three to six months. In one double-blind study included in the meta-analysis, patients with refractory DM treated with IVIG combined with corticosteroid significantly improved muscle strength and decreased serum creatine kinase levels, compared with a placebo. And, in many open-label trials in the meta-analysis, the beneficial effect of IVIG in refractory, flare-up, rapidly progressive or severe PM/DM was documented. IVIG was shown to be effective in most PM/DM patients with lung involvement and esophageal involvement. In some patients, IVIG lowered the corticosteroid dose required for maintenance, demonstrating the most effective steroid-sparing effect. And adverse effects were generally tolerable.11

For SPS, IVIG is used in both inpatient and home settings, with the usual dose of 2 g/kg administered over two to five days. However, treatment may extend past that period.12 In a study of 16 anti-GAD antibody-positive patients who were randomized to receive IVIG or a placebo for three months, efficacy was based on the difference in scores of the distribution of stiffness index and heightened sensitivity (spasms) from baseline to the second and third months of the infusions. The stiffness scores in the IVIG-randomized patients declined significantly from month one through month four, but rebounded when they crossed to a placebo. In contrast, the scores in the placebo-randomized group remained constant from month one through month four, but dropped significantly after crossing to IVIG. Eleven
patients who received IVIG became able to walk unassisted, stopped falling and assumed household or work duties. The duration of the benefit of IVIG varied from six weeks to 12 weeks or up to a year. And, the anti-GAD antibody titers declined after IVIG, but not after a placebo. 13

Of course, IVIG therapy is not successful for all PM, DM and SPS patients. In these cases, other therapies can be tried. For some PM and DM patients, rituximab, cyclophosphamide and tacrolimus have shown to be successful therapies. 10 Because IVIG is not an FDA-approved therapy for DM, PM and SPS, patients may have difficulty with insurance approval for IVIG, and even those who have documented response to therapy while on IVIG therapy may have issues with ongoing reimbursement. The following cases illustrate how treatment with IVIG can be successful, and how each case is different.

Jackie’s Story: PM

Jackie is a retired teacher who can remember experiencing symptoms long before she was diagnosed with PM. Simple tasks like hanging laundry on a line or carrying bags of groceries up the stairs became increasingly difficult. She couldn’t sit through a movie because at the end, she wouldn’t be able to get up out of her chair. For five years, she rationalized away her symptoms until one year when she was on vacation in Hawaii. During a hike, she became so short of breath, she couldn’t keep up with the group, despite considering herself in relatively good shape. “I knew then that I couldn’t rationalize away my symptoms,” she explains.

Jackie made an appointment with her physician, who examined her, drew blood to look for numerous disease factors and ran a battery of other tests. When a blood test showed increased levels of creatine kinase (a muscle enzyme), she underwent a muscle biopsy. It was a frustrating few months while her doctor searched for answers, but the muscle biopsy confirmed her doctor’s suspicions, and she was diagnosed with PM.

Her treatment began with prednisone, which caused her to gain a tremendous amount of weight, further limiting her mobility. She also was prescribed methotrexate, azathioprine, cyclosporine, mycophenolate and cyclophosphamide, all of which failed to reduce her creatine kinase levels or increase her muscle strength. She took a leave from teaching as she fought to cope with her physical symptoms, as well as with depression. Despite her treatments, she still struggled with symptoms and felt so weak that she was unable to keep up with normal daily activities. At her lowest point, she ended up in the hospital for several weeks with respiratory failure.

Because her treatments failed, her doctors suggested a course of IVIG while in the hospital, which resulted in her creatine kinase levels decreasing by half. She is now receiving IVIG therapy every four to six weeks in addition to high doses of prednisone, and she has continued to see a drop in creatine kinase levels with each dose of IVIG, usually leveling off around 1,000. “I can feel the benefits of an IVIG infusion after a few days,” says Jackie. “They last about three weeks and then slowly wear off a bit in the last week before the next infusion.” Jackie receives her IVIG in an outpatient clinic over two consecutive days, and each session takes about six hours. “I sit in a La-Z-Boy-type recliner, and usually I sleep, although sometimes I read a bit or listen to music,” says Jackie. She takes acetaminophen and pseudoephedrine when the IVIG starts and again before bed to help minimize the headaches and body aches that she experiences afterwards. She also says eating a banana and drinking plenty of water help with the side effects of IVIG.

It is unknown why IVIG works in treating these autoimmune diseases; however, there are many theories about how IVIG provides an immunomodulatory effect.

Since her diagnosis, Jackie has had to give up two of her loves: teaching and piano playing in her church choir. However, she tries to stay active and to not allow her disease to cripple her. There are times of remission when she feels great and her life resembles the more active lifestyle she used to enjoy. But when the disease acts up and her medications increase, she mourns the loss of her old life. Her advice: “Take things one day and one problem at a time, and try to do things you enjoy on the good days — even if it is something really small. Missing your old life is normal as you try to redefine a good, but different life.”
Daniel’s Story: DM

Two years ago, at age 20, Daniel was attending a university in the San Francisco Bay area. He was working part time in a restaurant and began noticing that it was difficult to lift the trays of food. After he played a casual game of basketball, he found his legs were weak and he was exhausted beyond normal. He chalked it up to the flu. Under a lot of pressure as exams neared, he began losing even more strength in his arms and legs, and he developed a rash around his eyes and on his knuckles and elbows. At first he thought it was stress, so he went to the school health clinic. The nurse suggested mononucleosis or shingles and told him to see his regular doctor while on break.

Within three weeks of going home at break, he could no longer stand up, sit down or raise his arms above his shoulders. After seeing his family practitioner, he was referred for further testing at a major medical center. “It was frightening not knowing what was going on,” says Daniel. “We were stumped … until my mom did some research and suggested it could be dermatomyositis.” Daniel ended up spending several nights in the hospital, and after a skin and muscle biopsy confirmed his diagnosis, he was started on prednisone. “I was told my condition was rare, but what was even more uncommon was my age when symptoms appeared,” explains Daniel. “I was told most people are either diagnosed before age 10 or after age 40.”

In those first months after diagnosis, he was unable to go to school, unable to work and had to move back home, relying heavily on his parents. He became depressed and felt isolated. The prednisone caused mood swings and diarrhea, and with the weight gain, he was in danger of developing diabetes. Six months after beginning treatment with prednisone and methotrexate, Daniel still experienced severe muscle pain and fatigue. His physician recommended starting a course of IVIG, after which Daniel demonstrated both improved muscular and cutaneous involvement scores that were significantly better than his pretreatment scores. Today, Daniel receives his infusion every two months over a five-day period at a clinic near his parents’ home, and he feels the positive effects up to a month after each dose. He has begun to see improvements physically; he can dress himself, walk the family dog and has even begun to enjoy spending time out with friends again.

Daniel did develop an unusual type of eczema when he first began IVIG, but switching the brand of IVIG eliminated the reaction. “It’s been a long and painful road, but with the IVIG infusions, I’m starting to regain strength and be able to do things for myself again,” says Daniel. “I don’t know why it’s working for me … but with no cure for this disease, I’m truly grateful for any improvements.” Daniel has regained hope for his future, and with continued improvement, he plans to return to the university and resume his studies in engineering.

IVIG is an experimental treatment in these diseases, and the amount and duration of therapy differs depending upon the patient.

Julie’s Story: SPS

Julie first noticed symptoms of SPS in elementary school, although at the time, the symptoms were vague. She had aches, pains and stiffness here and there, and she also tired easily when playing sports, but her parents assumed she just didn’t want to play. After years of frustration and a visit to a neurologist, she turned to friends for help. The wife of a childhood friend worked with a local neurologist, a well-known director of neurology at local hospitals, with whom she consulted. The neurologist performed several lab tests, an electromyogram and a nerve conduction study, and after a second opinion with a rheumatologist, she was diagnosed with probable SPS. Several months later when she needed oral surgery, she was given dexamethasone to ease the swelling, which also caused her spasms to stop completely. At the prompting of her dentist, she shared her experience with her neurologist, and her diagnosis was confirmed in her mid-30s.

Julie was prescribed the standard medications for SPS patients (a high dose of diazepam, tiagabine and several anti-convulsants), which helped some, but they only slowed her SPS progression. She was forced to stop working because of her illness. She had a small daughter, volunteered in her spare time and had several hobbies, but due to her illness, these things also slipped out of her reach. Eventually, she and her husband and daughter had to move in with family due to a lack of resources after a year.
on state disability.

The rarity of SPS made it important for Julie to find a doctor willing to conduct research and try new things. While her neurologist had treated SPS before, it wasn’t common for him to recommend IVIG. Luckily, after conducting research and finding information about the disease, which she provided to her neurologist, Julie was prescribed IVIG twice a month, which she received for a little over two years. During that time, she was able to have another successful pregnancy, but only with close monitoring and a substantial additional amount of IVIG.

Out of everything Julie has tried, she found IVIG the most helpful. Her spasms were less frequent, she was not as rigid and her response to stressors was not nearly as exaggerated. “At first, I didn’t realize how IVIG was helping,” she says. “The effect was gradual. I felt a little better with the first cycle. The second cycle even better. I was able to walk a little further at the grocery store without needing a mobility scooter. I didn’t worry about going out in public. I could walk into Home Depot and not have spasms knock me down when I went past the paint mixer.”

Unfortunately, Julie’s husband was laid off from work, and Julie lost coverage for IVIG treatments. The first two months after stopping IVIG were the worst. As she transitioned to life without IVIG, her stiffness slowly returned, and depression set in. She was wracked with daily spasms and migraines, and she had a serious fall in the shower requiring an ambulance to get her to the ER.

While she worked to regain insurance coverage, Julie’s symptoms stabilized, and she has now come to terms with her new reality: not being able to get IVIG treatment. She is focused on making it through just one day at a time. Julie says helping others who are newly diagnosed keeps her motivated. Her advice to those newly diagnosed is to learn. “Learn as much as you can about the disease, the treatment options and your symptoms,” she says. “Get copies of your medical records, ask for test results and keep those records in a binder that is easily accessible. More importantly, make sure you are comfortable with your physician. It is very difficult to find a neurologist who has seen stiff person syndrome before.”

Living with a Myopathy

Myopathies continue to be a puzzle for scientists, but more and more is being discovered about these diseases, resulting in quicker diagnoses and improved treatments. As these cases illustrate, IVIG can cause a significant turnaround in patients’ muscle function and deterioration, yet the amount and duration of therapy differ depending upon the patient. Even so, IVIG therapy is still experimental, and many more studies are needed to determine its effectiveness across the vast range of myopathic and similar disorders. And, because IVIG is not an FDA-approved therapy, access can often be a challenge. However, it is hoped that as more research is conducted to show the efficacy of IVIG treatment, more myopathy patients will be helped by this miracle drug.

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Patients with immune deficiencies are at increased risk of dental problems caused by infections, a situation that requires an understanding of the risks of dental procedures and how to minimize them.

By Myron Liebhaber, MD, and David Dart, DDS, JD

People with primary immune deficiency disorders (PIDDs) are predisposed to dental problems. Disorders involving the immune system can be congenital (occurring at birth) or acquired as in common variable immunodeficiency disorder and AIDS. Some drugs such as steroids, methotrexate, hydroxychloroquine, D-penicillamine or newer rheumatoid drugs that inhibit B cells such as Humera also can suppress natural immunity. The most common immune disorder is an IgA deficiency, in which the IgA antibody is low or absent in the mucus and saliva of the mouth. A rare form of antibody deficiency includes X-linked agammaglobulinemia (also known as XLA or Bruton’s agammaglobulinemia), which is a defect in all three classes of antibodies (IgA, IgG and IgM). Patients also may have a defect in the T cell system, which causes thymic hypoplasia (also known as DiGeorge syndrome). No matter what the cause of the immune deficiency, because these patients lack antibodies or immune cells, they are unable to respond to infections, especially infections of the mouth and gums.

Reducing the Risks of Infection

People with congenital or acquired immune deficiencies are prone to oral bacterial infections such as staph abscesses, viral infections such as herpes simplex and oral fungal infections (also known as candidiasis or oral thrush). These infections lead to a higher incidence of gingivitis, gum disease, periodontitis (decayed, missing and filled teeth) and dry mouth syndrome. Gingivitis is a chronic gum infection involving the soft tissue (gingiva) surrounding the teeth. The signs of infection are bleeding, purulence (pus), swelling, heat and bad odor of the gums. In more advanced cases (periodontitis), the supporting bone under the teeth resorbs, leaving loose and painful teeth. As such, immune deficient patients should be closely monitored and treated by their dentist and dental hygienist to maintain good periodontal health.

Many patients with an immune deficiency take medications that can cause decreased saliva flow. Adequate saliva flow is important for proper oral clearance of food particles; lubrication of the oral structures, eliminating abrasion of the soft tissues; facilitating the digestion of carbohydrates;
and chemically maintaining an environment rich in calcium, phosphate and acid-buffering agents. All of these factors help to reduce dental cavities. Fortunately, there are sugar-free lozenges and chewing gum that stimulate increased saliva flow. A patient’s dentist can discuss dry mouth syndrome and offer solutions to this problem.

If patients are on high-dose steroids, they may not be able to cope with the stress of invasive dental work. Their adrenal glands (stress glands) may not be able to produce hormones that are protective against trauma. In addition, people with immune deficiencies and dental disease are at risk for sepsis, and can have bacteria introduced to the blood stream from the mouth. Symptoms of bacterial blood infections (sepsis) include fever, chills or shaking. As a result, septic shock can occur as a sudden drop in blood pressure related to endotoxins produced by bacteria. This requires immediate treatment in the hospital.

Dental care usually requires one of these three dental procedures:

1) **Noninvasive procedures.** This group includes an oral examination by the dentist, X-rays, impressions, fluoride treatments and generally any procedure that causes no mental or physical trauma. Immune deficient patients generally require no special predental procedures prior to these procedures.

2) **Minimally invasive procedures.** This includes the dental prophylaxis or cleaning, where hard and soft bacteria are removed from the teeth above the gums. This also includes small filling restorations that may or may not require small amounts of local anesthetics. Patients may require medications prior to these procedures.

3) **Invasive procedures.** This includes any dental procedures that involve substantial local anesthetics and/or deep drilling into teeth, which can cause significant bleeding in the oral cavity. Most periodontal procedures and all oral surgical procedures should be considered invasive. Some construction of crowns, bridges and implant placements are invasive. Patients should be carefully monitored prior, during and after any invasive dental procedure. A patient’s physician should be consulted during the treatment planning stage to ensure the dentistry will be delivered in a safe manner.

**Dental Tips for PIDD Patients**

Good dental hygiene should be practiced, and regular dental checkups should be scheduled. Patients should brush and floss daily, use antiseptic mouthwash, eat healthy foods and limit sweets.

Patients need to tell their dentist about all the medicines they are taking. The dentist will make every effort to reduce the risk of infection and may refer patients to a periodontist (gum specialist).

Patients must be aware of bacterial infections (dental abscesses), viral infections (cold sores) and fungal infections (thrush). These can be treated with antibiotics and/or antiviral or antifungal medication.

If patients have an underlying cardiac condition, artificial joints or an oral bacterial infection, they may need antibiotics before an invasive procedure (type 2 or 3).

**People with congenital or acquired immune deficiencies are prone to mouth bacterial infections, viral infections and oral fungal infections.**

Patients who are treated with monthly intravenous immune globulin or weekly subcutaneous immune globulin must make sure their blood IgG level is above 600 mg/dL before an invasive dental procedure (especially a type 3 procedure). If their level is below 600 mg/dL, they can receive a “booster dose” of immune globulin before an invasive dental surgery.

**A Team Approach**

Immune-deficient patients are extremely susceptible to dental problems because of their high risk of infections. Good oral hygiene, attention to the condition of their mouth and gums, and good communication with their dentists are crucial to ensure the risks of infection are minimized. A “team” approach to deliver care is required. A doctor, a dentist and sometimes a periodontist capable of dealing with their mouth and dental complications must be consulted.

**MYRON LIEBHABER, MD** is an allergist and research director at the Sansum — Santa Barbara Medical Foundation Clinic. **DAVID DART, DDS, JD**, practices in private general dentistry and is a senior dentist at the University of California Santa Barbara Dental Care Center.
**Reader:** I receive 10 grams of intravenous immune globulin (IVIG) every two weeks. At 94 pounds, I was told the proper dose is 20 grams, but I found this was too much for me. The problem is that in 2007, I tested positive for Lyme disease and I’m wondering if I should still be treated for this? Is it recommended to take antibiotics for long periods of time for infections if needed when prescribed IVIG? Do the antibiotics lower the white blood cell count (WBC)? In the past when I was treated with antibiotics for mycoplasma and other parasitic infections, my WBC would decrease to 2 before IVIG.

**Michelle:** In primary immunodeficiency (PIDD), IVIG is used as replacement therapy. Enough IVIG is given to maintain proper IgG levels to protect you from infection. If you are receiving IVIG and still require antibiotics for long periods of time for infection, it could be because your IgG levels are not high enough to provide this protection. Your physician should monitor this level by drawing your blood immediately prior to an IVIG infusion to see what that level is at its lowest point (known as the IgG trough level). Also, usually with infections, the WBC count goes up, but with PIDD this may or may not occur. I would again attribute this to possibly not having a high enough dose of IVIG to assist your immune system to fight infections.

**Reader:** I have a 29-year-old daughter who was diagnosed 10 years ago with myasthenia gravis (MG). She suffered and was misdiagnosed for a year and a half before she was diagnosed, at which time she was in myasthenic crisis and hospitalized in the ICU. Her neurologist treated her with high-dose prednisone and five days of intravenous immune globulin (IVIG) that ultimately brought her out of the crisis. For the past 10 years, she has had her ups and downs, but she has basically been able to function at a pretty good level on 10 mg of prednisone daily and one infusion of IVIG every three to five weeks. She was treated with Imuran for several years without much benefit, and it made her feel sick, so she stopped it. She has not been hospitalized once since her initial hospital stay.

Recently, my daughter’s insurance company issued a denial of IVIG. Her doctor conducted a peer-to-peer review that resulted in a partial denial to allow for infusions for three more months, at which time the infusions will stop. The denial states that IVIG treatment is not medically necessary. The denial letter cited a recent review article in *Muscle Nerve* (2010; 41;370-4) that said of all standard treatments, IVIG is the least favorable. Instead, the best clinical response is to corticosteroids and plasmapheresis. My daughter was not able to tolerate plasmapheresis because she faints and the results only lasted for two weeks; it also is more invasive and risky and most costly. Is there anything we can do other than appealing to the state?

**Michelle:** It’s not that IVIG is not the best treatment for MG; it’s that there is no literature supporting the use of IVIG as a long-term/maintenance treatment of MG. The literature currently supports only the use of IVIG for MG exacerbations. Since your daughter has never been without IVIG for 10 years, it’s hard to know if she might actually be OK if she went off of it and just stayed on prednisone; most MG patients are. However, if your daughter’s doctor believes she absolutely cannot be without IVIG, payer policies generally state that IVIG is covered for exacerbation or if standard treatments have been tried and failed or not tolerated. You said she was sick on Imuran and plasmapheresis didn’t work, and long-term high-dose steroids have negative side effects and are not a reasonable option. Your daughter’s physician probably covered this in the peer-to-peer, but I would make sure he or she did. I would also contact your local MG foundation chapter to see if they have had a similar scenario and might offer some assistance.

MICHELLE GREER, RN, is the vice president of sales for NuFACTOR, the specialty pharmacy for FFF Enterprises Inc.
Teen Talk!

By Nicholas Wendt

Indebted to the Doctor Who Saved My Life

MY MOTHER put her head into her hands as the doctor spoke to her in hushed tones. “Not my son!” she thought. At first, all the people who knew about it wished my mom and our family the best of luck, but as time went by, even those closest to us shaded their well wishes with a hint of doubt. Most of them couldn’t imagine the journey my family, my doctors and I were about to embark on: I was born with severe combined immune deficiency (SCID). Also known as bubble boy disease, SCID left my infant body ravaged by even the slightest viral presence. This condition is something that will burden me for the remainder of my life, but my salvation was Dr. Rebecca Buckley.

Older even in my youth, Dr. Buckley is a dedicated expert who always has a bright smile gracing her appearance and a Southern accent on her words. She cares profoundly about every person who comes into her office, and thousands more around the world have had their lives touched by her skilled hands. I honestly don’t remember the first time we met, but that’s because I was quite young. I’m sure, had I been older, she would have had the same effect on me and more as she did when I met her again later in life. Bugging my mother relentlessly for answers about this mysterious black cloud that seemed to hang over me for much of my young childhood, she ultimately presented me with the story of how my guardian angel came into my life and, quite realistically, saved it.

Sniffling and misty-eyed, my mother regaled me with her simultaneously heart-warming and heart-wrenching tale: As the doctors at Long Island Jewish Hospital gravely told her there was a significant chance I would not make it past 2 years of age, a kindhearted doctor, whom we later became very close with, whispered knowingly: “If it were my son, I would take him to Duke under the care of Dr. Buckley.” This Dr. Lagabo gave my mother, and in turn, myself, what was the greatest advice either of us had ever received. So down we went, to the heat and humidity of North Carolina to Duke University, to meet Dr. Buckley.

Promptly after we arrived, Dr. Buckley and her associates arranged for an urgent bone marrow transplant for me. A bone marrow transplant is quite dangerous for the donor, who was my mother, but a rather painless intravenous drip for the “lucky” recipient, and I won the prize. With dexterous and wise hands, Dr. Buckley saved my life completely, and did her absolute best to make my mother’s beautiful sacrifice as painless as possible. My family and I will forever be in the debt of this amazing and inspiring woman. And, even though I do not get to see her as often as I would like, my family still keeps in email contact with her, and she rightfully has the final say on most of my serious medical conditions.

This story has a very happy ending. Today, I am a rather rakish young man of 16, and every day, I dedicate a thought or two to the kind, brilliant Southern belle who saved my life and my family’s livelihood for decades to come. I will always be completely in her debt, and I will always have a very special place in my heart for the newest inductee to the National Board of Sciences (congratulations!). Thank you so much, Dr. Buckley. I honestly and sincerely promise that I will make the absolute most out of my life in order to honor the gift that you and my mother worked so hard to provide for me.

NICHOLAS WENDT is a 16-year-old SCID patient who has overcome numerous challenges. With a goal of attending the Fashion Institute of Technology in New York, this ambitious teen lives by a simple philosophy: Never give up, and maintain a positive attitude — no matter what.
LifeStyle

Let’s Talk!

By Trudie Mitschang

Nicholas Wendt was born with severe combined immunodeficiency (SCID), also known as “bubble boy disease.” The disease left his infant body ravaged by even the most benign viruses, and eventually led to the need for a bone marrow transplant, which was provided by his mother, Joanie. Today, Nicholas is an ambitious and active 16-year-old with a goal of attending the Fashion Institute of Technology in New York. The outgoing teen lives by a simple philosophy: Never give up, and maintain a positive attitude — no matter what.

Trudie: How old were you when you were diagnosed with SCID?
Nicholas: I was an infant, and as my mother tells the story, the doctors at Long Island Jewish Hospital told her that there was a significant chance that I would not make it past 2 years of age.

Trudie: When did your parents learn you would need a bone marrow transplant to survive?
Nicholas: After a six-week hospital stay in New York, my parents were told I needed a bone marrow transplant. At the suggestion of one of the doctors, they took me to Duke University Medical Center in North Carolina, where we met Dr. Rebecca Buckley, a woman whom I credit with saving my life; I frequently refer to her as my guardian angel. After extensive testing at Duke, it was determined my mom was the best match as a bone marrow donor, but it was a procedure that would put her life at risk. Obviously, I’m very thankful for her sacrifice.

Trudie: Growing up, how did you manage your illness, and how did it affect your social life?
Nicholas: I’ve always had a lot of health issues, and I get sick and lethargic a lot, which is challenging. Luckily for me, I tend to be very

Living with a chronic disease has taught me to live every day to the fullest.

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Trudie: Growing up, how did you manage your illness, and how did it affect your social life?
personable, and as a result, being chronically ill has not had an adverse effect on my social life. I don’t really feel like I’ve missed out on anything, and in some ways, I consider myself lucky. Let’s be honest, missing school is not a bad thing to a teenager!

**Trudie:** How is your illness managed?

**Nicholas:** I have intravenous immune globulin (IVIG) infusions at home with a nurse twice a month. Each infusion takes about an hour and a half. I don’t have a lot of side effects, but at the end of the month before it’s time for my next infusion, I do get pretty worn down. I’ve already made the decision to switch to subcutaneous (SCIG) infusions when I go to college and feel more confident about managing my own healthcare.

**Trudie:** What has your disease taught you?

**Nicholas:** Living with a chronic disease has taught me to live every day to the fullest. I know that sounds cliché, but I’ve been critically ill so frequently that I’ve learned to just live my life day by day. That doesn’t mean I don’t have long-term goals, though. I have a fashion portfolio, I’m co-president of my extracurricular fashion club, and I consider myself very ambitious. My goal is to attend the Fashion Institute of Technology in New York, so I guess I’ve set my sights pretty high.

**Trudie:** In your experience, what are the biggest misconceptions about SCID?

**Nicholas:** There is a lot of misinformation and ignorance about immune disease, and the most common question I get is whether I have HIV or AIDS. I try to laugh it off and not react defensively. I try to educate people about SCID whenever possible.

**Trudie:** We heard about your story because your father sent us a copy of an essay you wrote about living with chronic illness. Tell us about that.

**Nicholas:** My English teacher asked us to draft a college essay about a person who made a difference in our life. I wrote about Dr. Buckley because I will always be completely in her debt. As I said in my essay, I have made a sincere vow to make the absolute most out of my life in order to honor the gift that she and my mother worked so hard to provide for me.

**Trudie:** What advice do you have for other teens living with chronic illness?

**Nicholas:** I think everything happens for a reason, and every card you’re dealt offers another way to play that hand in your life. If you get knocked down, try to learn something and make it better. And, I really believe it’s important to maintain a positive attitude, no matter what.

**Trudie:** How do you maintain a positive attitude?

**Nicholas:** I refuse to feel sorry for myself. I also do a fair amount of charity work; I had the opportunity to volunteer to help victims of Hurricane Sandy and Hurricane Irene. A friend who had their house destroyed actually lived with us for a while. Things like that are very rewarding and help you get your mind off of your own problems.

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

If your life depends on immune globulin and you have a unique experience to share, we want to feature you in this column! Email us at editor@IGLiving.com.

See Nicholas’ Teen Talk column on page 31.
LIFE GIVES LEMONS. My apologies to those with a particular affinity for that fruit. But, that is the saying after all. During my senior year of high school, life gave me a ton of lemons. Like most teens, the last thing I wanted was any unnecessary attention brought to me. But with a chronic health condition and feeling somewhat awkward with red hair, a highly unusual fashion sense and being two years younger than my classmates, I was not succeeding in blending in by any means. Even so, I was very happy with myself and excited that I had recently been cast in a rather large role in a citywide musical. That’s when I got another lemon, and I knew something was going wrong.

During a rehearsal for the musical, I fell. I didn’t just trip; my legs gave out. After it happened a few more times, I called my mom and then immediately my immunologist. Over the weekend, my parents noticed I was having difficulty picking up my feet, and my foot was slapping as I walked. Yet, I was adamant that I would still participate in my school’s choir concert, despite concern about the risers, which were a potential fall hazard. That was my last normal day for a while.

The next day, I woke up feeling weak. I had recently gotten my intravenous immune globulin (IVIG) infusion, which sometimes leaves me exhausted for a few days. Combine that with a dual Epstein-Barr virus and cytomegalovirus infections, and my parents felt I needed to stay home for the day. I fell back asleep for a few more hours, and when I woke up, my legs no longer worked. They couldn’t hold my weight, and I couldn’t get them to move forward. My doctors had a pretty good idea of what was going on: Guillain-Barré syndrome.

Fortunately for me, the IVIG infusion I had recently received had minimized the progression. My legs were hit the hardest, and I had to learn how to walk all over again. I learned to walk once, so I thought: “How difficult could it be?” At the time, I didn’t realize how long of a process and how intensive the physical therapy would be. But, I had to understand that the fervor to rehabilitate as quickly as possible could not only potentially be impossible, but could lead to setbacks in my recuperation process. Patience was key.

During my hospital stay, the doctors told me that I would be an inpatient for a very long time. I told them that their time frame was impossible; I was following my own timeline, because I had a lead role in a musical in the upcoming weeks. In the end, I was right. Nothing felt better than being able to participate in the musical, even if my character mysteriously needed to sit in a chair at all times.

I wasn’t able to return to school for quite some time, because my old school building wasn’t yet accessible for my situation. When I did return, I knew others would stare because not many teenagers use walkers. Not wanting to feel geriatric using a mass of ugly metal that painfully reminded me I wasn’t normal, I sent my mom out for colored twine and beaded door curtains. I decorated my walker so that it shimmered and jangled as I walked. I also found an image online of a sign that said “slow moving person,” which I printed out and taped to the side of my walker. I didn’t need sympathy; I needed camaraderie, and I wanted to secure this with my usual sense of humor.

I don’t let life’s lemons stop me. I never want to look at a moment in my life and feel like something bad happened to me, as if I were a casual observer and not an active participant. We can never get time back, so I don’t want to waste a moment. I’ll continue looking for the silver lining in all the lemons because I know it’s there.

SAMI JANKINS has an autoimmune clotting disorder and runs a small non-profit that provides access to the arts for chronically ill children. She is the co-chair of the National Youth Leadership Institute for the National Hemophilia Foundation, and has served on the teen council for the Immune Deficiency Foundation.

Patients who rely on IG therapy have unique life experiences. If you have a story you’d like to share about your adventures, experiences, relationships, reminiscences, self-portrayals, etc., for publication in this column, submit it to editor@igliving.com. All submissions must be 600 words or fewer and can be accompanied by high-resolution photos.
Get Living!
By Stacy Oliver

WHILE I WAS out to dinner with my husband recently, a toddler at the table next to us had a total meltdown. It was epic; there was weeping, gnashing, screaming, full-body rolling and kicking on the floor, and screams that would make a banshee proud. And all I could think was: “I’m so jealous! I wish I could do that.” Seriously. To be that free to let go would be cathartic. Come on, after a long day of doctor appointments, the millionth vial of blood drawn and then finishing up just in time to hit rush-hour traffic — it makes me want to unleash my inner 2-year-old full throttle.

I am beyond grateful that intravenous immune globulin (IVIG) was discovered and helps relieve the symptoms of my multifocal motor neuropathy. But, at the same time, I do get weary of the infusions. Let’s face it, people: We are under some serious stress — not only our bodies, but also our minds! So since we can’t throw ourselves on the floor and have a tantrum (though it would be fun to do that sometime around my neurologist and see her reaction), it’s time to get creative and get that angst out.

To all my fellow IVIG users and caretakers (I can’t forget about you and all you deal with), here are some ideas to help “let go and let flow”:

1. Sing at the top of your lungs in the car, at home or wherever you please. Oh yes! Let your inner rock star out, and belt it. I guarantee the person in the car next to you watching will be jealous they aren’t doing the same thing.

2. Get a pet! We got a dog a year ago, and I can’t tell you how entertaining and loving she is and how she gets the focus off me and on to her. Have allergies? Get a hermit crab or pet rock, but get a pet. You can talk and act as silly as you like, and people will actually think you’re adorable (or nuts, but personally I don’t care what folks think).

3. Be a tourist in your own town. Find places you’ve never been to, and go exploring. Get out of the house.

4. Dress up! In a culture that has people walking around in what looks like pajamas and underwear, be the exception. Oscar Wilde once said: “You can never be overdressed or overeducated.” Be the swanky person on the street who turns heads and has others wondering what film they’ve seen you in.

5. Finally, feel your surroundings. Stand with your arms outstretched as the wind rushes around you, or jump around the room as you re-enact the scenes from your favorite fight scenes in an action movie. Live!

Living is what IVIG lets us do. We might have some diminished capacities and not function as fully as we used to, but we are here. If you are a caregiver to someone who is treated with IVIG, you also need to rediscover the aliveness within you. One afternoon of pretending you’re a mermaid while taking a bath or winning the Tour de France while bike riding can do wonders for one’s psyche.

All of us spend enough time being seriously focused on what we have or have to do. So let’s try to remember to give ourselves a break and let go. Now excuse me, I’m off to play on a submarine at the Museum of Science and Industry, and then have a picnic with some butterflies in the park.

STACY OLIVER was diagnosed in 2008 with multifocal motor neuropathy (MMN). She is the assistant director of the Center for the Writing Arts at Northwestern University, a jewelry and accessory artist (www.dancingstones jewelry.com), and she is working on her secret super hero identity as Neuropathy Girl.
Paybacks…

By Cheryl L. Haggard

IN MY PAST few columns, I’ve had a lot of fun at others’ expense. It is so easy to get good material from the medical community; I just can’t help myself! I suppose as frequent fliers at hospitals, emergency rooms, surgery centers, infusion suites and various medical offices, the potential for print-worthy goodness reigns. All I do is saunter into a hospital, observe and then watch human nature do its thing! I may not be able to fix stupid, but I sure can write about it! I recently had shoulder surgery, and my physical therapist, who shall remain nameless per his request, asked me how to keep from being written about in IG Living.

“It’s simple,” I responded, wincing in pain as he stretched out the unstretchable. “Just don’t do anything stupid or foolish, or say anything remotely lame-brained!”

“So, why are you off limits?” he asked, pushing my arm into what felt like my neck.

“Hmm, good question,” I responded after a pregnant pause. “I suppose it’s because I’m not the one doing something stupid or foolish, or saying something remotely lame-brained.”

Until recently.

“So, you’ll have him all Emla’ed up, right? I wanna get started at exactly 2:30,” our beloved homecare nurse, Nancy, instructed. We were switching our 13-year-old primary immune deficiency disease (PIDD) kid Caleb’s intravenous immune globulin (IVIG) infusion from the wee hours of the morning to early afternoon.

“Yup!”

“In order for this to work, you gotta be on time, Cheryl,” Nancy continued, reminding me of my terrible habit.

“No problemo,” I said with gusto in my best Spanglish.

I double-checked my purse, making sure I brought Caleb’s Emla cream and announced to our eldest PIDD kid, “Hey, Calvin! Let’s go! You all ready for rugby practice?” I hollered upstairs. “I don’t wanna be late for Nurse Nancy!”

Calvin bounded down the stairs, cleats, inhaler and first-aid kit in hand. In order to get Calvin “back” for joining the rugby team (aren’t my kids’ bodies tortured enough?), I decided to tell him a story my name-withheld physical therapist recently shared with me.

“So Calvin, I have to tell you something I heard the other day,” I began, snapping in my seatbelt. “OK. Go ahead, I guess,” Calvin agreed with teenage tentativeness.

“Just make sure you pay attention to your driving, because Nancy told me to keep you on time so Caleb’s IVIG doesn’t go past midnight,” Calvin scolded. I shot my eldest a look that read: “Don’t you take umbrage with the person who puts you back together after rugby practice, young man.” My dramatic Housewife of Beverly Hills hair flip and lipstick pucker didn’t scare Calvin one bit as I emulated a heat packin’, four wheelin’, Elk huntin’ and camo-wearin’ Idaho woman.

“So, (insert name-withheld physical therapist here) told me that a buddy of his and his wife were driving down Highway 44 following an ambulance. They came to the stoplight, and they noticed the back door of the ambulance appeared loose.”

“Go on,” Calvin said with cautious intrigue.

“As they began to accelerate, the back door of the ambulance jarred loose when they hit a bump in the road, causing the door to swing completely open!” I looked at my teenager who was completely fixed on every word I uttered.

“So Calvin, I have to tell you something I heard the other day,” I began, snapping in my seatbelt. “OK. Go ahead, I guess,” Calvin agreed with teenage tentativeness.

“Just make sure you pay attention to your driving, because Nancy told me to keep you on time so Caleb’s IVIG doesn’t go past midnight,” Calvin scolded. I shot my eldest a look that read: “Don’t you take umbrage
highway. They decided to pull over just to make sure there wasn’t something very important in the ice chest.”

“Like a body part or something?” Calvin interrupted.

“Exactly,” I confirmed. “The ambulance was long gone by now, so they decided to inspect the ice chest even though it didn’t seem worse for wear. Then, they decided to open it and, sure enough, inside the ice chest was a human toe.”

“Noooo way!” Calvin exclaimed with groovy delight.

“The wife asked her husband: ‘So, what do we do? Do we call the hospital or 911?’”

“I’ll call 911,” the husband said.

“The dispatcher asked what the toe looked like and if it looked fresh, etc.”

“Now we’re talkin’!” Calvin added.

“The husband asked, ‘What do you want us to do with the ice chest?’”

“You are not going to believe what the dispatcher told them to do,” I said.

“Don’t keep me hangin’, Mom,” Calvin begged.

“The dispatcher said, ‘Well, have you thought of calling a tow truck?’”

“You could cut the tension in our SUV with a knife.

“Get it? A TOW truck?” I laughed.

“Yeah, yeah, I get it, Mom. Just go get Caleb so I can get to practice,” Calvin demanded with great disappointment.

In less than five minutes, I dropped off a rather despondent rugby player and then quickly made my way through the neighborhood that led to Caleb’s middle school. I was making excellent time and rather enjoying a change in “scenery” as Caleb’s attitude was, without a doubt, cheery as he was spared the last class period of the day due to his infusion.

Caleb and I were catching up on his day at school when a very large cattle truck on the opposite side of the country road we were travelling on sped toward us. In order to avoid a collision — or even worse — rock pellets hitting my windshield, I decided to pull over.

“He was clipping along pretty good, don’t you think?” I looked over at Caleb to catch his reaction and his side of the SUV seemed to be, well, sinking. “Let me throw this into reverse and see if we can jimmy outta here,” I told my freaked-out 13-year-old. A couple of jimmys later, I had managed to plant the right side of my car into Farmer John’s freshly plow ed field. We were so deep, Caleb couldn’t open his door.

“Whadda we do now, Mom?” Caleb questioned as I fiddled with the hazard lights. Not more than five minutes later, a nice farmhand-type pulled over and asked if we needed any help. I figured he’d know what to do because his hands were stained with diesel fuel. Mine were stained with Emla cream as I decided to make good use of my time waiting for some nice Idahoan to stop and help. As Mr. Nice Farmhand Guy made miracles happen with a hemi engine, heavy-duty chain and about 10 gallons of diesel fuel needed to pull our SUV out of my jimmy-created nightmare, I decided to call Nurse Nancy and let her know we’d be a few minutes late. Of course, she wasn’t happy, but she was glad we weren’t, well, still stuck in a ditch somewhere.

Once everybody got home safely and Nurse Nancy got Caleb’s IVIG infusing, we sat down for a family powwow.

“So, maybe we’d better go back to early-morning infusions,” Nancy suggested.

“Sure sounds good to me!” I agreed.

“Yeah, fewer opportunities for something to go wrong,” Caleb added, staring my way.

“What’s that supposed to mean?” I countered.

“I have to be honest, Sweetie,” Mark chimed in. “Calvin told me all about what happened this afternoon with the SUV and the ambulance and all.”

I couldn’t help but look over at Calvin, who was trying to hold an eruption of belly laughter from over-flowing.

“Hun, I just gotta ask you: If you knew you were keeping Nancy waiting, and you weren’t going to be able to ‘jimmy’ or whatever you call it out of the ditch, why didn’t you just call a tow truck to rescue you?” Mark smiled.

That’s all it took: The whole place erupted in laughter. The best part for my family is they finally “got” me, and, yes, I promised to print the story. There is only one catch: Do you think my to-remain-nameless physical therapist is going to mind me outing him?

CHERYL L. HAGGARD is a stay-at-home mom and has three children, two of whom have CVID. She and her husband, Mark, also operate Under the Hood Ministries at www.underthehoodministries.org.
Parenting: Preparing Children for an IV Needle Insertion

Needle insertions do hurt and children are fearful of them, but parents can help to ease their children’s pain and fear.

By Mark T. Haggard

I REMEMBER THE days: taking a day off from work, driving the 50 miles to Children’s Hospital of Central California, ushering my 4-year-old into the ambulatory infusion clinic, and then watching the nurse try to insert an IV needle for his intravenous immune globulin (IVIG) therapy. It was sheer terror for my son. Prior to the IV setup, my son would tense up and hide his arms. I tried to reassure him that everything was going to be fine and that the needle wouldn’t hurt, but that didn’t help. Instead, he continued to fight and hide his arms. He had a long history with blood draws and immunizations, so he knew the pain of a needle insertion.

Eventually, my only choice was to subdue him. The ensuing wrestling matches often lasted as long as 30 minutes. It’s amazing how strong a 4-year-old can be when faced with a needle insertion. My plan to help the nursing staff didn’t help them much; attempting to insert a needle in my son was like trying to hit a moving target. I often was told the absolute worst news a parent in this situation wants to hear: “I missed the vein; I gotta try again.” Round two. When my son was finally accessed, and I could catch my breath and wipe the sweat off of my brow, I remember thinking: “There has to be a better way of doing this!”

When my daughter was prescribed IVIG for her immune deficiency at age 2, I was horrified at the thought and shaking my head, I always thought to myself: “There has to be a better way of doing this!”

The most important approach to preparing young kids for the “poke” of their first infusion is to be honest with them.

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been pushed from his memory, but they remain seared into my brain.

Helping the Needle Insertion: Honesty and Education

According to Nancy Chaney, a home infusion specialist for St. Luke’s Home Health in Boise, Idaho, the most important approach to preparing young kids for the “poke” of their first infusion is to be honest with them. “Kids know when you’re lying to them,” she explains. “Don’t tell them it won’t hurt, because it does.” Although the truth may cause some worry for children, lying causes mistrust between children and their parents. And, when children cannot trust their parents, a bad precedence is established. “Saying that shots don’t hurt is not a good idea, because shots do hurt,” says Howard Bennett, MD, a professor of pediatrics at George Washington University School of Medicine and the author of Lions Aren’t Scared of Shots. “A better response is something like: ‘It may hurt, but I’ll be here with you, and if it does hurt, the pain will only last a little while.’”

Lindsay Uman, PhD, a clinical psychologist at IWK Health Centre in Halifax, Nova Scotia, and a pediatric needle pain researcher, makes an interesting observation: “Many studies show that parental reassurance (saying ‘It’s OK’ or ‘Don’t worry’) is likely to increase a child’s distress, [possibly because] it tells the child there’s something to worry about.” She further notes that since young children take their cue from their parents, the attitude and appearance of a parent is more important than they realize. If kids see their parents grimace or tense up, they are likely to become anxious as well. “Parental behavior … has been shown repeatedly to be a key factor in determining the amount of pain and anxiety a child will experience.”

It is not knowledge, but the unknown, that causes IV injection pain. Therefore, educating children, rather than leaving them in the dark, makes a needle insertion easier on them. “At home, parents can read books to their kids about visiting the doctor and encourage them to play doctor,” suggests Dr. Bennett. “Sometimes kids who bring stuffed animals to appointments like giving them pretend shots before the doctor applied early enough to take effect. Having children drink a lot of water can make accessing their veins less painful. And, giving children something that provides them psychological comfort during the procedure can help. For my son, it was his stuffed golden retriever named “Josh” (which he still has). For my daughter, it was her pink blanket (which she has in pieces).

Another strategy is distraction. Dr. Uman’s research shows that distraction reduces pain and anxiety associated with needles. (Dentists have known this for a long time; watching ESPN Classic took the sting out of my last root canal.) How you distract children depends on their age. According to Dr. Bennett, “Babies and toddlers can be distracted with singing, stories or playing with a small toy. Older children respond well to watching videos or listening to stories or music. Parents can also use cell phones to show movies or photographs to their kids during painful procedures.”

Many pediatricians’ offices reward patients with stickers or lollipops after a shot or an immunization. “It’s a way that the doctor says, ‘Thanks for being cooperative,’ and, ‘I’m sorry for doing something unpleasant,’” says Dr. Bennett. And you don’t need to rely on the doctor for rewards; praising your children for being brave

The physical pain of an injection can be tempered by providing children some additional comfort.

Other Strategies: Comfort, Distraction and Rewards

The physical pain of an injection can be tempered by providing children some additional comfort. For instance, pain can be suppressed with a numbing cream like Emla (although it must be out of my last root canal.) How you distract children depends on their age. According to Dr. Bennett, “Babies and toddlers can be distracted with singing, stories or playing with a small toy. Older children respond well to watching videos or listening to stories or music. Parents can also use cell phones to show movies or photographs to their kids during painful procedures.”

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is often sufficient. My son was rewarded with a hamburger on the way back from Children’s Hospital.

**Passing the Time**

Once an IV has been placed and your child is infusing, how is it best to pass the hours? With my son, the combination of Tylenol and the wrestling match usually put him to sleep for an hour. When he woke up, I would pull him around Children’s Hospital in a Radio Flyer wagon that the hospital provided. Upon our return to the infusion center, we would have lunch and settle in with a good movie. Chaney suggests that activities during an infusion ought to be age-appropriate. She taught one of her middle school patients to play cards, adding, “He’s quite the card shark now.” And, she infuses one of her patients at school, which gives him ample time in the nurse’s cubicle to catch up on homework.

Focus on doing those things that bring the greatest comfort for your child. But, keep in mind that your child still has a needle in his or her arm. Climbing the structures on the playground is certainly not recommended, but getting some fresh air can be.

**Even Though It’s for Their Own Good**

Ultimately, it’s the needle insertion that causes the most pain for children getting their first IVIG infusion. It flies in the face of logic to try to gain the cooperation of our children when faced by a strange person with a needle. And, saying “It’s for your own good” doesn’t help. I suppose the saving grace is that those moments of terror are likely to be blotted out of the minds of our kids with time. Best of all for me, despite what my son and daughter have had to endure at the hands of their father, they still love me.

**MARK T. HAGGARD** is a high school teacher and football coach, and has three children, two of whom have CVID. He and his wife, Cheryl, also operate Under the Hood Ministries at www.underthehoodministries.org.

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USA MADE
Caring for an Infusion Port

By Carla Schick

FOR SOME PATIENTS whose veins are difficult to access, the implantation of an infusion port to receive immune globulin (IG) therapy may be a viable option. The port enables the attending healthcare provider or caregiver to infuse intravenous IG (IVIG) more easily with fewer needle insertions, while providing greater comfort to the patient. Yet, while ports can be a more convenient way to administer treatments, they increase the risk of medical device-related infection if they are not properly maintained.

Experts say that care and maintenance of an infusion port is vital to prevent malfunctions, blood clots and other negative side effects. There are many ways to care for a port, depending on the manufacturer’s and the healthcare provider’s recommendations. As Amy Ehlers, director of pharmacy at NuFACTOR Specialty Pharmacy, explains: “Port maintenance really depends on several variables such as the type of port, the preference of the physician who placed the port and the patients themselves (for instance, their infusion frequency, history of clotting, etc.).”

Flush an Infusion Port

An essential aspect of port maintenance is ensuring that the port is flushed frequently, anywhere from daily to once a week or once a month, depending on how often the port is accessed. “If a port is not in use, it should be flushed every four weeks to maintain its patency,” says Nancy Creadon, RN, vice president of VaxAmerica, a subsidiary of NuFACTOR. “However, all ports need to be flushed with saline before starting infusions and flushed again after use with saline, and sometimes heparin, depending on the brand.”

When preparing to flush a patient’s port, caregivers are advised to use a syringe that is 10 mL or larger unless otherwise directed. If a smaller syringe is used, the pressure produced by a narrower gauge could cause the catheter to burst, resulting in pain and swelling at the port site. Healthcare professionals suggest the “push-and-pause” flushing method to cleanse the inside of the catheter. This involves pushing a little solution in, then pausing for one to two seconds, then pushing a little more, pausing and so on.

Lowering the Infection Risk

Because of their impaired immunity, IG patients are more cognizant than most regarding the need to take good, consistent care of their infusion ports. If proper care is not taken, a potentially life-threatening bacterial infection could develop in the device and travel to the bloodstream, causing a central line-associated bloodstream infection. According to the Centers for Disease Control and Prevention, the best way to prevent the spread of pathogens is hand washing for at least 20 seconds with antibacterial hand soap before and after an infusion, whenever the attending caregiver enters and leaves the room, and before and after food preparation. If soap and warm water are not available, alcohol-based hand sanitizer that contains at least 60 percent isopropyl alcohol should be used.

In addition to thorough hand washing, it is important to use sterile techniques when accessing and de-accessing the port to reduce the threat of infection. Work surfaces should be cleansed with antibacterial solution, after which infusion supplies can be placed on a clean towel in order of use. Prior to accessing the device, the port needle and tubing should be prepared and sanitized with a chlorhexidine wipe, and the skin on and around the port site should be disinfected with an antiseptic such as ChloraPrep for 30 seconds, and allowed to dry for approximately 60 to 90 seconds.

When de-accessing the port, it should be flushed with either saline or heparin using the “push-and-pause” method to cleanse the catheter and prevent blood clots. After the infusion is complete, the attending caregiver should place the used needle, tubing and all other blood-soiled items into a sharps container for proper disposal.

Port Success

The strong advantage of infusion ports is that they take the guesswork out of locating hard-to-access veins for those requiring frequent infusions. Because ports come with the elevated risk of blood infection, being vigilant about sterile setup, hygienic care and proper maintenance of the port are paramount for patients to avoid infections and other negative side effects.

CARLA SCHICK is a staff writer for IG Living magazine.

References


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RonWear Port-able Clothing
RonWear is treatment clothing that provides comfort, style and easy access to ports during an infusion. The jacket has four zippered port openings in the chest and arms, a full-length zipper down the front to make it easier to put on and take off, and an integrated media pocket. The dual-tab zippers along the jacket and pants can be opened or closed exactly where the ports are located to provide optimal comfort and coverage. Port-able pants have elastic waistbands and drawstrings. An antimicrobial fabric finish helps prevent odors and inhibits the spread of bacteria. Both also feature a special stain-release fabric treatment that helps repel stains for easy cleaning.
(800) 513-1458, www.ronwear.com

EMLA Local Anesthetic Cream
EMLA cream is a local dermal anesthetic that begins numbing the site of an injection within 15 minutes of application. Made from equal parts lidocaine and prilocaine, it acts as a numbing agent by blocking nerve signals when applied to specific areas of the body prior to injection.
emlacreams.com

BD PosiFlush Pre-Filled Saline and Heparin Syringes
BD prefilled saline and heparin syringes are designed to flush the catheter to maintain its efficacy and reduce the risk of blood clots. The PosiFlush pre-filled saline syringe is available in 3 mL, 5 mL and 10 mL sizes, all three of which comply with PICC manufacturer flushing recommendations for 10 mL-diameter syringes. The PosiFlush heparin lock syringe is available in two concentrations: 10 USP units per mL and 100 USP units per mL. The heparin syringe comes in 3 mL, 5 mL and 10 mL syringe diameters and 3 mL, 5 mL and 6 mL fill volumes. Both the saline and heparin syringes come with clear labeling and a barcode on each syringe to reduce potential medication errors.
(800) 847-6800, www.bd.com/posiflush

Port-A-Cath Gripper Needle
The Port-A-Cath Gripper is a non-coring, non-siliconized needle that offers a cushioned, low-profile needle platform for greater patient comfort, needle stabilization and access site protection. The removable contoured grip allows for controlled needle placement. The Gripper needle features a luer-lock Y-site for use with needleless devices and a fully threaded luer lock that is designed to minimize leaking and disconnection. It is made of natural rubber and is latex-free to reduce potential allergic reactions. It comes with color-coded clamps for needle gauge identification, and is available in 19 gauge, 20 gauge and 22 gauge sizes and ¾-inch, 1-inch and 1¼-inch lengths.

Bard Port Access EZ Huber Needle
The EZ Huber Safety Infusion Set features a lower insertion force and padded footprint needle designed for patient comfort. The set has an integrated Bio-Bag that is intended to minimize the clinician’s contact with blood and fluids, and it has both visual and audible safety activation confirmation. Available gauge sizes include 19, 20 and 22. The 19-gauge set is available in ¾-inch, 1-inch and 1½-inch lengths. The 20-gauge set comes in ½-inch, ¾-inch, 1-inch and 1½-inch lengths. And, the 22-gauge set is available in ½-inch, ¾-inch, 1-inch and 1½-inch lengths.
(800) 545-0890, www.bardaccess.com/infusion-ez-huber.php?section=Overview
Sources

These organizations provide information about various disease states, which can be found by conducting a search of the disease state name.

- Advocacy for Patients with Chronic Illness: www.advocacyforpatients.org
- The Alliance for Biotherapeutics (fair access to plasma therapies): www.bioalliance.org
- American Autoimmune Related Diseases Association (AARDA): www.aarda.org
- American Chronic Pain Association (ACPA): www.theacpa.org
- Band-Aides and Blackboards: www.lehman.cuny.edu/faculty/jfleitas/bandaides
- eMedicine from WebMD: emedicine.medscape.com
- FamilyDoctor.org: www.familydoctor.org
- Johns Hopkins Medicine: www.hopkinsmedicine.org
- KeepKidsHealthy.com (pediatrician’s guide to children health and safety): www.keepkidshealthy.com
- Mayo Clinic: www.mayoclinic.com
- National Committee for Quality Assurance (detailed report cards on health plans, clinical performance, member satisfaction and access to care): www.ncqa.org
- National Heart, Lung and Blood Institute: www.nhlbi.nih.gov/health/health-topics/by-alpha
- National Institutes of Health: health.nih.gov/see-all-topics.aspx
- National Organization for Rare Disorders (disease-specific support groups and virtual communities for patients and caregivers): www.rarediseases.org
- Office of Rare Diseases Research: rarediseases.info.nih.gov
- Patient Advocate Foundation (patient access to care, maintenance of employment and financial stability): www.patientadvocate.org
- WebMD (medical reference): www.webmd.com

IG MANUFACTURER WEBSITES

- Baxter: www.baxter.com
- Bio Products Laboratory: www.gammaflex.com
- CSL Behring: www.cslbehring.com
- Grifols: www.grifolsusa.com
- Kedrion: www.kedrionusa.com
- Octapharma: www.octapharma.com

For a more comprehensive list of resources, visit the Resources page at www.IGLiving.com.

General Resources

Disease-State Resources

Ataxia Telangiectasia (A-T)

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

Chronic Inflamatory Demyelinating Polyneuropathy (CIDP)

WEBSITES
- GBS/CIDP Foundation International: www.gbs-cidp.org
- The Neuropathy Association: www.neuropathy.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 Neuropathy Association: www.neuropathy.org

ONLINE PEER SUPPORT
- GBS Support Group: www.gbs.org.uk
- GBS/CIDP Foundation International Discussion Forums: www.gbs-cidp.org/forums

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#.T1T2boePWEO
- Kawasaki Disease Foundation: www.kdfoundation.org

Mitochondrial Disease

WEBSITES
- United Mitochondrial Disease Foundation: www.umdf.org
- MitoAction: www.mitoaction.org
**Multifocal Motor Neuropathy (MMN)**

**WEBSITES**
- Neuromuscular Disease Center at Washington University: neuromuscular.wustl.edu
- The Neuropathy Association: www.neuropathy.org

**Multiple Sclerosis (MS)**

**WEBSITES**
- All About Multiple Sclerosis: www.mult-sclerosis.org/index.html
- Multiple Sclerosis Association of America: www.msaa.com
- National Multiple Sclerosis Society: www.nationalmsociety.org

**ONLINE PEER SUPPORT**
- Friends with MS: www.FriendsWithMS.com
- MSWorld’s Chat and Message Board: www.msworld.org

**Myasthenia Gravis (MG)**

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

**ONLINE PEER SUPPORT**
- Genetic Alliance: www.geneticalliance.org

**Myositis**

**WEBSITES**
- International Myositis Assessment and Clinical Studies Group: www.niehs.nih.gov/research/resources/collab/imacs/main.cfm

**Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcus (PANDAS)**

**WEBSITES**
- P.A.N.D.A.S. Network: pandasnetwork.org

**Pemphigus and Pemphigoid**

**WEBSITES**
- The International Pemphigus and Pemphigoid Foundation: www.pemphigus.org

**Peripheral Neuropathy (PN)**

**WEBSITES**
- Neuropathy Action Foundation: www.neuropathyaction.org
- Calgary Neuropathy Association: www.calgaryneuropathy.com
- Texas Chapter of the Neuropathy Association: www.handsfeetheart.org

**Primary Immune Deficiency Disease (PIDD)**

**WEBSITES**
- The National Institute of Child Health and Human Development (NICHD): www.nichd.nih.gov/health/topics/Primary_Immunodeficiency.cfm
- American Academy of Allergy, Asthma & Immunology: www.aaaai.org
- International Patient Organisation for Primary Immunodeficiencies (IPOPI) — UK: www.ipopi.org
- New England Primary Immunodeficiency Network: www.nepin.org
- Rainbow Allergy-Immunology: www.uhospitals.org/rainbow/services/allergy-immunology
- Team Hope (for families and patients in New England): www.teamhope.info

The mission of The Myositis Association, www.myositis.org, is to find a cure for inflammatory and other related myopathies, while serving those affected by these diseases. (202) 887-0088

The Myositis Foundation
The mission of The Myositis Foundation, www.myositis.org, is to find a cure for inflammatory and other related myopathies, while serving those affected by these diseases. (202) 887-0088

The Neuropathy Association, www.neuropathy.org, is devoted exclusively to all types of neuropathy, which affects upwards of 20 million Americans. The Association’s mission is to increase public awareness of the nature and extent of PN, facilitate information exchanges about the disease, and advocate the need for early intervention and support research into the causes and treatment of neuropathies. (212) 692-0662

The Jeffrey Modell Foundation, www.info4pi.org, is dedicated to early and precise diagnosis, meaningful treatments and, ultimately, cures for primary immunodeficiency. (212) 819-0200

The Immune Deficiency Foundation (IDF), www.primaryimmune.org, is the national patient organization dedicated to improving the diagnosis, treatment and quality of life of persons with primary immunodeficiency diseases through advocacy, education and research. (800) 296-4433
Online Peer Support

- IDF Common Ground: www.idfcommonground.org
- IDF Discussion Forum: http://idffriends.org/forum
- IDF Friends: http://idffriends.org
- Jeffrey Modell Foundation Message Board: www.info4pi.org
- Michigan Immunodeficiency Foundation: www.facebook.com/groups/108048062584350
- Rhode Island peer group: health.groups.yahoo.com/group/RhodeIslandPIDD

Scleroderma

WEBSITES

- Scleroderma Foundation: www.scleroderma.org
- Scleroderma Research Foundation: www.srfcure.org
- Scleroderma Center: www.hopkinsmedicine.org/rheumatology/clinics/scleroderma_center.html

ONLINE PEER SUPPORT

- International Scleroderma Network: www.sclero.org/support/forums/a-to-z.html

Stiff Person Syndrome (SPS)

WEBSITES

- American Autoimmune Related Diseases Association Inc.: www.aarda.org
- Genetic Alliance: www.geneticalliance.org
- Living with Stiff Person Syndrome (personal account): www.livingwithspss.com
- Stiff Person Syndrome: www.stiffpersons syndrome.net

Other Resources

EDUCATION AND DISABILITY RESOURCES

- Americans with Disabilities Act of 1990: www.ada.gov Provides protection for people with disabilities from certain types of discrimination, and requires employers to provide some accommodations of the disability.
- Individuals with Disabilities Education Improvement Act of 2004: idea.ed.gov/explore/home
- National Disability Rights Network: www.ndrn.org This website offers a search tool to find resources in your state to assist with school rights and advocacy.
- Social Security: www.ssa.gov/disability
- U.S. Department of Education Website: www2.ed.gov/parents/landing.html?exp=4 This federal government website offers a parents section titled “My Child’s Special Needs.”

MEDICAL RESEARCH STUDIES

- ClinicalTrials.com: www.clinicaltrials.com This site has a registration form to request that you be notified about recruitment for future studies.
- ClinicalTrials.gov: www.clinicaltrials.gov A registry of federally and privately supported clinical trials conducted in the United States and around the world.

FOOD ALLERGIES

- Allergic Disorders: Promoting Best Practice: www.aaaai.org
- American Partnership for Eosinophilic Disorders: www.apfed.org
- Food Allergy and Anaphylaxis Network: www.foodallergy.org
- World Allergy Organization: www.worldallergy.org

PRODUCT INFORMATION

- Influenza and the influenza vaccine: www.cdc.gov/flu or call (800) CDC-INFO: (800) 232-4636
- IVIG Flebogamma 5% DIF and 10% DIF: www.grifols.com/portal/en/US/bioscience?div=8883

PUMP AND INFUSION SETS WEB SITES

- EMED Technologies: www.emedtc.com
- Marcal Medical Inc.: www.marcalmedical.com
- Intra Pump Infusion Systems: www.intrapump.com
- Micrel Medical Devices: www.micrelmed.com
- Norfolk Medical: www.norfolkmedical.com
- RMS Medical Products: www.rmsmedicalproducts.com
- Smith Medical: www.smiths-medical.com/brands/cadd

Sources

Have something to add to these pages? Please send your suggestions for additions to the IG Living Resource Directory to editor@IGLiving.com.
HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use Octagam, Immune Globulin Intravenous (Human), safely and effectively. See full prescribing information for Octagam.

Octagam® [Immune Globulin Intravenous (Human)]

5% Liquid Preparation

Initial US Approval: 2004

WARNING: ACUTE RENAL DYSFUNCTION and RENAL FAILURE
See full prescribing information for complete boxed warning.

- Renal dysfunction, acute renal failure, osmotic nephrosis, and death may be associated with Immune Globulin Intravenous (Human) (IGIV) products in predisposed patients.

- Renal dysfunction and acute renal failure occur more commonly in patients receiving IGIV products containing sucrose. Octagam 5% liquid does not contain sucrose.

- Administer IGIV products at the minimum concentration available and the minimum infusion rate practicable.

----------------------RECENT MAJOR CHANGES----------------------

Warnings and Precautions – Hyperproteinemia 8/2008

INDICATIONS AND USAGE

- Octagam is an immune globulin intravenous (human), 5% liquid, indicated for treatment of primary humoral immunodeficiency (PI).

DOSAGE AND ADMINISTRATION

Intravenous use only.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Dose</th>
<th>Initial Infusion</th>
<th>Maintenance infusion rate (if tolerated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI</td>
<td>300-600mg/kg</td>
<td>0.5mg/kg/min</td>
<td>3.33mg/kg/min Every 3-4 weeks</td>
</tr>
</tbody>
</table>

- Ensure that patients with pre-existing renal insufficiency are not volume depleted; discontinue Octagam 5% liquid if renal function deteriorates.
- For patients at risk of renal dysfunction or thrombotic events, administer Octagam 5% liquid at the minimum infusion rate practicable.

DOSE FORMS AND STRENGTHS

Octagam 5% liquid is supplied in 1.0g, 2.5g, 5g, 10g, or 25g single use bottles.

CONTRAINDICATIONS

- Anaphylactic or severe systemic reactions to human immunoglobulin.
- Immunoglobulin A (IgA) deficient patients with antibodies against IgA and a history of hypersensitivity.
- Patients with acute hypersensitivity reaction to corn.

WARNINGS AND PRECAUTIONS

- IgA deficient patients with antibodies against IgA are at greater risk of developing severe hypersensitivity and anaphylactic reactions.
- Epinephrine should be available immediately to treat any acute severe hypersensitivity reactions.
- Monitor renal function, including blood urea nitrogen and serum creatinine, and urine output in patients at risk of developing acute renal failure.
- Falsely elevated blood glucose readings may occur during and after the infusion of Octagam 5% liquid with some glucometer and test strip systems.
- Hyperproteinemia, increased serum viscosity and hyponatremia occur in patients receiving IGIV therapy.

- Thrombotic events have occurred in patients receiving IGIV therapy. Monitor patients with known risk factors for thrombotic events; consider baseline assessment of blood viscosity for those at risk of hyperviscosity.
- Aseptic Meningitis Syndrome has been reported with Octagam 5% liquid and other IGIV treatments, especially with high doses or rapid infusion.
- Hemolytic anemia can develop subsequent to IGIV therapy due to enhanced RBC sequestration.
- IGIV recipients should be monitored for pulmonary adverse reactions (TRALI).
- The product is made from human plasma and may contain infection agents, e.g. viruses, and theoretically, the Creutzfeldt-Jakob disease agent.

ADVERSE REACTIONS

The most serious adverse reactions observed with Octagam® 5% liquid treatment have been immediate anaphylactic reactions, aseptic meningitis, and hemolytic anemia.

Most common adverse reactions with an incidence of >5% during a clinical trial were headache and nausea. To report SUSPECTED ADVERSE REACTIONS, contact Octapharma at 1-866-766-4860 or FDA at 1-800-FDA-1008 or www.fda.gov/medwatch.

DRUG INTERACTIONS

- The passive transfer of antibodies may confound the results of serological testing.
- The passive transfer of antibodies may interfere with the response to live viral vacancies.

USE IN SPECIFIC POPULATIONS

- Pregnancy: no human or animal data. Use only if clearly needed.
- In patients over age 65 or in any person at risk of developing renal insufficiency, do not exceed the recommended dose, and infuse Octagam 5% liquid at the minimum infusion rate practicable.

HOW SUPPLIED

MANUFACTURED BY:
Octapharma Pharmazeutika
Produktionsges.m.b.H.
Oberlaaer Strasse 235
A-1100 Vienna, Austria

DISTRIBUTED BY:
Octapharma USA, Inc.
121 River Street, Suite 1201
Hoboken, NJ 07030
Tel: 201-604-1130
Fax: 201-604-1131
www.octapharma.com/usa

Revised: September 2009
CONTRAINDICATIONS

octagam® 5% liquid is contraindicated in patients who have acute severe hypersensitivity reactions to human immunoglobulin. octagam® 5% liquid contains trace amounts of IgA (not more than 0.2 mg/ml in a 5% solution). It is contraindicated in IgA deficient patients with antibodies against IgA and history of hypersensitivity. octagam® 5% liquid is contraindicated in patients with acute hypersensitivity reaction to corn. octagam® 5% liquid contains maltose, a disaccharide sugar which is derived from corn. Patients known to have corn allergies should avoid using octagam® 5% liquid.

WARNINGS AND PRECAUTIONS

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IgA deficient patients with antibodies against IgA are at greater risk of developing severe hypersensitivity and anaphylactic reactions. Epinephrine should be available immediately to treat any acute severe hypersensitivity reactions. Monitor renal function, including blood urea nitrogen and serum creatinine, and urine output in patients at risk of developing acute renal failure. False elevated blood glucose readings may occur during and after the infusion of octagam® 5% liquid with some glucometer and test strip systems. Hyperproteinemia, increased serum viscosity and hyponatremia occur in patients receiving IGIV therapy. Thrombotic events have occurred in patients receiving IGIV therapy. Monitor patients with known risk factors for thrombotic events; consider baseline assessment of blood viscosity for those at risk of hyperviscosity. Aseptic Meningitis Syndrome has been reported with octagam® 5% liquid and other IGIV treatments, especially with high doses or rapid infusion. Hemolytic anemia can develop subsequent to IGIV therapy due to enhanced RBC sequestration. IGIV recipients should be monitored for pulmonary adverse reactions (TRALI). The product is made from human plasma and may contain infectious agents, e.g. viruses and, theoretically, the Creutzfeldt-Jakob disease agent.

References
1. Octagam®, Immune Globulin Intravenous (Human) 5% Liquid Preparation, complete Prescribing Information. 2009.
FLU SEASON?

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FLU SEASON IS UNPREDICTABLE...
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