

ORIGINAL RESEARCH

CLINICAL OBSERVATIONS AND SEVEN-AND-ONE-HALF-YEAR FOLLOW-UP OF PATIENTS USING AN INTEGRATIVE HOLISTIC APPROACH FOR TREATING CHRONIC SINUSITIS

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Context • Despite the widespread popularity of alternative medical approaches to respiratory and allergic disorders, there is a lack of scientific substantiation of their benefits.

Objective • Assessment of the therapeutic benefit of an integrative holistic approach to the treatment of chronic sinusitis.

Design • Patients began a 5-month program consisting of 5 evening sessions of 2 hours each in October of 1999.

Setting • The program was held in the offices of one of the authors (WSS).

Patients • Ten patients of an allergist-immunologist specialist (WSS), symptomatic despite aggressive conventional treatment for their chronic sinusitis, were recruited to participate in an integrative holistic medical education and treatment program consisting of 5 sessions and evaluated at a 1-year follow-up. Sessions consisted of education in lifestyle and indoor-air modifi-

cation, nasal hygiene, and treatment with fluconazole. Eight of 9 subjects were located and provided feedback 7 years and 6 months later, in June 2007.

Main Outcome Measures • Health-related quality of life (QOL) was assessed using the short-form QOL survey (SF-12) and rhinitis QOL by the Rhinitis Quality of Life Questionnaire (RQLQ).

Results • No significant differences emerged in the SF-12 or mini-RQLQ scores comparing visit 2 with visit 1. Statistically significant improvement for physical and mental subscales of the SF-12 emerged comparing the results of visit 4 with visit 2 after the addition of fluconazole treatment to the regimen, persisting through an additional year of follow-up. Feedback at 7.5 years confirmed marked long-term improvement in chronic sinusitis symptoms compared to their pre-study condition. (*Altern Ther Health Med.* 2009;15(1):36-43.)

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According to estimates from the 1995 National Health Interview Survey by the National Center for Health Statistics and the Centers for Disease Control,¹ chronic sinusitis was America's most common chronic condition at the time this study was conducted, from October 1999 through March 2001. Continuing to increase in incidence, chronic sinusitis afflicts about 40 000 000 people in the United States and is the most prevalent respiratory condition in the United States.^{1,2} Treatment and cure of chronic sinusitis and the prevention of recurrences by conventional medical and surgical approaches have met with increasingly limited success.^{3,5} As a result, alternative medical approaches to chronic sinusitis as well as to many other chronic diseases are increasingly popular.^{6,8}

Given the popularity of alternative medicine in today's society, patients in a private practice of a board certified allergist (WSS) were surveyed to determine their interest in alternative medicine. Data from 113 returned questionnaires found that alternative medicine approaches had been discussed by 18% of the primary care providers or allergists previously seen. Sixty-five percent of the 113 patients, however, had wanted to discuss alternative options. Sixteen percent had seen alternative practitioners for general health issues, and 4% for their allergies. Ten percent of their primary care physicians regularly prescribed alternative medicine approaches. Of alternative providers mentioned, the greatest number had seen a chiropractor (36%). The most commonly chosen alternative treatments included vitamin/mineral therapy (28%), deep tissue massage (19%), and herbal remedies (19%). Patients selected alternative medicine approaches based on advice from a friend (39%), health food store (15%), physician (14%), magazine (8%), herbalist (6%), newspaper (1%), or other (13%).

Concomitant substantiation of the potential benefits of the addition of alternative approaches in the management of chronic sinusitis has been lacking. An observational study was undertaken to assess the potential benefit of an integrative holistic medical approach to the treatment of chronic sinusitis based on the methods described in the book *Sinus Survival*,⁹ involving this population of patients with established chronic sinusitis who continued to experi-

ence moderate to severe symptoms despite aggressive conventional medical and surgical treatment under the care of a board-certified allergist-immunologist (WSS).

OBJECTIVES

Objectives of the study included (1) evaluation of the potential independent improvement in chronic sinusitis symptoms with anti-fungal medication as part of an integrative holistic medical approach; (2) evaluation of changes in health-related quality of life (QOL) by the SF-12 short form (SF-12) and the wellness self-test¹⁰; and (3) evaluation of changes in rhinitis-related quality of life by the Full and Mini Rhinitis Quality of Life Questionnaire short form (RQLQ).¹¹

MATERIALS AND METHODS

This study is longitudinal with observations at the intervals described below. A single-group design was chosen because the group was small and consisted entirely of patients of a board-certified allergist and clinical immunologist, with all members attending group sessions together. This allowed the investigators to monitor and evaluate the clinical status of patients for any exacerbations between group sessions.

Participants

Fifteen patients, aged 30 to 70 years with at least 2 consecutive years of chronic sinusitis were accepted for the treatment program. Chronic sinusitis was defined as persistent or recurrent episodes of infection and/or inflammation of 1 or more sinus cavities producing most or all of the following symptoms: headache, facial pain, head congestion, purulent postnasal drainage or rhinorrhea, and fatigue.^{9,12} The patients were selected from the practice population of a board-certified allergist-immunologist during patient visits over a span of 4 months, representing those most resistant to conventional treatment.

Design

Ten patients completed the program with 5 evening Sinus Survival classes of 2 hours each at monthly intervals. There was no fee for the classes. Five patients dropped out following visit 1 due to their inability to commit to the treatment program. There was no further follow-up with these patients. The book *Sinus Survival*⁸ was recommended to participants. Patients were expected to implement the therapeutic recommendations and lifestyle suggestions offered in the class. All subjects kept and completed a symptom chart with weekly entries. They also completed baseline measurements including subjective assessment of their health status for the 2 years prior to enrollment and at baseline using the SF-12¹⁰; patients' subjective assessment of sinusitis-related symptoms for 2 years prior to enrollment (RQLQ)¹¹; completion of the Wellness Self Test¹³; completion of a Symptom Chart⁹; and completion of the *Candida* Questionnaire and Score Sheet created by William G. Crook, MD¹⁴ and reprinted with permission in *Sinus Survival*.

Physical examination at baseline and at study completion emphasized the chest and upper respiratory tract. Analysis reflects data on 9 patients finishing the 1-year follow-up at visit 6, with 1 patient failing to complete all the required data.

Patients served as their own controls based on their 2-year history

prior to enrollment. During the study, broad-spectrum antibiotics were prescribed for any patient with an exacerbation of acute sinusitis¹⁵ whose purulent rhinorrhea and/or purulent postnasal drainage did not significantly diminish within 10 days of treatment with the study protocol for acute sinusitis (see Visit 1: Nutritional and Botanical Supplements, below). Any patient choosing to be treated with conventional measures including antibiotics and corticosteroids or who wished to be removed from the study for any reason was free to do so at any time while continuing to receive full support and medical care of the attending allergist-immunologist.

Outcome Measures

The study's outcome measures were (1) evaluation of changes in health-related quality of life (QOL) indicated by the SF-12 and (2) evaluation of changes indicated by the RQLQ.

Study Visits and Therapeutic Management

Visit 1 measured the outcomes of conventional treatment and the possible diagnosis of fungal sinusitis as measured by the *Candida* Questionnaire and Score Sheet, visit 2 measured the outcomes of the integrative holistic treatment without fluconazole, and visit 3 measured the outcomes after the addition of fluconazole to the integrative holistic program.

Visit 1: Physical and Environmental Health

All of the following were recommended at the first visit:

Modification of indoor air¹⁷

1. Negative air ion generator (Sinus Survival Air Vitalizer, Sinus Survival, Denver, Colorado)^{18,19}
2. Warm mist humidifier (Bonaire, Milford, Massachusetts) with weekly cleaning instructions²⁰
3. Air duct cleaning with Monster Vac (Glenwood Springs, Colorado)²¹

Nasal hygiene program

1. Steam inhaler (Vicks Steam Inhaler, Procter & Gamble, Cincinnati, Ohio) or other respiratory steam therapy/personal steam inhaler²²—3 times daily for 20 minutes with a medicinal eucalyptus oil (Sinus Survival)—1 to 2 sprays every 5 minutes
2. Nasal irrigation (SinuCleanse, Med-Systems Inc, Madison, Wisconsin)^{23,24,25}—3 times daily following steam inhaler.
3. Botanical nasal spray with aloe vera,²⁶ goldenseal,²⁷ and grapefruit seed extract²⁸ included (Sinus Survival Spray)—1 to 2 sprays in each nostril every 2 to 3 hours

Dietary modifications

1. Elimination of dairy products^{29,30,31}
2. Elimination of processed sugar³²
3. Elimination of fruit (sugar)
4. Elimination of alcohol³³
5. Elimination of wheat products³⁴
6. Determination of intake of filtered or bottled water, at least .5 oz daily per lb of body weight³⁵

Nutritional and botanical supplements

1. Antioxidants:
 - a) Vitamin C36 as Ester C or polyascorbate—2000 mg 3 times daily; for acute sinusitis, 4000 mg 3 times daily
 - b) Vitamin E37—400 IU twice daily
2. Multivitamin^{38,39}—1 twice daily
3. Proanthocyanidins⁴⁰ (Masquelier's Original OPC Grape Seed)—100 mg 3 times daily; for acute sinusitis, 200 mg 3 times daily
4. Garlic^{41,42}—600 mg 3 times daily; for acute sinusitis, 1200 mg 3 times daily
5. Flaxseed oil⁴³—1 tablespoon twice daily

For acute sinusitis, the following was added:

6. Echinacea⁴⁴—200 mg 3 times daily for 3 weeks; omit for 1 week then resume
7. Grapefruit seed extract²⁸—100 mg 3 times daily

In addition to the nutritional and botanical supplements, mild aerobic exercise was prescribed—a minimum of 3 times per week, achieving a maximum heart rate (220 minus age times 0.6) for a duration of at least 20 minutes.⁴⁵

Also at the first visit, a physical examination with special attention to eyes, ears, nose, throat, and chest was conducted.

Completing the first visit also involved the following:

1. Evaluation of the Chronic Sinusitis Questionnaire
2. Completion of starting point symptom chart
3. Scoring of the SF-12 and Wellness Self-Test
4. Completion of the RQLQ and the mini-RQLQ
5. Completion of the *Candida* Questionnaire and Score Sheet

Visit 2, at 5 Weeks After Visit 1

1. Symptom charts were reviewed, copied, and returned to patients
2. Progress reviewed, with discussion, questions and answers, encouragement and reinforcement of patient commitment
3. Continuation of all visit 1 therapies
4. Completion of the SF-12 and mini-RQLQ
5. For those not experiencing any significant improvement (all study participants did not improve, and all scored above 120 on the *Candida* Score Sheet, indicating “probably yeast-connected”), prescription of fluconazole 200 mg daily for 5 weeks and every other day for another 3 weeks^{46,47}

Visit 3, at 10 Weeks After Visit 1: Mental and Emotional Health

1. Symptom charts were reviewed, copied, and returned to patients
2. Follow-up review of progress: questions and answers, encouragement, and reinforcement of patient commitment
3. Continuation of all visit 1 and 2 therapies except the following:
 - a) Resume fruit and minimally increase complex carbohydrates
 - b) Reduce fluconazole 200 mg to every other day for another 3 weeks
 - c) Reduction of vitamins and botanicals to initial dosage for patients with chronic sinusitis who no longer have an exac-

erbation with purulent rhinorrhea and/or purulent postnasal drainage

4. Addition of supplementary therapies:
 - a) Prescription for the writing and daily recitation and visualization of a list of 10 to 12 affirmations.⁴⁸ This list encompassed the patient's primary objectives for his/her own life: physical, environmental, mental, emotional, spiritual, and social
 - b) Instruction in and prescription for practicing 1 anger-release technique daily for 1 to 15 minutes; options included punching, screaming, stomping, and journaling⁴⁹
 - c) Prescription of acidophilus and bifidus supplements, 2 capsules 3 times daily for all patients taking fluconazole

Visit 4, at 14 Weeks After Visit 1

1. Symptom charts were reviewed, copied, and returned to patients
2. Follow-up review of progress: questions and answers, encouragement and reinforcement of patient commitment
3. Continuation of all visit 1, 2, and 3 therapies
4. Completion of the SF-12, RQLQ and mini-RQLQ
5. Addition of the following therapies:
 - a) Prescription for meditation,⁵⁰ beginning with at least 5 minutes twice daily
 - b) Prescription of a listening exercise, spending at least 20 to 40 minutes weekly with spouse or partner; each person expressing feelings without partner response, followed by role reversal as the speaker becomes the listener⁵¹
 - c) Prescription for a date night—scheduling at least 1 evening or a portion of the day each week reserved for recreation alone with spouse or partner without children or friends present⁵²—or with a friend (for patients without significant others).
 - d) Prescription to attend the Sinus Survival support group meetings of 10 enrolled patients.⁵³

Visit 5, at 18 Weeks After Visit 1: Focus on Review, Support, and Outcome Measurements

1. Symptom charts were reviewed, copied, and returned to patients
2. Follow-up review of progress: questions and answers, encouragement and reinforcement of patient commitment
3. Completion of objective measurements:
 - (a) Physical examination
 - (b) Completion of final mini RQLQ
 - (c) Completion of repeat SF-12 and Wellness Self-test

Visit 6 (1 Year After Visit 5), at 70 Weeks After Visit 1

Completion of final RQLQ. Nine of the 10 subjects completed this visit, and the tenth was lost to follow-up. Seven-and-one-half-year follow-up obtained data from 8 of the 9 patients who could be located.

RESULTS

Comparisons were tested using a 2-sided paired *t*-test. No adjustments for multiple comparisons were made. Statistical significance is assumed for $P < .05$.

Table 1 displays the observed mean values and descriptive statistics for the SF-12 and the full RQLQ dimensions and total for each study visit. Statistical data compares the full RQLQ difference between visits 1 and 4, the mini-RQLQ difference between visits 1 and 4 and visits 2 and 4, and the SF-12 difference between visits 1 and 4 and visits 2 and 4. For the full and mini-RQLQ, a difference greater than 0.50 per dimension or total corresponds to the minimally important difference. No statistically significant differences emerged for the physical and mental subscales of the SF-12 or for any scale of the mini-RQLQ between visits 1 and 2.

The SF-12 showed no statistically significant difference for either the physical or mental subscales comparing visits 1 and 4. A higher SF-12 score implies better health. The full RQLQ showed statistically significant improvements for sleep, non-hay fever symptoms, and overall score. A lower RQLQ score implies improving symptoms. The mini-RQLQ showed significant improvements for activities, nasal symptoms, eye symptoms, and overall score.

Table 2 shows the changes for the SF-12 and the full RQLQ between visit 1 and visit 6 (1-year follow-up). For the SF-12, the mean physical and mental scores showed significant improvement to 7.6 and 10.3, respectively, at 1 year compared to visit 1. All of the RQLQ outcomes except eye condition showed significant improvement of about 2.0 scale points at 1 year compared to visit 1.

Table 3 displays the comparison of visits 2 and 4. The physical and mental subscale scores of the SF-12 showed significant gains. Gains were also seen with significant differences in the RQLQ scales for non-hay fever symptoms, eye symptoms, and overall score.

Table 4 shows the differences between the 1-year follow-up and visit 4 at 14 weeks (ie, follow-up minus visit 4) for the SF-12 and the full RQLQ. For the SF-12, the 2 measures were improved somewhat at the 1-year follow-up but did not reach statistical significance. All of the full RQLQ outcomes measures were improved somewhat at 1-year follow-up, but these also did not reach statistical significance.

The Figure shows the patient feedback at 7.5 years' follow-up. The positive evaluations demonstrate the continuing benefit of the entire program.

DISCUSSION

Integrative holistic medicine can be defined as the art and science of healing that addresses care of the whole person—body, mind, and spirit. The practice of holistic medicine integrates conventional and complementary therapies to promote optimal health and to prevent and treat disease by mitigating causes. The extensive use of alternative, complementary, integrative, or holistic options in medical care was first described by Eisenberg et al in 1993.⁶ A follow-up by these authors in 1998 found 46% of the population seeking treatment by an “alternative practitioner” in the previous year, primarily for chronic conditions.⁷ Astin found that a major motivation involved appeared to include a desire on the part of the patient to work with a practitioner with a “holistic orientation to health, consistent with having had a transformational experience which shifted their worldview.”^{8(p1548)}

Seeking conventional treatment for allergies and asthma is much more common than pursuing alternative medical advice. This is largely a result of the effectiveness of medication in managing the symp-

toms of both of these conditions. However, chronic sinusitis has become increasingly less responsive to conventional treatment. Clinical allergists may be well served to be aware of and discuss the possible role of alternative or integrative holistic approaches with patients who indicate interest in this arena.

The widespread popularity of books dedicated to the causes and treatment of chronic sinusitis gives testimony to the interest of the lay public in being better informed about alternative treatments for chronic sinusitis. In this observational study the integrative holistic medical treatment program for chronic sinusitis without the addition of fluconazole appeared to be associated with little or no improvement or a nonsignificant worsening of symptoms. This result is compatible with the clinical experience of lead author RSI. Before committing to an integrative holistic treatment program, the vast majority of chronic sinusitis patients have been conventionally treated with multiple courses of broad-spectrum antibiotics. It has been observed by lead author RSI that these patients are therefore far more susceptible to fungal sinusitis and as a result pose a far greater therapeutic challenge. For this reason, the lead author's integrative holistic medical approach for treating patients with severe chronic sinusitis typically includes antifungal medication (in addition to antifungal supplements and adherence to an “anti-*Candida* diet” that is even more restricting than that recommended in the study) on the first visit, in addition to the entire regimen offered to the patients in this study.

In order to isolate and evaluate the therapeutic benefit of fluconazole alone, however, this medication was withheld until the second session. The data clearly demonstrate a statistically significant improvement compared to baseline and the first visit following the introduction of fluconazole. Although this study documents the benefit of treating severe chronic/fungal sinusitis with fluconazole, it is the lead author's experience that the entire integrative holistic medical approach is necessary in order to address each of the primary causes of chronic sinusitis—chronic inflammation of the mucous membranes, immune dysfunction, and fungal infection/yeast overgrowth—and obtain long-term relief from and a cure for this chronic condition. The patients continued to apply most of the recommended therapies for nearly 18 months, whereas the fluconazole was a short-term therapy. The improvement seen during the first 5 months and especially at the 1-year follow-up (Table 4) may well be seen as a result of the patients' ongoing implementation of some portion of the entire program (including lifestyle changes), not simply the 8-week course of fluconazole. The nasal hygiene measures helped to reduce the inflamed mucous membranes; the antioxidants, vitamins, herbs, and supplements assisted in strengthening and restoring balance to the immune system; and the recommended diet and probiotics kept the fungal sinusitis in check following the course of fluconazole.

This improvement is consistent with results of the 1999 Mayo Clinic sinusitis study⁴⁷ in which allergic responses to fungal organisms were thought to play a prominent role in chronic sinusitis. A non-IgE-mediated immunological mechanism has been described to explain common airborne fungi reactivity in patients with chronic sinusitis.⁵⁴ Further work appears to confirm the significance and importance of these findings.⁵⁵ There have been very few studies on the treatment for chronic sinusitis, however, and all have been of short duration. Our

TABLE 1 Mean Values for the SF-12 and the Full RQLQ Survey by Visit*

Variable	N	Mean	SD	Minimum	Maximum
Physical subscale (SF-12)	9	43.05	7.20	30.59	51.71
Mental subscale (SF-12)	9	42.82	10.05	28.88	57.47
Activities (full RQLQ)	10	3.05	1.32	1.00	5.00
Sleep (full RQLQ)	10	2.93	1.56	0.33	6.00
Non-hay fever (full RQLQ)	10	3.07	1.10	1.00	5.47
Practical problems (full RQLQ)	10	2.97	1.24	1.00	5.00
Nasal (full RQLQ)	10	3.40	1.57	0.25	5.75
Eyes (full RQLQ)	10	1.53	1.47	0.00	5.00
Emotion (full RQLQ)	10	3.25	1.57	0.00	5.25
Overall (total)	10	2.89	1.01	0.71	3.86
Visit 2†					
Physical subscale (SF-12)	10	38.99	9.35	24.00	51.12
Mental subscale (SF-12)	10	39.37	10.21	19.06	54.23
Visit 4†					
Physical subscale (SF-12)	9	46.04	9.14	32.75	56.90
Mental subscale (SF-12)	9	48.63	9.93	32.04	60.29
Activities (full RQLQ)	9	2.04	1.74	0.00	4.00
Sleep (full RQLQ)	9	1.48	1.02	0.00	3.00
Non-hay fever (full RQLQ)	9	1.60	1.01	0.00	3.00
Practical problems (full RQLQ)	9	2.70	2.21	0.00	5.67
Nasal (full RQLQ)	9	2.17	1.46	0.25	4.25
Eyes (full RQLQ)	9	0.86	1.32	0.00	3.75
Emotion (full RQLQ)	9	2.11	1.48	0.00	4.00
Overall (total)	9	1.80	1.23	0.11	3.68
Visit 5†					
Physical subscale (SF-12)	5	48.18	11.11	34.08	57.94
Mental subscale (SF-12)	5	45.64	14.55	26.20	56.66
Activities (full RQLQ)	6	1.61	1.88	0.00	4.00
Sleep (full RQLQ)	6	1.44	1.56	0.00	3.67
Non-hay fever (full RQLQ)	6	1.57	1.47	0.14	3.71
Practical problems (full RQLQ)	6	2.11	2.30	0.00	5.33
Nasal (full RQLQ)	6	1.83	1.86	0.00	4.75
Eyes (full RQLQ)	6	1.13	1.46	0.00	3.50
Emotion (full RQLQ)	6	2.25	1.77	0.75	4.75
Overall (total)	6	1.69	1.59	0.39	3.75
Visit 6†					
Physical subscale (SF-12)	9	50.69	10.37	32.46	57.26
Mental subscale (SF-12)	9	53.12	7.01	41.19	62.13
Activities (full RQLQ)	9	1.22	1.41	0.00	3.67
Sleep (full RQLQ)	9	1.11	1.52	0.00	3.67
Non-hay fever (full RQLQ)	9	1.02	1.25	0.00	3.29
Practical problems (full RQLQ)	9	1.22	1.11	0.00	3.00
Nasal (full RQLQ)	9	1.17	1.27	0.00	3.25
Eyes (full RQLQ)	9	0.42	0.85	0.00	2.25
Emotion (full RQLQ)	9	0.94	1.12	0.00	2.50
Overall (total)	9	1.00	1.10	0.00	2.86

*Displays the observed mean values and descriptive statistics for the short-form QOL survey (SF-12) and the full Rhinitis Quality of Life Questionnaire (RQLQ) dimensions and total for each study visit. Statistical data compare the full RQLQ difference between visits 1 and 4; the mini-RQLQ difference between visits 1 and 4 and visits 2 and 4; and the SF-12 difference between visits 1 and 4 and visits 2 and 4.

†Data analyzed using the MEANS Procedure.

TABLE 2 Comparison of 1-Year Follow-up With Visit 1 SF-12 and Full RQLQ Survey*†

Variable	N	t-test				P Value
		Mean	SD	Minimum	Maximum	
Physical subscale (SF-12)	9	7.64	6.58	-3.25	17.52	.0083
Mental subscale (SF-12)	9	10.31	9.68	-4.84	23.80	.0127
Activities (full RQLQ)	9	-1.94	2.03	-5.00	1.33	.0209
Sleep (full RQLQ)	9	-1.93	1.54	-4.33	0.67	.0057
Non-hay fever (full RQLQ)	9	-1.94	1.17	-3.71	0.14	.0011
Practical problems (full RQLQ)	9	-1.63	1.71	-5.00	0.00	.0213
Nasal (full RQLQ)	9	-1.97	1.95	-5.25	1.25	.0164
Eyes (full RQLQ)	9	-1.06	1.59	-5.00	0.25	.0816
Emotion (full RQLQ)	9	-2.31	2.02	-5.25	0.00	.0091
Overall (total)	9	-1.83	1.42	-3.79	0.43	.0047

*Displays the changes for the short-form QOL survey (SF-12) and the full Rhinitis Quality of Life Questionnaire (RQLQ) between visit 1 and visit 6 (1-year follow-up).

†All differences are in the order of "1-year follow-up minus visit 1."

TABLE 3 Comparison of 1-Year Follow-up With Visit 2 Based on Results of SF-12 and Full RQLQ Survey*†

Variable	N	t-test				P Value
		Mean	SD	Minimum	Maximum	
Physical subscale (SF-12)	9	11.69	12.87	-11.14	28.52	.0260
Mental subscale (SF-12)	9	13.42	13.49	-3.96	43.06	.0175

*Displays the comparison of visits 2 and 4; SF-12 indicates short-form QOL survey; RQLQ, Rhinitis Quality of Life Questionnaire.

†All differences are in the order of "1-year follow-up minus visit 2."

study involved antifungal treatment of relatively short duration (8 weeks) with long-term benefits. The authors believe that this consistent improvement over a period approaching 8 years is a reflection of the total integrative holistic approach addressing all of the underlying causes of chronic sinusitis.

In mild to moderate cases of sinus disease in which fungal infection is not suspected, one author (RSI) has found that the integrative holistic treatment program without fluconazole is highly effective. All of the patients included in this study were thought to have fungal sinusitis and were candidates for fluconazole therapy.

It should be noted that the long-term improvement demonstrated in the 1- and 7.5-year follow-ups (Tables 4 and 5, respectively) is also remarkable given the study participants' significantly lesser degree of

TABLE 4 Comparison of 1-Year Follow-up With Visit 4 Based on Results of the SF-12 and Full RQLQ Survey*†

Variable	N	t-test				P Value
		Mean	SD	Minimum	Maximum	
Physical subscale (SF-12)	9	4.65	12.11	-20.49	23.32	.2827
Mental subscale (SF-12)	9	4.50	14.18	-13.29	30.09	.3692
Activities (full RQLQ)	9	-0.81	1.99	-4.00	2.00	.2535
Sleep (full RQLQ)	9	-0.37	1.80	-3.00	2.00	.5539
Non-hay fever (full RQLQ)	9	-0.59	1.65	-3.00	2.00	.3163
Practical problems (full RQLQ)	9	-1.48	2.40	-5.33	1.33	.1017
Nasal (full RQLQ)	9	-1.00	1.85	-4.00	1.50	.1435
Eyes (full RQLQ)	9	-0.44	1.32	-3.75	0.75	.3405
Emotion (full RQLQ)	9	-1.17	1.95	-4.00	0.75	.1108
Overall (total)	9	-0.81	1.70	-3.64	1.25	.1925

*Displays the differences between the 1-year follow-up and Visit 4 at 14 weeks (ie, follow-up minus visit 4) for the short-form QOL survey (SF-12) and the full Rhinitis Quality of Life Questionnaire (RQLQ).

†All differences are in the order of "1-year follow-up minus visit 4."

commitment compared to that of patients with moderate-to-severe chronic and fungal sinusitis typically treated by this study's lead author. The patients in this study were still confident in the care they were receiving from a conventional allergist. They had neither sought alternative care nor did they pay a fee for the treatment provided throughout the course of the study. Most significantly, they were not as desperate, had not read *Sinus Survival* before participating in the study, and they were not as inspired, motivated, and hopeful as many of the lead author's private patients have been after reading the book. This latter group of patients usually demonstrate a greater willingness to make lifestyle changes and to do whatever is necessary to get well.

Alternative approaches to allergic respiratory conditions⁵⁶ often involve botanical therapy (Western and Asiatic herbs),^{57,58} psychological interventions,^{49,59} hypnosis,⁶⁰ and homeopathy.⁶¹ There is growing evidence that stress plays a role in asthma and allergic responses.⁶² It has been the clinical experience of the lead author that repressed anger and unshed tears (a sense of loss/grief) in response to an underlying perceived loss of love (often from oneself) are the primary emotional factors causing chronic and fungal sinusitis.

Food allergy occurs frequently enough to be an etiological consideration in the allergy symptoms of many children and adults⁶³; respiratory allergic symptoms can clearly be the result of ingestant exposure.⁶⁴

The role of probiotics in primary prevention of atopic disease and the effect on cytokines involved in allergic immune responses continue

FIGURE Follow-up Questionnaire and Responses From 8 of 9 Study Participants at 7.5 Years' Follow-up

<p>1. Compared to prior to October 1999, my sinus condition today is better, worse, or the same? Better: 8 of 8</p>		<p>7. I had sinus surgery:</p> <table border="0"> <tr> <td></td> <td>Prior to October 1999</td> <td>Since March 2000</td> </tr> <tr> <td>No</td> <td>2</td> <td>6</td> </tr> <tr> <td>Yes: 1 surgery</td> <td>3</td> <td>2</td> </tr> <tr> <td>3 surgeries</td> <td>2</td> <td>0</td> </tr> <tr> <td>5 surgeries</td> <td>1</td> <td>0</td> </tr> </table>			Prior to October 1999	Since March 2000	No	2	6	Yes: 1 surgery	3	2	3 surgeries	2	0	5 surgeries	1	0									
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5 surgeries	1	0																									
<p>2. Rate your sinus condition on a scale of 1 to 10 (1= worst, 10=optimum)</p> <table border="0"> <tr> <td>Prior to October 1999</td> <td>Currently</td> <td></td> </tr> <tr> <td>2</td> <td>9</td> <td>(2 participants)</td> </tr> <tr> <td>3</td> <td>9</td> <td>(1 participant)</td> </tr> <tr> <td>3</td> <td>8</td> <td>(1 participant)</td> </tr> <tr> <td>3.5</td> <td>7.5</td> <td>(1 participant)</td> </tr> <tr> <td>4</td> <td>7</td> <td>(1 participant)</td> </tr> <tr> <td>4</td> <td>6</td> <td>(1 participant)</td> </tr> <tr> <td>6</td> <td>7.5</td> <td>(1 participant)</td> </tr> </table>		Prior to October 1999	Currently		2	9	(2 participants)	3	9	(1 participant)	3	8	(1 participant)	3.5	7.5	(1 participant)	4	7	(1 participant)	4	6	(1 participant)	6	7.5	(1 participant)	<p>8. During the past 7 years, which therapies that you learned during the Sinus Survival Study have you continued or found to be most beneficial in caring for your sinuses?</p> <p>Nasal irrigation: 8 Eliminate or reduce sugar: 4 Steaming: 3 (with eucalyptus oil: 1; with tea tree oil: 1) Eliminate or reduce wheat: 2 dairy: 2 alcohol: 2 General dietary improvement: 2 Supplements: 2 vitamin C: 1 fish oil: 1 Saline spray: 1 Ionizer: 1 Humidifier: 1 Affirmations: 1 Anger release: 1 Avoid antibiotics: 1 The program "helped my asthma": 2</p>	
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<p>3. Compared to prior to October 1999, my overall health today is generally: better, worse, or about the same? Better: 8 of 8</p>		<p>9. During the past 7 years, have there been any significant changes in your life that have impacted your overall health and sinus condition?</p> <p>No significant changes: 2 "I have gotten into mind-body medicine and meditate." "More aware of stress and diet and how that affects sinuses." "Diagnosed with lupus (2002) and sinus polyps which cause the loss of smell and taste." "Thanks for giving me my life back." "Sinus surgery to remove polyps, and removal of abscessed upper wisdom teeth."</p>																									
<p>4. Rate your energy level on a scale of 1 to 10 (1=extreme fatigue, 10=unlimited energy)</p> <table border="0"> <tr> <td>Prior to October 1999</td> <td>Currently</td> </tr> <tr> <td>3</td> <td>7</td> </tr> <tr> <td>3</td> <td>9</td> </tr> <tr> <td>3.5</td> <td>7.5</td> </tr> <tr> <td>4</td> <td>6.5</td> </tr> <tr> <td>4</td> <td>8</td> </tr> <tr> <td>5</td> <td>9</td> </tr> <tr> <td>6</td> <td>8</td> </tr> <tr> <td>7</td> <td>8</td> </tr> </table>		Prior to October 1999	Currently	3	7	3	9	3.5	7.5	4	6.5	4	8	5	9	6	8	7	8								
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<p>5. I averaged the following number of sinus infections/year:</p> <table border="0"> <tr> <td></td> <td>Prior to October 1999</td> <td>Since March 2000</td> </tr> <tr> <td>0-1</td> <td>0</td> <td>1</td> </tr> <tr> <td>2-3</td> <td>0</td> <td>6</td> </tr> <tr> <td>4-5</td> <td>3</td> <td>0</td> </tr> <tr> <td>>5</td> <td>5</td> <td>1</td> </tr> </table>			Prior to October 1999	Since March 2000	0-1	0	1	2-3	0	6	4-5	3	0	>5	5	1											
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<p>6. I averaged the following number of courses of antibiotics/year:</p> <table border="0"> <tr> <td></td> <td>Prior to October 1999</td> <td>Since March 2000</td> </tr> <tr> <td>0-1</td> <td>0</td> <td>3</td> </tr> <tr> <td>2-3</td> <td>0</td> <td>5</td> </tr> <tr> <td>4-5</td> <td>3</td> <td>0</td> </tr> <tr> <td>>5</td> <td>5</td> <td>0</td> </tr> </table>			Prior to October 1999	Since March 2000	0-1	0	3	2-3	0	5	4-5	3	0	>5	5	0											
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to be an area of evolving understanding regarding the gut microflora's role in altered immune responses.⁶⁵ The preventive effect of probiotics appears to extend well beyond the previously shown benefits in the first 2 years of life.⁶⁶

The evidence for benefit with acupuncture⁶⁷ and various manual therapies is mixed. Many integrative interventions have not been subjected to controlled studies, although patients often have favorable opinions about their effects.⁶⁶ The growing interest from practitioners and patients alike has been well documented.⁵⁷

In their extensive review, Heimal and Bielory point out that potential side effects are not limited to conventional drug treatments of allergic conditions but are seen with integrative and alternative approaches as well.⁶⁸ A second extensive review by Miller includes data on immunological and clinical issues in allergy, including potential benefits from yoga and biofeedback.⁶⁹

After participating in this study and being impressed with the process, patient engagement and satisfaction, and therapeutic outcomes, the "conventional" allergist (coauthor WSS) modified his summary consultation to be an "Integrative Summary Consultation,"

including discussion of the mental, emotional, social, and spiritual approaches to the patient's health per the patient's desires.

The relationships among conventional and integrative holistic approaches to the management of sinusitis clearly are evolving. Conventional practitioners need to be in ongoing communication with their patients, including awareness of their interest in alternative practices, in order to design therapeutic programs that integrate a mix of conventional and integrative therapies meeting reasonable standards for evidence-based care.

CONCLUSION

Our 14-month observational study of patients with intractable chronic sinusitis suggested that the integrative holistic medical treatment program including antifungal drug treatment resulted in distinct improvement from baseline to visits 4 and 5 (14 and 18 weeks). This statistically significant benefit persisted through the additional year, further improving nonsignificantly by the final 1-year follow-up visit. Additionally, the 7.5-year follow-up in 8 of 9 subjects indicated continued and marked benefit of the program.

Acknowledgments

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