Intravenous Nutrient Therapy: the “Myers’ Cocktail”

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Abstract
Building on the work of the late John Myers, MD, the author has used an intravenous vitamin-and-mineral formula for the treatment of a wide range of clinical conditions. The modified “Myers’ cocktail,” which consists of magnesium, calcium, B vitamins, and vitamin C, has been found to be effective against acute asthma attacks, migraines, fatigue (including chronic fatigue syndrome), fibromyalgia, acute muscle spasm, upper respiratory tract infections, chronic sinusitis, seasonal allergic rhinitis, cardiovascular disease, and other disorders. This paper presents a rationale for the therapeutic use of intravenous nutrients, reviews the relevant published clinical research, describes the author’s clinical experiences, and discusses potential side effects and precautions.

Introduction
John Myers, MD, a physician from Baltimore, Maryland, pioneered the use of intravenous (IV) vitamins and minerals as part of the overall treatment of various medical problems. The author never met Dr. Myers, despite living in Baltimore, but had heard of his work, and had occasionally used IV nutrients to treat fatigue or acute infections.

After Dr. Myers died in 1984, a number of his patients sought nutrient injections from the author. Some of them had been receiving injections monthly, weekly, or twice weekly for many years – 25 years or more in a few cases. Chronic problems such as fatigue, depression, chest pain, or palpitations were well controlled by these treatments; however, the problems would recur if the patients went too long without an injection.

It was not clear exactly what the “Myers’ cocktail” consisted of, as the information provided by patients was incomplete and no published or written material on the treatment was available. It appeared that Myers used a 10-mL syringe and administered by slow IV push a combination of magnesium chloride, calcium gluconate, thiamine, vitamin B6, vitamin B12, calcium pantothenate, vitamin B complex, vitamin C, and dilute hydrochloric acid. The exact doses of individual components were unknown, but Myers apparently used a two-percent solution of magnesium chloride, rather than the more widely available preparations containing 20-percent magnesium chloride or 50-percent magnesium sulfate.

The author took over the care of Myers’ patients, using a modified version of his IV regimen. Most notably, the magnesium dose was increased by approximately 10-fold by using 20-percent magnesium chloride, in order to approximate the doses reported to be safe and effective for the treatment of cardiovascular disease.1, 2 In addition, the hydrochloric acid was eliminated and the vitamin C was increased, particularly for problems related to allergy or infection. Folic acid was not included, as it tends to form a precipitate when mixed with other nutrients.

This treatment was suggested for other patients, and it soon became apparent that the modified Myers’ cocktail (hereafter referred to as “the Myers”) was helpful for a wide range of clinical conditions, often producing dramatic results. Over an 11-year period, approximately 15,000

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In addition to having direct pharmacological effects, IV nutrient therapy may be more effective than oral or IM treatment for correcting intracellular nutrient deficits. Some nutrients are present at much higher concentrations in the cells than in the serum. For example, the average magnesium concentration in myocardial cells is 10 times higher than the extracellular concentration. This ratio is maintained in healthy cells by an active-transport system that continually pumps magnesium ions into cells against the concentration gradient. In certain disease states, the capacity of membrane pumps to maintain normal concentration gradients may be compromised. In one study, the mean myocardial magnesium concentration was 65-percent lower in patients with cardiomyopathy than in healthy controls, implying a reduction in the intracellular-to-extracellular ratio to less than 4-to-1. As magnesium plays a key role in mitochondrial energy production, intracellular magnesium deficiency may exacerbate heart failure and lead to a vicious cycle of further intracellular magnesium loss and more severe heart failure.

Intravenous administration of magnesium, by producing a marked, though transient, increase in the serum concentration, provides a window of opportunity for ailing cells to take up magnesium against a smaller concentration gradient. Nutrients taken up by cells after an IV infusion may eventually leak out again, but perhaps some healing takes place before they do. If cells are repeatedly “flooded” with nutrients, the improvement may be cumulative. It has been the author’s observation that some patients who receive a series of IV injections become progressively healthier. In these patients, the interval between treatments can be gradually increased, and eventually the injections are no longer necessary.

Other patients require regular injections for an indefinite period of time in order to control their medical problems. This dependence on IV injections could conceivably result from any of the following: (1) a genetically determined impairment in the capacity to maintain normal intracellular nutrient concentrations; (2) an inborn error of metabolism that can be controlled only by maintaining a higher than normal concentration of a particular nutrient; or (3) a renal leak of a nutrient. In some cases, continued IV therapy may be necessary because a disease state is too advanced to be reversible.

The Modified Myers’ Cocktail

See Table 1 for the nutrients that make up the modified Myers’ cocktail.

Dexpanthenol is the commercially available injectable form of pantothenic acid (vitamin B5). One milliliter of B complex 100 contains 100 mg each of thiamine and niacinamide, and 2 mg each of riboflavin, dexpanthenol, and pyridoxine.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Magnesium chloride hexahydrate 20% (magnesium)</td>
<td>2-5 mL</td>
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<tr>
<td>Calcium gluconate 10% (calcium)</td>
<td>1-3 mL</td>
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<tr>
<td>Hydroxocobalamin 1,000 mcg/mL (B12)</td>
<td>1 mL</td>
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<tr>
<td>Pyridoxine hydrochloride 100 mg/mL (B6)</td>
<td>1 mL</td>
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<tr>
<td>Dexpanthenol 250 mg/mL (B5)</td>
<td>1 mL</td>
</tr>
<tr>
<td>B complex 100 (B complex)</td>
<td>1 mL</td>
</tr>
<tr>
<td>Vitamin C 222 mg/mL (C)</td>
<td>4-20 mL</td>
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significantly greater extent in the magnesium group (225 to 297 L/min) than the placebo group (208 to 216 L/min). In addition, the hospitalization rate was significantly lower in the magnesium group than in the placebo group (37% vs. 79%; p < 0.01). No patient had a significant drop in blood pressure or change in heart rate after receiving magnesium.

In a second double-blind study, 149 patients with acute asthma who were being treated with inhaled beta-agonists and IV steroids were randomly assigned to receive an IV infusion of magnesium sulfate (2 g over 20 minutes) or saline placebo, beginning 30 minutes after presentation. Among patients with severe asthma (defined as forced expiratory volume in 1 second [FEV₁] less than 25 percent of predicted value) compared with placebo, magnesium significantly reduced the hospitalization rate (33.3% vs. 78.6%; p < 0.01) and significantly improved FEV₁. However, magnesium treatment was of no benefit to patients with moderate asthma (defined as baseline FEV₁ between 25 and 75 percent of predicted value).

In two placebo-controlled studies of asthmatic children, IV magnesium sulfate significantly improved pulmonary function and significantly reduced hospitalization rates during acute exacerbations that had failed to respond to conventional therapy. A dose of 40 mg per kg body weight (maximum dose, 2 g) given over a 20-minute period appeared to be more effective than 25 mg per kg. Higher doses of IV magnesium sulfate (10-20 g over 1 hour, followed by 0.4 g per hour for 24 hours) have been used successfully in the treatment of life-threatening status asthmaticus. In a few studies, IV magnesium failed to improve pulmonary function or to reduce the need for hospitalization. However, a meta-analysis of seven randomized trials concluded that IV magnesium reduced the need for hospitalization by 90 percent among patients with severe asthma, although the treatment was not beneficial for patients with moderate asthma.

Calcium is the only other component of the Myers' cocktail that has been studied as a treatment for acute exacerbations of asthma. In an early report, a series of IV infusions of calcium chloride relieved asthma symptoms in three consecutive patients, with relief occurring almost immediately after some injections. Intravenous and IM administration of an unspecified calcium salt temporarily inhibited severe anaphylactic reactions in two other patients.

Nutrients other than magnesium and calcium may have contributed to the beneficial effect observed in asthma patients. Oral vitamins C and B6 and IM vitamin B12 have each been used with some success against asthma, although none of these nutrients has been tested as a treatment for acute attacks. Intramuscular administration of niacinamide has been shown to reduce the severity of experimentally induced asthma in guinea pigs, and pantothenic acid appears to have an anti-allergy effect in humans.

On one occasion, a patient's asthma attack was treated with IV magnesium alone. Although the symptoms resolved rapidly, they returned within 10-15 minutes. The remaining constituents of the Myers' cocktail (without additional magnesium) were then administered, and the symptoms disappeared almost immediately and did not return. Thus, it seems the Myers' cocktail is more effective than magnesium alone in the treatment of asthma attacks.

**Migraine**

Case #2: A 44-year-old female suffered from frequent migraines, which appeared to be triggered in many instances by exposure to environmental chemicals or, occasionally, to ingestion of foods to which she was allergic. Allergy desensitization therapy had provided little benefit. Over a six-year period, the patient was given IV therapy on approximately 70 occasions for migraines. Nearly all of these injections resulted in considerable improvement or complete relief within several minutes, although a few treatments were ineffective. Through trial and error, it was determined her most effective regimen...
Fibromyalgia

Case #3: A 48-year-old woman presented with a six-year history of fairly constant myalgias and arthralgias, with pain in the neck, back, and hip, and tightness in the left arm. Six months previously she was found to have an elevated sedimentation rate (50 mm/hr). She was diagnosed by a rheumatologist as possibly having polymyalgia rheumatica, although the diagnosis of fibromyalgia was also considered. Her history was also significant for migraines about eight times per year and chronic nasal congestion. Physical examination revealed extremely stiff muscles, with decreased range of motion in many areas of her body.

The patient was given a therapeutic trial consisting of 6 mL vitamin C, 4 mL magnesium, 2.5 mL calcium, and 1 mL each of B12, B6, B5, and B complex. At the end of the injection, she got off the table and, with a look of amazement, announced her muscle aches and joint pains were gone for the first time in six years. This treatment was repeated after a week (at which time her symptoms had not returned), followed by every other week for several months, then once monthly for three years. Her initial regimen also included the identification and avoidance of allergenic foods and treatment with low-dose desiccated thyroid (eventually stabilized at 60 mg per day). She discovered that eating refined sugar caused myalgias and arthralgias, and that thyroid hormone improved her energy level, mood, and overall well being. During the three years of monthly maintenance injections she reported symptoms would begin to recur if she went much longer than a month between treatments. However, they were never as severe as they were before she began receiving IV therapy.

The author has given the Myers’ to approximately 30 patients with fibromyalgia; half have experienced significant improvement, in a few cases after the first injection, but more often after three or four treatments.

The beneficial effect of parenteral nutrient therapy has been confirmed by one study published only as an abstract. Eighty-six patients with chronic muscular complaints, including myofascial pain, relapsing soft tissue injuries, and fibromyalgia, received IM or IV injections of magnesium, either alone or in combination with calcium, B vitamins, and vitamin C. Improvement occurred in 74 percent of the patients; of those, 64 percent required four or fewer injections for optimal results. A minority of patients required long-term oral or parenteral magnesium to maintain improvement. The positive response to parenteral magnesium is consistent with the observation that nearly half of patients with fibromyalgia have intracellular magnesium deficiency, despite having normal serum levels of the mineral.

Depression

Case #4: A 46-year-old man presented with a history of depression and anxiety since childhood. He had been in psychoanalysis for the past eight years. A therapeutic trial with IV nutrients was considered because the patient reported that consumption of alcohol (known to deplete magnesium) aggravated his symptoms, and because he was taking a magnesium-depleting thiazide diuretic for hypertension. He was initially given 1 mL each of magnesium, B12, B6, B5, and B complex, which resulted in a 70-80 percent reduction in his symptoms for one week. A second injection produced a similar response that lasted two weeks. Through trial and error it was determined the most effective treatment was 5 mL magnesium, 3 mL B complex, and 1 mL each of B12, B6, and B5. The addition of calcium to the injection appeared to block some of the benefit.