The Clinical Value of Complementary Approaches in Foregut Disorders of Gut-Brain Interaction

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ABSTRACT

Introduction
Complementary therapy is often utilized as an adjunct to pharmaco-therapeutics and cognitive/behavioral therapy (CBT) in symptomatic disorders of gut-brain interaction (DGBI), but specific value of each approach remains unclear. We evaluated the clinical value of complementary approaches in foregut DGBI that persisted despite standard management.

Methods
Study subjects were identified from a cohort of patients with established DGBI managed at a tertiary clinic. Use of complementary therapy (ginger, peppermint oil, turmeric, acupuncture, dietary modifications, exercise, and probiotics) was identified from review of electronic medical records. Concurrent neuromodulator therapy and/or CBT was not an exclusion. Symptom frequency and severity was quantified using a 100 mm visual analog scale (VAS) and averaged, while health related quality of life was evaluated using the BEST questionnaire; both were administered at initial presentation and upon follow up. Data were analyzed to determine 30% improvement in symptom burden collectively and within each symptomatic cohort.

Results
Over a 26-month period, 163 DGBI patients (median age 59.0 years, 66.9% F, BMI 26.1 kg/m^2) were included, and 68 (41.7%) had foregut symptoms (heartburn, regurgitation, chest pain, bloating, belching, cough, nausea). Neuromodulators (151, 92.6%) and CBT 35 (21.5%) were standard therapy. Among complementary therapy, peppermint oil was utilized most often (41, 25.2%), followed by dietary modifications (35, 21.5%), probiotics (30, 18.4%) and exercise (25, 15.3%). BEST scores improved in 60 (36.8%), and VAS in 57 (35.0%). Overall symptom change was similar with and without complementary approaches; CBT provided an overall trend toward improvement (p=0.06). Within foregut symptom groups, overall symptoms on VAS trended toward improvement with exercise (75.0% vs. 38.6%, p=0.067). BEST score improved with ginger extract in patients with nausea (100% vs. 42.7%, p=0.037), and with peppermint oil in patients with esophageal symptoms (heartburn, regurgitation, chest pain, belching) (100.0% v. 18.2%, p=0.027). VAS improved more often with anxiety (53.2%) and depression (50.0%) compared to multiple (20.9%) or no (31.6%) psychiatric comorbidities (p=0.009). BEST score improvement was higher in patients with anxiety (54.8%) and depression (50.0%) compared to multiple psychiatric abnormalities (26.3%, p=0.057).

Discussion
In foregut DGBI, complementary therapeutic approaches are most beneficial when tailored to presenting symptoms.

BACKGROUND

Disorders of gut-brain interaction (DGBI) are common among patients seeking gastroenterological consultation.

Although neuromodulation is accepted as a first line treatment modality, response rates remain imperfect.

When symptom relief is incomplete, complementary approaches are beneficial adjuncts to neuromodulator therapy in patients with DGBI. Complementary therapy can include diet changes, exercise, ginger, peppermint oil, turmeric, probiotics, and acupuncture, among others. Cognitive and behavioral therapy, gut directed hypnotherapy and other psycho-gastroenterological approaches can also be utilized to improve residual symptoms.

Although data is emerging to support the use of complementary approaches, there remains much to be learned about efficacy.

AIMS

To assess symptom response to complementary therapy in comparison to standard therapy alone in foregut DGBI

To determine whether subsets of DGBI patients respond differently to complementary therapy

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METHODS

SUBJECTS:
- ✓Retrospective analysis of symptomatic adult patients with DGBI referred to our tertiary care center for further management
- ✓Organic disease evaluated fully in all cases
  - ✓Endoscopic exam
  - ✓Serological testing
  - ✓Imaging
  - ✓Physiological testing, where indicated
- ✓Patients without organic disease or with incomplete response despite adequate treatment of identified pathology were considered for inclusion
- ✓All patients remained eligible for referral to psychologist trained in psycho-gastroenterological treatment modalities

SYMPTOM ASSESSMENT
- ✓Symptom burden assessed using questionnaires assessing symptom severity and frequency on 100 mm visual analog scales before and after therapy
  - ✓Complementary therapy cohort
  - ✓Standard management cohort

B.E.S.T. SCORE
- ✓4 item questionnaire on 5-point Likert scale
  - ✓How **B**ad are symptoms?
  - ✓Can you **E**njoy things you used to enjoy?
  - ✓Do you feel that your bowel symptoms mean there's something **S**eriously wrong?
  - ✓Do your bowel symptoms make you feel **T**ense?
- ✓Addresses quality of life in addition to bowel symptom severity, psychological severity, and affective states (range 0-100, where 100 is severe)

INTERVENTIONS
- ✓Use of complementary therapy was identified through review of EMR
  - ✓Peppermint oil, ginger, turmeric, acupuncture, dietary modification, exercise, probiotics
- ✓Psycho-gastroenterologic interventions involved individualized sessions with a health psychologist. Included CBT and/or gut focused medical hypnosis and relaxation training

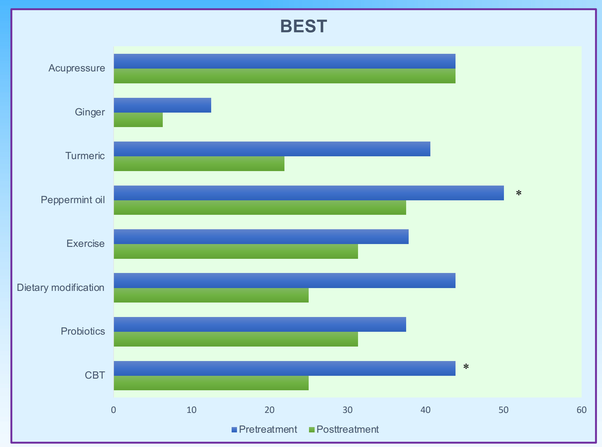
STATISTICS
- ✓ Data reported as mean ± SEM or median (interquartile range)
- ✓ Categorical data were compared using the χ-squared test, and continuous data using Mann Whitney and Wilcoxon tests as appropriate

Baseline patient characteristics

	Overall n=163	Complementary approaches n=94	Standard therapy n=69	p value
Age	59.0 (45.0-69.0)	59.5 (49.0-70.0)	59.0 (40.5-67.5)	0.296
Gender	109 (66.9%)	66 (70.2%)	43 (62.3%)	0.571
BMI	26.1 (22.4-30.4)	24.2 (21.7-29.7)	27.1 (23.8-31.7)	0.011
Clinical presentation				
Esophageal symptoms	21 (12.9%)	11 (11.7%)	10 (14.5%)	0.641
Nausea/FD	33 (20.2%)	15 (16.0%)	18 (26.1%)	0.120
IBS	82 (50.3%)	53 (56.4%)	29 (42.0%)	0.082
Baseline symptom burden				
BEST score	31.3 (12.5-62.5)	37.5 (12.5-62.5)	31.3 (9.4-59.4)	0.362
Severity (VAS)	6.0 (3.0-8.0) Q1	6.0 (3.0-7.6)	6.0 (3.0-8.0)	0.698
Frequency (VAS)	6.5 (3.5-8.0)	6.4 (3.4-8.0)	6.8 (3.4-8.4)	0.621

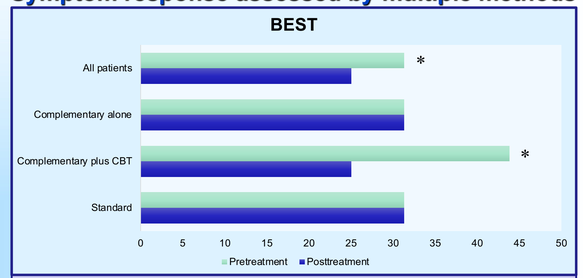
Treatment response by intervention

	Complementary approaches n=94	Standard therapy n=69	p value
≥ 30% BEST improvement			
Probiotics	10/25 (48.0%)	48/110 (43.6%)	0.824
Dietary modification	12/29 (41.4%)	48/106 (45.3%)	0.834
Exercise	10/18 (55.6%)	50/117 (42.7%)	0.322
Peppermint oil	16/38 (42.1%)	44/97 (45.4%)	0.848
Turmeric	3/4 (75.0%)	57/131 (43.5%)	0.323
Ginger	4/4 (100.0%)	56/131 (42.7%)	0.037
Acupuncture	1/4 (25.0%)	59/131 (45.0%)	0.629
≥ 30% VAS improvement			
Probiotics	10/29 (34.5%)	47/129 (36.4%)	1.000
Dietary modification	14/34 (41.2%)	43/124 (34.7%)	0.547
Exercise	10/23 (43.5%)	47/135 (34.8%)	0.484
Peppermint oil	14/41 (34.1%)	43/117 (36.8%)	0.851
Turmeric	3/5 (60.0%)	54/153 (35.3%)	0.352
Ginger	2/4 (50.0%)	55/154 (35.7%)	0.620
Acupuncture	1/5 (20.0%)	56/153 (36.6%)	0.654

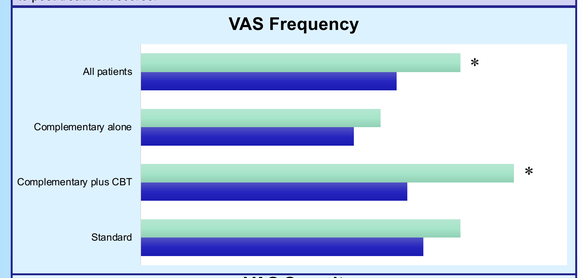


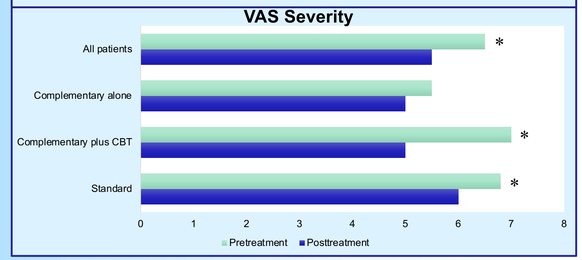
Cognitive behavioral therapy (p=0.003) and peppermint oil (p=0.001) demonstrated highest efficacy amongst complementary modalities used, assessed by pre- and post-treatment absolute BEST scores. Although numerical differences were noted, statistical significance was not reached in either dietary modifications (p=0.054) or ginger use (p=0.066).

Symptom response assessed by multiple methods



Although severity of symptoms decreased nearly universally (bottom figure), response assessed by both BEST score and VAS frequency was most significant when complementary approaches were combined with cognitive behavioral therapy (top two figures), as demonstrated by change from pre- to post-treatment scores.





CONCLUSIONS

- In foregut DGBI, individual complementary approaches work best when targeted to symptom presentation
- The combination of complementary approaches and psycho-gastroenterologic interventions appears to provide additional benefit over either alone