

The SpectraCell FIA™ in a Primary Care Population

A Study Conducted by Dorothy Merritt, M.D.

Purpose: The purpose of this study was to document intracellular deficiencies in an average outpatient population in a geographic area with 23% excessive deaths from cancer and cardiovascular disease, and 37% excessive deaths from diabetes, and to determine micronutrient correlation's to excessive disease patterns. Eight categories of disease status were tabulated, including: cancer, cardiovascular, diabetes, and / or glucose intolerance, gastrointestinal, hypertension, inflammatory, neurological, and psychiatric.

Methods: The FIA™ functional intracellular lymphocyte analysis from SpectraCell Laboratories, Inc of Houston, Texas was performed on 328 patients of all ages with multiple disease states who presented to a private internal medicine clinic in 1997. Patients were offered the FIA™ test if they were on medication other than hormone replacement, had current chronic symptoms of disease not responsive to treatment, and/or had known progressive chronic disease.

Results: Intracellular deficiencies identified in the 22 micronutrient assays are presented in Table 1. The results are further tabulated by age and compared to over 20,000 specimens submitted to the laboratory on an international basis in 1997. The top 5 intracellular deficiencies noted in our local population were calcium (44%), glucose-insulin metabolism (receptor dysfunction; 33%), glutathione (33%), zinc (24%), and cysteine (23%). Seventy-five percent of the patients had total antioxidant functions below 75%. Vitamins B6 and folate, both implicated in cardiovascular disease, were deficient in both age groups (17% and 18% respectively). The elderly patients were significantly more deficient than the younger patients in the local population in vitamin B¹ (thiamin), biotin, calcium, cysteine, glucose – insulin metabolism, glutathione, inositol, oleic acid and serine.

Pearson's correlation of co-efficients and probability statistics were run and the statistically significant correlates (<.05) are as follows: Cancer history in these patients correlated statistically to age, B¹ (thiamin), B⁶ (pyridoxine), fructose intolerance and serine, and concurrent diabetes, hypertension, gastrointestinal and neurological disease. Diabetes correlated to age and all disease states except inflammation. Gastrointestinal disease correlated to age and concurrent atherosclerosis, diabetes, hypertension, inflammation, neurological, and psychiatric disease. Hypertension correlated to older age, deficiencies of inositol and oleic acid, and concurrent atherosclerosis, diabetes, gastrointestinal, neurological and psychiatric disease. Inflammatory disease correlated to aging and deficiencies in total antioxidant function B², B³, inositol and serine, with all of the disease state categories. Psychiatric manifestations correlated to B², B³, biotin and glutathione deficiencies, and concurrent diabetes, gastrointestinal and neurological disease.

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Discussion Points for use in a Wellness Program:

1. This is a large general population of all ages tested with the patented SpectraCell FIA™ technology.
2. Correlates between cancer and deficiencies of B¹ and cysteine implications for DNA repair and correlation's to disease in the Houston / Galveston area may be associated with low levels of these micronutrients in the population. Likewise for all of the eight disease categories assessed.
3. Multiple studies showing individual conditions and their relation to these micronutrients exist. Would dietary changes and nutrient supplementation, specific to the biochemical requirements of each individual, along with increased dietary education, influence the disease modification in your employees? It has certainly modified the cost of care in this population by lowering bed days / 1,000, outpatient procedure costs, outpatient visits, referral to specialists, and total health cost reduction in our clinic models by 50% to 100% at one year. Patients are exhibiting increased quality of life and are generally pleased with the outcome. Combined with stress reduction techniques the total cost of health care can be lowered substantially by implementing a Wellness Solution approach.

Table 1: Micronutrient Deficiencies by Age Group

Micronutrients %Sp > 50%	<65		65+		Total		National
	count	%	count	%	count	%	%
	128	59%	64	58%	192	59%	58%
							Sp% nationally is >25%
B1 (thiamin)	33	15%	30	28%	63	19%	17%
B2 (riboflavin)	17	8%	12	11%	29	9%	12%
B3 (niacinamide)	29	13%	15	14%	44	13%	12%
B6 (pyridoxine)	37	17%	20	18%	57	17%	23%
B12 (cobalamin)	17	8%	4	4%	21	6%	10%
Biotin	11	5%	14	13%	25	8%	5%
Folate	38	17%	18	17%	56	17%	18%
Pantothenate	7	3%	2	2%	9	3%	3%
Calcium	86	39%	57	52%	143	44%	35%
Magnesium	37	17%	21	19%	58	18%	14%
Zinc	49	22%	30	28%	79	24%	26%
Cysteine	51	23%	26	24%	77	23%	18%
Glutathione	71	32%	37	34%	108	33%	23%
Aspatagine	29	13%	14	13%	43	13%	10%
Glutamine	41	19%	25	23%	66	20%	23%
Serine	39	18%	29	27%	68	21%	14%
Choline	0	0%	3	3%	3	1%	1%
Inositol	24	11%	16	15%	40	12%	7%
Oleic Acid	16	7%	15	14%	31	9%	7%
fructose Intolerance	30	14%	23	21%	53	16%	20%
Glucose/Insulin Metabolism	69	32%	40	37%	109	33%	25%

Table 2: Diagnosis by Age Group

Diagnosis	<65		65+		Total	
	count	%	count	%	count	%
Atherosclerosis	16	7%	41	38%	57	17%
Cancer	17	8%	16	15%	33	10%
Diabetes	43	20%	38	35%	81	25%
Gastrointestinal	79	36%	41	38%	120	37%
Hypertension	48	22%	63	58%	111	34%
Inflammatory	176	80%	82	75%	258	79%
Neurological	115	53%	70	64%	185	56%
Psychiatric	101	46%	43	39%	144	44%

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Clinical Evidence of Wellness Programs That Work- Include Proper Nutrition!

Financial:	Our patients	Peer Patients
Prescription Costs (first 6 months of 1998) (300 Private Insured and 160 Medicare Lives)	\$ 7.92	\$ 39.59
Bed Days per 1,000 – Medicare Patients	537	1,389
Bed Days per 1,000 – Private Insured	287	387
Humana (March 1997 – March 1998)(Medicare) (150 Private Insured and 360 Medicare Lives)	1,383	1,847
CIGNA 8,846 member months (1996-1997) (All Private Insured)		
Early 1996 bad days per 1,000	152	258
Late 1996 bed days per 1,000	142	262
Mid 1997 bed days per 1,000	123	
PPP Clinic (1996-1997)		
Referral cost PMPM	\$ 19.96	\$ 34.68
OMS cost PMPM	\$ 36.33	\$ 39.46
ER cost PMPM	\$ 1.30	\$ 2.87
Quality issues: 0		
PCP changes: 3		
AMRR Score: 100%		

Medical Comparisons

- * Blood pressure medications: reduction or elimination 81%
- * Gastrointestinal medications: reduction or elimination 81%
- * Diabetic medications: reduction or elimination 68%
- * Significant remissions for allergies, asthma and bronchitis
- * Significant remissions for joint and muscular complaints,
* including arthritis
- * Significant reduction of chronic fatigue, depression, migraine,
premenstrual syndrome and other chronic conditions

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