

THE TREATMENT OF CHRONIC AND ACUTE ASTHMA WITH PARENTERAL NUTRIENT THERAPY: PROOF OF EFFICACY

AUTHOR: W.A. SHRADER, JR., M.D.

141 PASEO DE PERALTA, SUITE A
SANTA FE, NM 87501

Goals and objectives: This paper demonstrates the efficacy of the use of parenteral (IV) nutrient protocols with mixed nutrients for the treatment of both acute and chronic asthma.

Introduction

The use of IV parenteral nutrient therapy for asthma was begun in our office after the first papers had appeared in the literature regarding the use of IV magnesium for the treatment of acute asthma. Our IV protocols were expanded based on studies of the possible effects of various other nutrients on both acute and chronic asthma, and as a result of our previous work with other parenteral nutrients. Jonathan Wright's work with molybdenum for the treatment of chronic asthma further influenced this study. Our vitamin/mineral work using parenteral nutrients is based on the oxidative tissue injury model (disease is a result of oxidant injury).

Materials and Methods

This study data collection was begun in 1992 (except for the control patient, begun in 1989), and consists of 23 patients treated with parenteral therapy with multiple nutrients for moderate to severe (steroid-dependent) asthma. Treatment periods for "trends" to be presented ranged from less than a month to 2 years. One control patient was treated for 2 years strictly with IV therapy alone, though most other patients received adjunctive immunotherapy and/or dietary modification. The study consisted of 14 female patients (Ave. age 51) and 8 males (Ave. age 57). The control patient was a 33 year old female. Two patients were eliminated from the study data because of unusually large pre-IV post-IV improvement. Two patients were eliminated because of inaccurate recording of sex and age. Three patients were evaluated for both pre- and post-IV response and graphic trends (crossed over, leaving 8 patients in each group).

Patients were evaluated using *SX-Platinum*® pulmonary function testing (PFT). Pulmonary function was evaluated for acute asthma, using graphic pre- and post-IV PFT, and long term evaluation was accomplished using graphic pulmonary function trends, both with computerized results based on predicted Knudson normals for age, sex, weight and height. 11 patients were evaluated with pre- and post-IV pulmonary function tests immediately after the IV protocols were given. 11 patients were evaluated over a period of time using graphic trends (average length of treatment periods to date -- not counting the 2 year control patient -- was 5 months, median 8 months). IV's were given anywhere from twice weekly to once every few months.

Parameters monitored were: total forced vital capacity (FVC), forced expiratory volume in .5 seconds (FEV .5), forced expiratory flow in 1 second (FVC 1.0), forced expiratory volume in 3 seconds (FVC 3.0), peak expiratory flow (PEF), forced expiratory flow through 25% to 75% of exhalation (FEF 25-75%), forced expiratory flow through 75% to 85% of exhalation (PEF 75-85%), forced expiratory flow at 25% of exhalation (FEF 25), forced expiratory flow at

Results

Pre- and Post-IV Results (Acute Protocol) in Patients with Acute/Chronic Asthma

Pre and Post Values Measured in **Percent Predicted**

Parameter	Pre-IV	Post-IV	Ave. % IMPROVED
FVC (L)	70.95	85.11	34%
FEV .5 (L)	54.30	66.79	23%
FEV 1 (L)	58.15	81.74	40%
FEV 3 (L)	72.81	94.06	29%
PEF (L/S)	61.49	86.67	40%
FEF 25-75 (L/S)	41.57	65.57	57%
FEF 75-85 (L/S)	58.46	95.06	62%
FEF 25 (L/S)	45.60	66.38	45%
FEF 50 (L/S)	43.62	65.90	51%
FEF 75 (L/S)	38.34	54.72	42%
FEF .2-1.2 (L/S)	47.44	68.66	44%
Total Average			42%

Trends in Patients with Chronic Asthma

Pre and Post Values Measured in **Percent Predicted** (except PIF)

Trend values were obtained by subtracting the results of the first PFT results in the series from the results of the last (most current) results in the series

Parameter	Beginning of Therapy	Conclusion of Therapy	Ave. % IMPROVED
FVC (L)	64.00	90.45	41%
FEV 1 (L)	50.62	78.18	54%
FEV 3 (L)	57.70	87.20	51%
PEF (L/S)	52.54	90.45	72%
FEF 25-75 (L/S)	28.81	44.63	54%
FEF 75-85 (L/S)	43.20	48.70	12%
FEF 25 (L/S)	28.20	57.40	103%
FEF 50 (L/S)	27.72	44.63	61%
FEF 75 (L/S)	26.10	37.00	41%
PIF (L/S in Liters)	2.18	3.18	45%
Total Average			53%

Discussion and Conclusions

Although the numbers of patients in this preliminary (basically uncontrolled) study are not large, considerable improvement was demonstrated with parenteral therapy with mixed nutrients, both with acute and more pronounced with chronic treatment. Preservative-free nutrients were used without exception, and there were no serious systemic and no local reactions during therapy at any time. Patients occasionally experienced lightheadedness or near fainting with IV push infusions (secondary to magnesium) early in the study, but this problem was solved as experience was gained.

Patients experienced immediate clinical relief during most all infusions, and as the data demonstrates, pulmonary function improved overall during the trend study. The effectiveness of this type of therapy seems to be cumulative, as patients required treatment less often as time goes on. Drug usage was decreased in all patients, and discontinued or reduced to intermittent in over half of the patients.

This paper will be expanded with added patients and a much greater number of references over the next 6 months, and is not meant at this time to be a definitive study. Considerable theoretical evidence exists to explain the mechanism of action of these particular combinations of nutrients, and the effect in our office has been shown to be far more beneficial than the use of just IV magnesium alone.

In addition to the 23 patients in the study, 4 patients appeared to fail with IV therapy. Three of these failures, however, occurred prior to the patients receiving three IV treatments, so actual failure is in question in these cases, as we have found that it occasionally takes 3 to 5 treatments to observe some clinical benefit. One patient failed after she had been given 8 treatments, and the cause is unknown.

We conclude that parenteral therapy with the nutrients used in this study (and possibly others) has remarkable benefit, especially when combined with dietary guidance, environmental control and immunotherapy when indicated. We have found that we now can control the most difficult asthmatic patients using this regimen.

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