Title: Consumer Intravenous Vitamin Therapy: Wellness Boost or Toxicity Threat?

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INTRO

- Intravenous vitamin therapy (IVVT) has become increasingly popular in recent years promising to cure or improve a variety of health problems or infuse "wellness."
- Patients and consumers have intravenous vitamins or other nutrients and fluids infused into their arms outside the hospital setting in medical spas, hydration rooms, integrative medicine, and concierge primary care practices.
- See figures for common IVVT mixtures

METHODS

- Literature Review of 155 articles
- Mainly case reports and self-reports
- Google
- IVVT providers
- Health Care Professionals

RESULTS

- Food and Drug Administration labels as dietary supplements
- No licensing regulations
- Jayawardena, Sri Lanka 2017, Systematic
 Review of hangover cures → no IVVT
- Ali, Yale 2009, pilot study treating fibromyalgia with IVVT → those receiving IVVT reported greater relief, but the difference was not statistically significant among those who had LR
- Pros: speed and 100% bioavailability
- Cons: use of scarce resources, phlebitis, extravasation, air embolism, hypervolemia, infection, toxicities of the various fluids, electrolytes, minerals, and/or vitamins
- Myers Cocktail Price \$130



Consumer IV therapy doesn't help but may harm.

Magnesium chloride hexahydrate 20% (magnesium)	2-5 mL
wagnesium chioride nexampurate 20 % (magnesium)	2-0 1112
Calcium gluconate 10% (calcium)	1-3 mL
Hydroxocobalamin 1,000 mcg/mL (B12)	1 mL
Pyridoxine hydrochloride 100 mg/mL (B6)	1 mL
Dexpanthenol 250 mg/mL (B5)	1 mL
B complex 100 (B complex)	1 mL
Vitamin C 222 mg/mL (C)	4-20 mL

FIGURE 1. Nutrients in Myers' Cocktail.

Myer's Cocktail (Sometimes also related to Energy Themed Cocktails) – B Vitamins Complex Mix, Vitamin C, Selenium, Calcium, Magnesium, Saline

Vitamin C Themed Cocktail (Ex: Orange Power Up) – Vitamin C, B12, Saline

Hydration Themed Cocktail (Ex: Hydration) - Vitamin C, B12, Saline

Hangover Themed Cocktail (Ex: Hangover Cure) – Ketorolac (or other NSAID), Zofran, Decadron, B Vitamins Complex Mix, Taurine, Glutathione, Vitamin C, Saline, some have Caffeine

Weight Loss Themed Cocktail – Carnitine, Taurine, B Vitamins Complex Mix, Vitamin C, Saline

Immunity Themed Cocktail (Ex: Common Cold Fighter) – B Vitamins Complex Mix, Vitamin C, Zinc, Potassium, Taurine, Saline

Anti-Inflammatory Themed Cocktail – Lipoic Acid, Vitamin C, Glutathione, Magnesium, B Vitamins Complex Mix, Saline

Recovery Themed Cocktail (Ex: Muscle Recovery) – Vitamin C, B Vitamins Complex Mix, Magnesium, Carnitine, Taurine, Arginine

FIGURE 2. Example of menu from a spa offering intravenous therapy in a rural area.

Multiple "and" and "or" searches of the medical literature were conducted using a variety of keywords, including "vitamin," "infusion," "therapy," "IV," "intravenous," "hangover," "Myers," "cocktail," "safe," "risks," and "alternative." The search of evidence for IVVT yielded 155 articles. Most studies had small sample sizes and nonstatistically significant findings. The search specific to hangovers yielded 26 articles, with limited relevance to our topic. We reviewed 1 article describing the Myers' Cocktail.

"Asthma, migraine, fatigue, fibromyalgia, depression, cardiovascular disease, upper respiratory tract infection, narcotic withdrawal, chronic urticaria, athletic performance, and hyperthyroidism" – "Myers Cocktail" paper

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https://journals.lww.com/nutritiontodayonline/Abstract/2021/09000/Consumer_Intravenous_Vitamin_Therapy__Wellness.4.aspx