



TotalCare IV Medicine Clinic

Patient Educational Handout

For

Intravenous Nutrition Treatment (IVNT)

What is “Intravenous Nutrition Treatment (IVNT)?”

IVNT is an elective, adjunctive treatment in which the delivery of vitamins, minerals, amino acids and antioxidants to a patient by way of the intravenous, or parenteral, route of administration. The purpose of IVNT is to deliver these nutrients in high concentrations to the body tissues and cells in a manner which bypasses the GI tract (i.e., the oral route of administration). All nutrients taken via the oral route (by mouth) once absorbed into the bloodstream of the small intestine are transported immediately to the liver by way of the portal vein. In the liver, they must “undergo screening” by liver enzymes which in some cases will render them less effective or even ineffective. This screening process is known as the “1st-pass effect”. IVNT allows for the delivery of high concentrations of nutrients to the body tissues/cells without the 1st-pass effect.*

**although typically used to describe this process with external drugs/pharmaceuticals, this principle holds true for the vast majority of substances taken orally.*

How does IVNT differ from standard Total Parenteral Nutrition (TPN)?

Total Parenteral Nutrition, or TPN, is typically a mandatory treatment of “feeding” a patient intravenously, bypassing the usual process of eating and digestion. This is utilized in patients who have lost the ability to use their GI tract to eat, digest, and absorb their required nutrients, thus, their Total Nutrition – including all required calories from carbohydrates, protein, and fats, as well as, added vitamins and dietary minerals – are given through the IV or parenteral route of administration.



What is the Theory behind this Intravenous Nutritional Therapy?

As stated above, the purpose of IVNT is to deliver these nutrients in high concentrations to the body tissues and cells in a manner which bypasses the GI tract, thus allowing for the delivery of high concentrations of nutrients to the body tissues/cells without the 1st-pass effect. It is believed some chronic medical illnesses and clinical conditions are either caused by or potentially exacerbated from low or deficient levels of vitamins, minerals, amino acids, and/or anti-oxidants in the “interstitial fluid” or “extra-cellular matrix” (which is the space between cells and tissues.) This belief has been supported by decades of the safe and mindful practice of medicine by physicians attempting to help patients whose conditions didn’t seem to respond adequately to conventional allopathic treatments. Thus, through careful “trial and error” with tens-of-thousands of consenting patients over decades, many of these treatments were shown to be effective in certain clinical conditions, further supporting the theory.

What is the History of IVNT use in the United States?

1. *WJ McCormick, PhD (1950s)*
 - a. *A collagen researcher theorized that cancer may be caused by a nutritional deficiency causing defective collagen formation.*
2. *Linus Pauling, PhD & Ewan Cameron, MD (1970s & 80s)*
 - a. *Performed research on terminal cancer patients using IV Vitamin C showing improvements in function and longevity of life beyond predicted.*
 - b. *These claims were not corroborated by 3 separate studies done on terminal cancer patients at the Mayo Clinic. However, all 3 studies used ORAL Vit C.*
3. *Hugh Riordan, M.D. (1980s, 90s, 2000s....present)*
 - a. *Physician in Kansas who created IV Vitamin C protocol for treating Cancer patients.*
 - b. *Treated over 40,000 cancer patients!*
 - c. *Published research showing effectiveness for some cancers.*
4. *John Myers, MD (1960s, 70s)*
 - a. *During the 1960s, Dr. John Myers, an internist from Johns Hopkins Hospital in Baltimore, concluded that because of our digestive, absorptive, and*



detoxification systems, (i.e., the “1st-pass effect”) only a small fraction of the vitamins and minerals we take (either in food or in pills) were actually being absorbed into our bloodstream. He proposed that a harmless mixture of key nutritional supplements might be given in a single intravenous infusion—literally flooding each cell in the body with nutrition—to perhaps improve their performance.

- b. Each of the vitamins and minerals Dr. Myers selected had actually been available and used in intravenous form safely for years, but no one had ever considered combining them into an intravenous “cocktail.”*
 - c. Dr. Myers experimented on lab animals first, then on himself, and eventually, on informed and consenting patients.*
5. *Dr. Alan Gaby,*
- a. Is a well-known physician-teacher also in the Baltimore area who took over Dr. Myers’ clinic after his passing, and has written articles on his experience giving more than 1,500 Myers’ cocktails to patients with various clinical conditions.*
6. *Thousands of Medical Doctors around the country and world now utilize IVNT safely, performing MILLIONS of IVNT sessions annually.*

Is there an Evidence-basis for IVNT?

Yes! A 2009 Randomized Controlled Study done at Yale Medical School evaluated the effect of the Myers’ Cocktail vs. placebo-IV infusion on patients with Fibromyalgia. They found that weekly infusions led to clinically significant improvement in the patient’s tender points, pain, depression, and quality of life directly following treatment with Myers cocktail, whereas, the patients receiving the IV-placebo only showed improvement in reduction in tender points. While it was a small sample size, patients treated with the IV micronutrients (Myers) showed sustained improvement even after four weeks from the last infusion. Other study references are listed below:

- *Ali, A; Njike, VY, et al. (2009). “Intravenous Micronutrient Therapy (Myers’ Cocktail) for Fibromyalgia: A Placebo-Controlled Pilot Study”. The Journal of Alternative and Complementary Medicine. 15 (3): 247–25.)*
- *Forman HJ, et al. Glutathione: overview of its protective roles, measurement, and biosynthesis. Mol Aspects Med. 2009 Feb-Apr;30(1–2):1–12.*
- *Gaby, AR. Nutritional Medicine. Fritz Perlberg Publishing, 2011*
- *Glutathione, Reduced (GSH). Alt Med Rev, 6(6) 2001: 601-607*
- *Schulz JB, Lindenau J, Seyfried J, Dichgans J. Glutathione, oxidative stress and neurodegeneration. Eur J Biochem 2000; 267:4904-4911.*



- Venkateshappa C, Harrish G, Mythri RB, et al. Increased oxidative damage and decreased antioxidant function in aging human substantia nigra compared to striatum: Implications for Parkinson's disease. *Neurochem Res*, 2011.
- Vina J, Gomez-Cabrera MC, Lloret A, Marquez R, Minana JB, Pallardo FV, Sastre J. Free radicals in exhaustive physical exercise: mechanism of production, and protection by antioxidants.
- IUBMB Life. 2000 Oct-Nov;50(4-5):271-7. 6 Subudhi AW, Davis SL, Kipp RW, Askew EW. Antioxidant status and oxidative stress in elite alpine ski racers. *Int J Sport Nutr Exerc Metab*. 2001 Mar;11(1):32-41.

Are IVNT treatments at TotalCare covered by my health insurance?

Unfortunately, at this time, IVNT is still considered an experimental treatment which is elective and adjunctive, and thus is NOT COVERED BY HEALTH INSURANCE. Payment for any IVNT session at TotalCare is the sole responsibility of the patient and is expected in full at the time of service. Additionally, you may not submit a bill to your health insurance provider and expect to be compensated as it is considered a "non-covered service."

What type of IV Nutritional Treatments does TotalCare offer?

- 1. The "Myers' Cocktail"**
- 2. IV Glutathione treatment**
- 3. IV Vitamin C (IVVC)**

1. The "Myers' Cocktail":

a. What's in the "Myers' Cocktail" & Does it hurt?

The classic Myers' Cocktail consists of a well-tested mixture of magnesium, calcium, vitamin C, and an assortment of B vitamins – including methylated B12, B5 & B6 - diluted in sterile water. The total amount of solution is about 40 ml and is injected either slowly into a vein in your arm over about ten minutes, or more quickly as a "slow IV push" (over a couple of minutes), to achieve high interstitial concentrations of nutrients that are not obtainable with oral administration. The 2 most common side effects reported by patients are NOT painful nor unpleasant, but rather "sensations" of:

- 1. The odd experience of tasting a vitamin from the inside out, so to speak, and*
- 2. A mild sensation of warmth coming over the body, often in the pelvic region.*

b. Who might benefit from adjunctive IVNT with Myers' Cocktail?



Patients with following have been noted to improve clinically:

- Asthma
- Adrenal Fatigue / Dysfunction
- Athletes/Athletic performance – particularly endurance: marathoners, triathletes, etc.
- Allergies / Allergic Rhinitis
- Anxiety / Anxious mood
- Acute viral illness: common cold, upper respiratory infections, and the Flu.
- Chronic Sinusitis
- Chronic infections: Epstein-Barr Virus (post-Mononucleosis), Lyme Disease
- Migraines/Tension headaches
- Fatigue / Chronic Fatigue
- Fibromyalgia / Myofascial Pain Syndrome
- Depression
- Cardiovascular disease
- Narcotic withdrawal
- Chronic urticaria
- Hyperthyroidism
- Muscle spasms / muscle soreness
- Cancer patients

c. What is the History of the Myers' Cocktail:

As noted above, Dr. John Myers was a noted Internal Medicine physician from Johns Hopkins University Medical Center in Baltimore, Maryland who believed the inability of the GI tract to properly and adequately absorb vitamins and minerals, led to deficient and inadequate states of these nutrients in the extra-cellular matrix / interstitial space, which lead to chronic disease and illness. This led him to begin experimenting first on animals, secondly on himself, and finally on consenting patients with chronic illness. Dr. Myers noted, chronicled, and published the beneficial effects of his “cocktail” with specific patients, with the help of his colleague and apprentice, Dr. Alan R. Gaby, MD, who eventually took over Dr. Myers’ clinic and patients upon his death. Dr. Gaby continued the work of Dr. Myers and is now considered a renowned nutritional medicine expert and major proponent of IV Nutrition treatment. Working with these patients, Dr. Gaby found that Dr. Myers had been successful in treating a surprisingly large number of clinical conditions with this nutrient infusion. If patients have difficulty digesting food, have altered stomach pH, leaky gut or simply do not absorb or receive full benefit from taking oral vitamin pills, they may respond well to an IV nutritional regimen. For other patients, this therapy provides a targeted treatment for a variety of medical conditions. Dr. Gaby’s clinical experience with over *15,000 infusions of Myers’ Cocktail* has suggested that it can be clinically effective against acute asthma attacks, migraines, fatigue (including chronic fatigue syndrome), fibromyalgia, acute muscle spasms, colds, viral infections, chronic sinusitis, seasonal allergies, chronic depression/anxiety,



adrenal fatigue and other disorders. Other patients without current disease, such as athletes, have also felt the benefits of higher level micronutrient replacement for both preparation and recovery from exercise and training.

d. What are the potential Risks of receiving IVNT with Myers' Cocktail:

- i. IVNT with Myers' Cocktail has been safely administered to MILLIONS of patients worldwide over the past several decades. This is because IVNT uses vitamins and minerals that have known nutritional benefits and an incredibly low potential for serious side effects at the doses utilized in this infusion. However, there is always the potential for unwanted side-effects with any invasive treatment. All IV infusions share the potential risks of pain, infection, or inflammation/phlebitis at or near the injection site. Drinking plenty of fluids prior to your treatment session can allow for easier IV access and decrease these risks.

The most serious and dangerous potential side-effects could occur in patients with:

- ii. A genetic defect called "***Glucose-6-Phosphate Dehydrogenase Deficiency***", or G6PD-deficiency, also known as "***Favism***". This is a genetic mutation found in people of African or Mediterranean origin which if present in the patient receiving IVNT – particularly with Vitamin C – can lead to "hemolysis" or destruction of red blood cells. This happens because without this critical enzyme, the RBC is not able to recycle Glutathione and thus handle oxidative stress/damage. Without Glutathione to protect it, the RBC will be destroyed, leading to anemia. This is potentially very dangerous and can even be fatal in the rarest of cases. Most patients with this mutation are aware of their condition (given they were born with it) and the likelihood of red cell hemolysis/destruction with certain common food exposures, such as beans, especially, fava beans. Patients with family history of Favism will be appropriately tested and ruled-out before receiving IVNT at TotalCare.
- iii. Patients with ***Chronic Renal Insufficiency***, or decreased kidney function, would be at increased risk receiving IVNT. This is because the kidneys act as filters of the blood and help to control the volume of fluid in the bloodstream. If the volume is too high, the kidneys will filter some of the fluid out and produce more urine; if too low, it will resorb or keep the fluid, producing less urine. If this process is impaired, receiving IV fluids presents an increased risk, as it could potentially put them in a "fluid overload" state, and cause fluid to back up into the lungs.
- iv. Patients with ***Low Blood Pressure***: one of the main ingredients in the Myers' Cocktail is the mineral Magnesium. Intravenous Magnesium is known to very



effectively lower elevated blood pressure and is used daily in hospitals around the country – especially in the OB/GYN field in the management of pregnancy-induced hypertension, or “toxemia.” Thus, those patients with Low BP present an increased risk.

- v. Patients with ***Congestive Heart Failure and/or Atrial Fibrillation “A-fib”***: similar to patients with Chronic Kidney disease, patients with chronic heart conditions must proceed with caution when receiving IVNT or any IV fluids, in order to avoid a “fluid overload” state – leading to fluid backing up into the lungs (and thus decreasing the ability to breathe!)
- vi. Patients taking ***Digoxin or other Potassium-depleting drugs*** should avoid treatment if possible due to potential electrolyte imbalance – leading to heart arrhythmias.
- vii. Patients with an ***unknown Allergy***: Potentially, in the rarest of circumstances, individual patients may have an allergy to a component of the IV combination and this can evoke an allergic response. We choose to dilute the micronutrients into a larger volume of saline so that the infusion solution is *isotonic (or near the same concentration as your blood)* and will not cause acute dehydration and less likely to produce any side effects (as compared to a rapid push.)

2. IV Glutathione Treatments

a. What is Glutathione?

b. Glutathione (GSH):

- i. Glutathione – aka, “The Master Anti-Oxidant”, aka, “the Holy Grail of medicine” (as per Dr. Bond) - is an extremely important molecule found in every human cell, and acts as the *main intracellular protector against oxidative stress*. It is a tri-peptide amino acid (glutamate-cysteine-glycine) which acts to prevent damage to important cellular components by “Reactive Oxygen Species” (ROS), such as, free-radicals, peroxides, and heavy metals. Glutathione (GSH) acts as our body’s *most powerful antioxidant* – both directly & indirectly - to preserve and protect ALL cells in the body from “rusting” or oxidation. Because Glutathione is 1 of only 4 main “anti-rusting”/anti-oxidative systems in our body, declining/dysfunction/inadequate levels of intracellular GSH can be devastating! In fact, nearly EVERY CHRONIC / DEBILITATING HUMAN DISEASE IS ASSOCIATED WITH LOW GLUTATHIONE! This is not to imply an absolute causal relationship, but there is no doubt some value in this information. GSH can directly act as a powerful anti-oxidant by accepting protons from ROS/free radicals, thus neutralizing their ability to cause cellular damage. It can also act as a “secondary anti-oxidant” via “recycling” vitamins C & E, which in turn act to



neutralize free radical damage to our cells and DNA. Glutathione/GSH is THE primary protectant of skin, lens, cornea, and retina against radiation damage, as well as, detoxification pathways in the liver, kidneys, lungs, intestinal, skin and other organs that help our bodies to rid itself of everyday toxin exposure (chemicals, drugs, metabolic waste, radiation and even carcinogens.) The MAJORITY OF CHRONIC, NEURODEGENERATIVE DISEASES (*such as Parkinson's disease and Multiple Sclerosis*) have even been linked to low glutathione levels!

- ii. WHY NOT JUST TAKE GLUTATHIONE ORALLY? Because GSH has very poor absorption and is quickly broken down by protease enzymes when taken orally. The IV delivery of GSH is far superior and can be actively utilized by the cells.

3. IV Vitamin C (IVVC)

a. What is "IV Vitamin C"?

- b. **Vitamin C** (also called *L-ascorbic acid* or *ascorbate*) is an essential nutrient that humans must get from food or dietary supplements since it cannot be made in the body. Vitamin C is an antioxidant and helps prevent oxidative stress/damage from ROS / "free radicals". It also works with enzymes to play a key role in the making of collagen – a main ingredient/component of all connective tissues.

When taken by intravenous (IV) infusion, vitamin C can reach much higher levels in the blood than when it is taken by mouth. Studies suggest that these higher levels of vitamin C may cause the death of cancer cells in the laboratory.

- c. **What is the history and use of high-dose oral and/or IV Vitamin C as a complementary and alternative treatment for Cancer?**

High-dose vitamin C has been studied as a treatment for patients with cancer since the 1970s. A Scottish surgeon named Ewan Cameron worked with Nobel Prize-winning chemist Linus Pauling to study the possible benefits of vitamin C therapy in clinical trials of cancer patients in the late 1970s and early 1980's.

4. What is the theory behind the claim that high-dose Vitamin C is useful in treating cancer?

More than fifty years ago, a study by McCormick suggested that cancer was a disease of changes in connective tissue, caused by a lack of vitamin C. In the 1970's, it was proposed that high-dose ascorbic acid could help build resistance to disease or infection, and possibly treat



cancer. Later studies showed that the levels of vitamin C that collect in the bloodstream depend on how it is taken.

5. How is high-dose Vitamin C administered?

Vitamin C may be given by intravenous (IV) infusion or taken by mouth (orally), although much higher blood levels are reached when given intravenously.

6. Have any preclinical (laboratory or animal) studies been conducted using high-dose vitamin C?

Laboratory studies and animal studies have been done to find out if high-dose vitamin C may be useful in preventing or treating cancer.

Laboratory studies*

Many laboratory studies have been done to find high-dose vitamin C may cause the death of cancer cells. The anticancer effect of vitamin C in different types of cancer cells involves a chemical reaction that makes hydrogen peroxide, which may kill cancer cells.

Laboratory studies have shown the following:

- a. Treatment with high-dose vitamin C slowed the growth and spread of prostate, pancreatic, liver, colon, malignant mesothelioma, neuroblastoma, and other types of cancer cells.
- b. Combining high-dose vitamin C with certain types of chemotherapy may be more effective than chemotherapy alone:
 - i. Ascorbic acid with arsenic trioxide may be more effective in ovarian cancer cells.
 - ii. Ascorbic acid with gemcitabine may be more effective in pancreatic cancer cells.
 - iii. Ascorbic acid with gemcitabine and epigallocatechin-3-gallate (EGCG) may be more effective in malignant mesothelioma cells.
- c. Another laboratory study suggested that combining high-dose vitamin C with radiation therapy killed more glioblastoma multiforme cells than radiation therapy alone.

However, not all laboratory studies combining vitamin C with anticancer therapies have shown benefit. Combining dehydroascorbic acid, a particular form of vitamin C, with chemotherapy made it less effective in killing some kinds of cancer cells.

Animal studies of IV Vitamin C*:



Studies of high-dose vitamin C have been done in animal models (*animals given a disease either the same as or like a disease in humans*).

Some of the studies showed the IV Vitamin C helped kill more cancer cells:

- d. **High-dose vitamin C blocked tumor growth** in animal models of pancreatic, liver, prostate, sarcoma, and ovarian cancers and malignant mesothelioma.
- e. *High-dose vitamin C combined with chemotherapy in a mouse model of pancreatic cancer showed that the combination treatment shrank tumors more than chemotherapy treatment alone.*
- f. Another study showed that vitamin C made a type of light therapy more effective when used to treat mice injected with breast cancer cells.
- g. A study in a mouse model of ovarian cancer showed that combining intravenous high-dose vitamin C with the anticancer drugs carboplatin and paclitaxel made them more effective in treating ovarian cancer.

However, other animal studies have shown that IV Vitamin C interferes with the anticancer action of certain drugs, including the following:

- h. Mouse models of human lymphoma and multiple myeloma treated with combinations of vitamin C and chemotherapy or the drug bortezomib had more tumor growth than mice treated with bortezomib alone.

7. Have any clinical trials (research studies with people) of high-dose intravenous (IV) vitamin C been conducted?

Several studies of high-dose vitamin C in patients with cancer have been done in recent years, including the following:

Studies of IV Vitamin C alone*

- a. Intravenous (IV) vitamin C was studied in patients with breast cancer who were treated with adjuvant chemotherapy and radiation therapy. The study found that patients who received IV vitamin C had better quality of life and fewer side effects than those who did not.
- b. A study of IV vitamin C and high doses of vitamin C taken by mouth was done in patients with cancer that could not be cured ("Terminal Cancer patients"). Vitamin C was shown to be a safe and effective therapy **to improve quality of life in these patients, including physical, mental, and emotional functions, symptoms of fatigue, nausea and vomiting, pain, and appetite loss.**
- c. Vitamin C has been shown to be safe when given to healthy volunteers and cancer patients at doses up to 1.5 g/kg, while screening out patients with certain risk factors who should avoid vitamin C. Studies have also shown that Vitamin C



levels in the blood are higher when taken by IV than when taken by mouth, and last for more than 4 hours.

Studies of IV Vitamin C combined with other drugs*

Studies of vitamin C combined with other drugs have shown mixed results:

- d. In a small study of 14 patients with advanced pancreatic cancer, IV vitamin C was given along with chemotherapy and treatment with a targeted therapy. Patients had very few bad side effects from the vitamin C treatment. The nine patients who completed the treatment had stable disease as shown by imaging studies.
- e. In another small study of 9 patients with advanced pancreatic cancer, patients were given chemotherapy in treatment cycles of once per week for 3 weeks along with IV vitamin C twice per week for 4 weeks. These patients had disease that did not progress for a period of months. The combined treatment was well tolerated and no serious side effects were reported.
- f. In a 2014 study of 27 patients with advanced ovarian cancer, treatment with chemotherapy alone was compared to chemotherapy along with IV vitamin C. Patients who received IV vitamin C along with chemotherapy had fewer serious side effects from the chemotherapy.

**all studies cited here were taken from the National Cancer Institute, division of the NIH (National Institute of Health)*



What are the costs for IVNT at TotalCare?

Costs:

Myers' Cocktail infusion: \$150/session with Glutathione push \$200/session

IV Glutathione push: \$200/session (high dose up to 5000mg)

IV Vitamin C (per up to 25grams): \$100/session

Discounts: *discounts allowed for packages purchased in total prior to treatment:*

10-treatment session package: Myers' Cocktail + Glutathione = \$2000 (10% discount) – Total: \$1800

20-treatment session package: Myers' Cocktail + Glutathione = \$4000 (15% discount) -- Total: \$3400

(This discount applies to the IVNT procedure only; any applicable office visit will apply)

Again, these procedures are ELECTIVE & ADJUNCTIVE in nature – thus, they are not FDA approved to TREAT or CURE any disease – only to help improve symptoms, thus, they are considered “non-covered services” by medical / health insurance companies and are NOT COVERED BY INSURANCE.