Complementary Therapies in Medicine 44 (2019) 51–55

Contents lists available at ScienceDirect

Complementary Therapies in Medicine

journal homepage: www.elsevier.com/locate/ctim

Complementary and alternative medicine interventions for perioperative symptoms: A comparative effectiveness study

Elad Schiff[c,d,a,1], Samuel Attias[a,b,1,*], Ibrahim Matter[d,e], Gideon Sroka[e,d], Bluma Nae[f], Zahi Arnon[a], Noah Samuels[d], Ofra Grinberg[e], Eran Ben-Arye[g,d]

[a] Complementary & Integrative Surgery Service, and the Surgery Department, Bnai-Zion Medical Center, Haifa, Israel
[b] School of Public Health, University of Haifa, Haifa, Israel
[c] Internal Medicine Department, Bnai Zion Medical Center, Haifa, Israel
[d] Rappaport Faculty of Medicine, The Technion-Israel Institute of Technology, Haifa, Israel
[e] Department of General Surgery, Bnai-Zion Medical Center, Haifa, Israel
[f] Faculty of Health Sciences, Ben-Gurion University of the Negev, Beersheba, Israel
[g] Integrative Oncology Program, the Oncology Service and Lin Medical Center, Clalit Health Services, Haifa, Israel

ARTICLE INFO

Keywords:
Complementary and alternative medicine
Integrative medicine
Surgery
Acupuncture
Reflexology
Guided imagery
Pain
Anxiety
Nausea

ABSTRACT

Introduction: Perioperative symptoms such as pain, nausea and anxiety are often inadequately treated. We conducted a pragmatic trial to evaluate the impact of Complementary and Alternative Medicine (CAM) treatments on these symptoms, within the framework of a general surgery department that integrates CAM.

Methods: Patients ≥ 18 years referred to CAM treatments by surgical medical staff were allocated to standard of care with CAM treatment (CAM group) or without, according to patient preference and practitioner availability. CAM treatments included Acupuncture, Reflexology, or Guided Imagery. The primary outcome variable was the change from baseline in symptom severity, measured by Visual Analogue Scale (VAS). Patients and practitioners were asked to report any adverse effects associated with CAM treatments.

Results: A total of 1127 patients were enrolled, 916 undergoing 1214 CAM treatments and 211 controls. Sociodemographic characteristics were similar in both groups. Patients in the CAM group had more severe baseline symptoms. Symptom reduction was greater in the CAM group compared with controls, with a mean reduction in pain of -2.17 ± 2.4 vs -0.29 ± 2 ($P < 0.0001$); nausea -1.2 ± 2.42 vs -0.3 ± 1.94 ($P < 0.0001$); and anxiety -2.23 ± 2.76 vs -0.03 ± 2.54 ($P < 0.0001$). Acupuncture was more effective for nausea control. No significant adverse events were reported with any of the CAM therapies.

Conclusion: CAM treatments provide additional relief to Standard Of Care (SOC) for perioperative symptoms. Larger randomized control trial studies with longer follow-ups are needed to confirm these benefits. The study is registered with clinical trials.gov at (NCT01733771).

1. Introduction

Perioperative care has evolved from a surgical and nursing team to a broad interdisciplinary cooperative endeavor.[1] However, common perioperative symptoms are still inadequately treated with pharmacological and/or non-pharmacological interventions; roughly 80% of patients report moderate to severe pain after surgery.[2] Postoperative nausea occurs in 30% of unselected inpatients and up to 70% of "high-risk" inpatients during the 24 h after emergence.[3] In addition, preoperative anxiety, which is common as well, is not only associated with a negative surgery experience but also directly associated with perioperative morbidity and mortali.[4,5]

The use of Complementary and Alternative Medicine (CAM), a group of diverse medical and health care practices and products that are not generally considered part of conventional medicine, is increasing steadily in the Western world.[6] Specifically, CAM is also being used by patients undergoing surgery. Schieman et al. surveyed 357 Canadian patients attending the outpatient clinics of hepatobiliary surgical

* Corresponding author at: Department of Surgery, Bnai Zion Medical Center, 47 Golomb Street, Haifa 31048, Israel.
E-mail addresses: eschiff@bezeqint.net (E. Schiff), Samuel.attias@b-zion.org.il (S. Attias), matardoc@gmail.com, Ibrahim.matter@b-zion.org.il (I. Matter), gideon.sroka@b-zion.gov.il, Gideon.sroka@gmail.com (G. Sroka), bluma180@gmail.com (B. Nae), zahia@yvc.ac.il (Z. Arnon), refplus@netvision.net.il (N. Samuels), ofra.gringerg@b-zion.gov.il (O. Grinberg), eranben@netvision.net.il (E. Ben-Arye).
[1] These authors contributed equally to this work.

https://doi.org/10.1016/j.ctim.2019.03.003
Received 24 January 2019; Received in revised form 6 March 2019; Accepted 6 March 2019
Available online 21 March 2019
0965-2299/

oncologists and general surgeons, and found that the prevalence of overall CAM use was 27%, with cancer patients using CAM more commonly than non-cancer patients (34% vs. 21% respectively).[7] Several trials have reported positive outcomes of CAM interventions in the perioperative setting.[8–12] In a Randomized Controlled Trial (RCT), Mitchinson and colleagues assessed the effect of massage on postoperative pain reduction in patients undergoing major thoracic or abdominal operations.[8] A faster rate of decrease in pain intensity, and a greater reduction in pain was observed in the massage group when compared to the routine care group. Montgomery and colleagues randomly assigned 200 women scheduled to undergo breast surgery to a 15-min presurgery hypnosis session or nondirective empathic listening. Patients in the hypnosis group reported less pain intensity, nausea, fatigue, and emotional upset than patients in the control group. Moreover, institutional costs for the hypnosis group were $772 less per patient than those in the control group, mainly due to reduced surgical time.[10] In a systematic review of randomized controlled trials, Sun et al. evaluated the efficacy of acupuncture for acute postoperative pain management.[12] Fifteen RCTs comparing acupuncture with sham control were included in their analysis. Postoperative pain intensity was significantly decreased in the acupuncture group at 8 and 72 h compared with the control group. Moreover, the weighted mean difference for opioid analgesic consumption was significantly lower in these time frames in the acupuncture group, leading to opioid related side effects, such as nausea, dizziness, sedation, pruritus, and urinary retention. Although these trials are encouraging, they all took place in controlled settings and included only a small number of participants, limiting the incorporation of these treatments into daily clinical practice.

The need for improved supportive perioperative care, the *de facto* use of CAM by patients undergoing surgery, and the encouraging outcomes from clinical trials were the impetus which motivated a group of clinicians and researchers to establish a Complementary-Integrative Surgery Service (CISS) within a general surgery department in a public academic hospital in Israel in 2010.[13] CAM is unregulated by the Israeli government, and is mainly provided through Health Maintenance Organizations in outpatient settings. Treatments are given by practitioners who graduate from private colleges, with more than 20,000 practitioners in the market.[14,15] Integration of CAM for the care of hospitalized patients is seldom available systematically through hospitals, neither in Israel nor in other western countries. In contrast, patients are referred by the general surgery department's medical staff to CISS practitioners in accordance with clearly defined indications which include pain, nausea, anxiety and insomnia, among other related symptoms.[16] Treatments including reflexology (foot massage), acupuncture (needle stimulation of specific points on the body, based on principles of traditional Chinese medicine), and guided imagery (focusing on pleasant images to replace stressful feelings) are provided free of charge and are based on patient preference and practitioner availability at the time of surgery. CISS treatments are documented through a registry protocol, and all patients are asked to complete a questionnaire scoring their perioperative symptoms.

In this study we examined the effects of CAM treatments provided by the CISS on perioperative symptoms of patients hospitalized in a general surgery department.

2. Methods

2.1. Ethical considerations

Approval was obtained from the institutional review board (IRB No. 0041-09-BNZ) before enrolling patients in this study. The permission forms and consent process were audited by the IRB on a continuing basis. The study was registered at clinicaltrials.gov (NCT01733771).

2.2. Study setting and population

The study took place at the Bnai Zion Medical Center (Haifa, Israel); a 450-bed medical facility, which services the area of Haifa and northern Israel. The hospital's general surgery department has 40 beds, and performs approximately 2000 procedures each year, of which 40% are urgent and 60% are elective. The study population comprised patients 18 years of age and older hospitalized in that department from June 2010 through September 2012. We used the CONSORT statement outline for pragmatic trials.[17]

2.3. Interventions

Patients experiencing pain, nausea, and anxiety, either preoperatively or postoperatively, were referred to CISS practitioners by the departments' medical staff through the hospital's electronic consultation system. CISS practitioners provided one of the following CAM treatments to each patient: acupuncture, reflexology or guided imagery. CAM treatment selection was based on patient preference and practitioner availability. All practitioners had at least five years of experience in their field, and received extensive training in treating patients in the perioperative setting. Patients reported their symptoms both pre- and within two hours post-treatment, using a Visual Analog Scale (VAS), going from 0 (no symptom whatsoever) to 10 (unbearable symptom severity). Patients who were not interested in receiving CAM treatments, and patients who did not receive CAM treatments due to practitioner unavailability, were requested by study coordinators to complete the VAS questionnaire in a similar fashion, thereby serving as a control group. Patients in both groups received standard of care (analgesic, antiemetic, and anxiolytic medication) by the medical staff, according to clinical judgment. Since this was an exploratory study, all patients were aware of the type of treatment they received. Hence, there was no blinding to treatment or sham interventions.

2.4. Group assignment

This was a non-randomized pragmatic trial designed to evaluate the effectiveness of CAM interventions in real-life routine practice conditions. Due to limited resources, we were not able to provide CAM treatments to all interested patients, and patients were informed regarding of this possibility. Factors influencing assignment to the two study arms were patient preference and practitioner availability. Patients were assigned to CAM treatments whenever they were interested in such treatments and a CAM practitioner was available. Patients were assigned to the Standard of Care (SOC) group if they were not interested in CAM treatments, or when CAM practitioners were unavailable.

2.5. Protocol

After consent for study enrollment was obtained by study coordinators, patients in both groups completed a baseline VAS questionnaire regarding pain, nausea, and anxiety. Patients assigned to the CAM group received 15–30 min treatments of one of the following: acupuncture, reflexology or guided imagery. A follow-up VAS questionnaire was completed between 60–120 min after the initial one (Fig. 1). At follow-up, both patients, and practitioners were requested to report any side effects attributed to CAM treatments. Standard medical care as well as CAM treatments were provided according to the clinical judgment of the medical and CISS staff, respectively.

2.6. Statistical analysis

All data were collected prospectively by a single individual who had no role in the study proceedings. Data were analyzed with SPSS for Windows, version18 (IBM-SPSS, Chicago, Illinois). Continuous

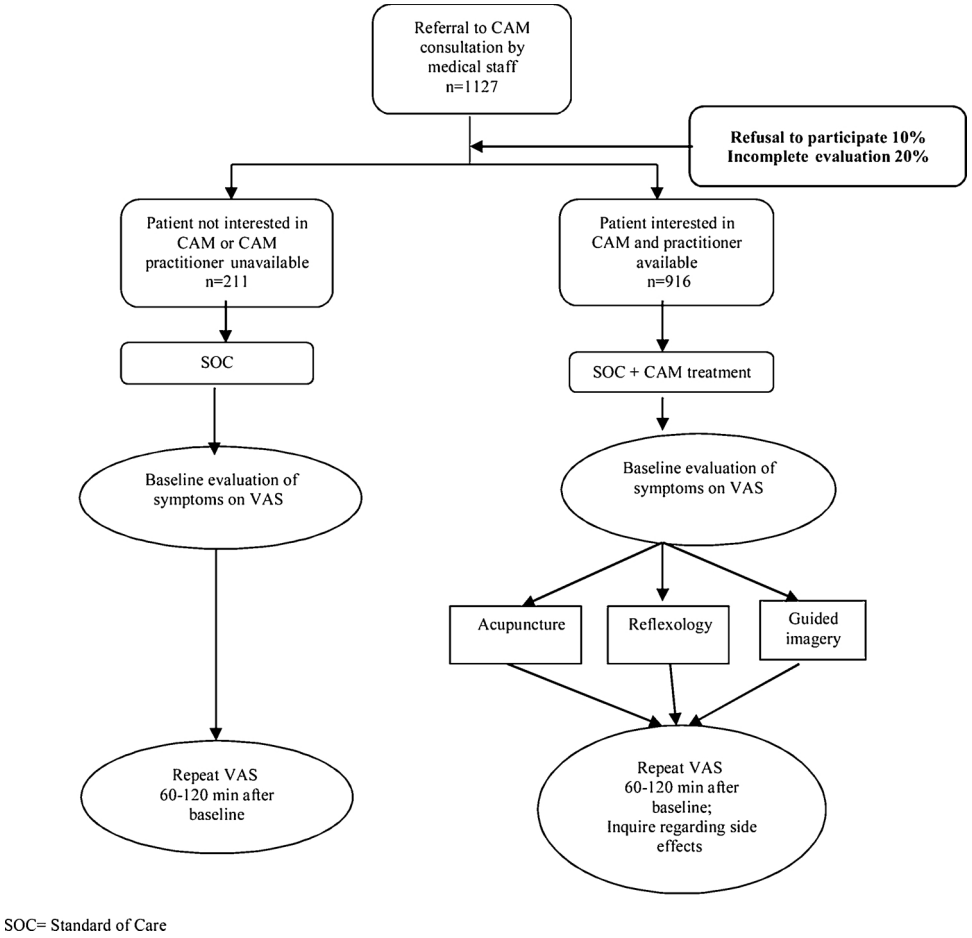

Fig. 1. Study flow diagram. SOC, standard of care.

variables were examined using means, standard deviation (SD), and 95% confidence interval (CI). A difference of 15 mm in VAS units was considered as a moderate clinical effect.[18] Categorical variables were described using frequencies and percentage. Paired t-test (parametric and non-parametric) was used for examining the differences between levels of the VAS scores before and after treatment for each symptom (pain, nausea, and anxiety), and separately for each of the two groups (control vs. treatment). A two way ANOVA with repeated measures was conducted to assess differences in effectiveness between the three CAM treatment modalities per symptom, with Bonferroni adjustment for multiple comparisons. Significance was defined as $P \leq 0.05$.

3. Results

A total of 1127 patients were enrolled in the study, 916 of whom were assigned to the CAM treatment group, for a total of 1214 CAM treatments (some patients received more than one of each of the CAM treatments). In the Standard Of Care (SOC) control group ($n = 211$), 21% ($n = 45$) were referred by the surgical team but were not interested in undergoing CAM treatment, and 79% ($n = 166$) were interested but not treated due to practitioner unavailability during their surgery (Fig. 1).

The characteristics of the study subjects are presented in Table 1. No differences in age or gender were found between the study groups. However, in the treatment group there were significantly more patients who had undergone bariatric surgery, and significantly fewer patients who had undergone appendectomy. Patients in the SOC group had significantly lower baseline severity scores for pain and nausea. Baseline anxiety scores were similar in both study groups.

The study outcomes for both arms are presented in Table 2. Patients

Table 1
Patient characteristics.

Parameter	CAM group ($N = 916$)	SOC group ($N = 211$)	P
Age (yrs)	48.16	49.7	NS
Sex (female)	57.4%	49%	NS
Operations type			
Anorectal	10.2%	11.1%	NS
Cholecystectomy	11.2%	12.1%	NS
Bariatric	14.3%	6.2%	$P < 0.001$
Hernia	11.8%	9.6%	NS
Appendectomy	3.8%	10.7%	$P < 0.001$
Colon	16.9%	14.8%	NS
Observation	27.9%	23.4%	NS
Others	3.9%	12.1%	$P < 0.001$
Mean baseline Pain VAS score (SD)	4.77 ± 2.8	3.48 ± 3.0	$P < 0.001$
Mean baseline Nausea VAS score (SD)	2.52 ± 3.1	1.17 ± 2.4	$P < 0.001$
Mean baseline Anxiety VAS score (SD)	4.7 ± 3.1	4.43 ± 3.5	NS

NS, non significant ($P > 0.05$).

in the CAM treatment group reported a significant reduction in pain, anxiety, and nausea from their baseline score, with a mean difference for pain of -2.17 ± 2.4 ($P < 0.0001$); nausea, -1.2 ± 2.42 ($P < 0.0001$); and anxiety, -2.23 ± 2.76 ($P < 0.0001$). In the SOC group, there was a significant reduction from baseline for pain scores: -0.29 ± 2.00 ($P = 0.03$). However, no significant improvement from baseline was observed for either nausea (-0.30 ± 1.94; $P = 0.14$) or anxiety (-0.03 ± 2.54; $P = 0.51$). In both the CAM and SOC groups, patients who were experiencing more severe symptoms at baseline (VAS ≥ 4) had a greater reduction in symptoms following treatment.

Table 2
Treatment outcomes for CAM-treated patients and Standard of Care (SOC) controls: Difference between baseline and follow-up (1–2 h) VAS scores.

Symptom	CAM group	SOC group	Significance between groups
All patients			
Pain			
Mean difference VAS score (SD) (% change) (*N*)	−2.17 ± 2.40** (46%) (*N* = 935)	−0.29 ± 2.00* (8.6%) (*N* = 210)	$P < 0.001$
Nausea			
Mean difference VAS score (SD) (% change) (*N*)	−1.20 ± 2.42** (48%) (*N* = 922)	−0.30 ± 1.94 (26%) (*N* = 211)	$P < 0.001$
Anxiety			
Mean difference VAS score (SD) (% change) (*N*)	−2.23 ± 2.76** (49%) (*N* = 1214)	−0.03 ± 2.54 (0.6%) (*N* = 259)	$P < 0.001$
Patients with baseline VAS ≥ 4			
Pain			
Mean difference VAS score (SD) (% change) (*N*)	−3.20 ± 2.38** (48%) (*N* = 567)	−0.99 ± 2.26** (15%) (*N* = 97)	$P < 0.001$
Nausea			
Mean difference VAS score (SD) (% change) (*N*)	−3.97 ± 2.83** (55%) (*N* = 250)	−3.07 ± 3.70** (43%) (*N* = 27)	$P = 0.127$
Anxiety			
Mean difference VAS score (SD) (% change) (*N*)	−3.60 ± 2.63** (52%) (*N* = 708)	−0.71 ± 2.57** (9.7%) (*N* = 143)	$P < 0.001$

N, number of complete pre and post assessment per symptom.
$^{**}P < 0.001$, $^{*}P < 0.05$ for comparison of pre- and post VAS.

Table 3
Effect of specific CAM treatments on perioperative symptoms.

Parameter	GIm-Ref	Acup-Ref	Acup-GIm
Pain			
ΔMDV (*P*-value)	−0.78 (0.156)	−0.59 (0.07)	0.18 (1.00)
(CI for Diff)	(−1.74 to 0.18)	(−1.23 to 0.04)	(−0.63 to 1.00)
Nausea			
ΔMDV (*P*-value)	0.03 (1.00)	0.58 (0.04)	0.54 (0.19)
(CI for Diff)	(−0.82 to 0.89)	(0.01–1.14)	(−0.16 to 1.26)
Anxiety			
ΔMDV (*P*-value)	0.06 (1.00)	−0.19 (0.83)	−0.25 (0.719)
(CI for Diff)	(−0.54 to 0.67)	(−0.62 to 0.23)	(−0.26 to 0.78)

ΔMDV (P), delta mean difference VAS scores between treatments (*P*-value).
CI for diff–confidence interval for difference.
GIm, guided imagery; Acup, acupuncture; Ref, reflexology.

Table 3 presents comparisons between the CAM treatments for each symptom (Guided imagery Vs reflexology; Acupuncture Vs reflexology; and Acupuncture vs. guided imagery) Except for a statistically significant benefit in the reduction of nausea symptoms by Acupuncture versus Reflexology, all other comparisons are not significant. A number of minor adverse effects were attributed by 17 patients (1.4%) to the CAM treatments, including discomfort from the insertion of the acupuncture needles, as well as small hematomas following this treatment. One patient reported experiencing uncomfortable memories during Guided Imagery. No side effects were associated with reflexology.

4. Discussion

The principal finding of this study is that integration of CAM treatments to standard supportive care in a general surgery department is safe, and results in better patient reported outcomes. This finding echoes the National Quality Forum report on Safe Practices for Better Healthcare's statement that “there is strong evidence that integrative care can improve basic conventional care by addressing the mind, body and spirit connection”.[19]

The concept of integrative medical care, as presented in our study differs significantly from the original concept of complementary and alternative medicine which is not typically practiced in the conventional hospital ward. The innovation of integrative medicine in the surgical realm is that CAM modalities are provided within the surgery department following the surgeon/nurse referral to CAM practitioners who are specifically trained in perioperative supportive care. Thus, integrative surgery is not just about better pain and nausea management but can be perceived as a tool to promote a more comprehensive patient-centered approach, with an obligation for evidence-based care, and a commitment toward collaborative multidisciplinary teamwork.[20] The few small randomized clinical trials which have examined the use of CAM for surgical patients have demonstrated encouraging findings.[8–12] The current study however, is the first, to present the impact of CAM integration in a general surgery department, using a pragmatic methodology.

Patients in the present study who received CAM treatments reported significant symptomatic improvement following treatments (−2.1, −1.2, and −2.2 mean reduction in VAS score for pain, nausea, and anxiety respectively), which was more prominent in patients with a more severe baseline VAS (−3.2, −3.9, and −3.6 reduction in VAS score for pain, nausea, and anxiety, respectively). The effectiveness of the various CAM treatments was similar, although Acupuncture was slightly more effective than Guided Imagery and Reflexology in nausea relief. However, this does not represent a meaningful clinical difference. Similar treatment effects of various CAM modalities were found in a comparative effectiveness study on CAM interventions for preoperative anxiety.[21] However, more studies are needed to assess comparative effectiveness, taking into account patient preference, and specific medical conditions.

The study outcomes found in the SOC group reflect insufficient perioperative symptom control which is similar to that published in the literature.[22] The problem of sub-optimal perioperative supportive care is beyond the scope of this article, though it is being addressed by various approaches, such as the Enhanced Recovery After Surgery (ERAS) protocols.[23] Yet in spite of the limited efficacy of conventional therapies, in the present study the SOC group showed a reduction in the VAS scores for moderate-severe (VAS ≥ 4) nausea. This may be attributed to the fact that symptoms of nausea are promptly identified and treated by the medical team, which may not be the case with the other symptoms. It is also possible that treatments such as acupuncture do not offer any benefit above that of conventional medication in the treatment of severe nausea.

The generalizability of our findings should take into account several elements. Patients willingness to use CAM may differ in both clinical settings (acute or ambulatory), as well as the culture of CAM use. In addition, CAM practitioner competencies is another factor that may influence treatment outcomes; working in acute care settings requires special training which is not usually provided in CAM colleges. The level of integration in a medical setting is an additional factor; appropriate and timely referrals to CAM depend on understanding of the indications and contra-indications to such treatments in addition to SOC. An educational process to facilitate integration is required as well as continuous communication between conventional and CAM staff. Therefore, reproducibility of our findings, should take into account the above elements.

There are a number of limitations in the present study which need to

be addressed in future research. Patients in the control group (SOC) had significantly lower scores on VAS at baseline. We assume this finding is due to the preference of patients with more severe symptoms to receive any palliation, including CAM treatments, whether or not they believe in their beneficial effects. However, the regression to the mean phenomenon in a non-randomized sample selection, should be taken into account. Medical staff referral patterns and logistic factors may have contributed to the unbalanced type of surgeries between groups as well. Such factors may have included emergency appendectomies being conducted after CISS practitioner working hours, and more need of symptom control in patients undergoing sleeve gastrectomy. The lack of a sham or placebo CAM treatment in our trial (as in many surgery trials) prevents us from teasing specific from non-specific (placebo) effects of CAM treatments. However, the pragmatic nature of the trial is geared at examining the feasibility and effectiveness of the CAM treatments when added to standard care, and not oriented to efficacy as warranted by explanatory methodology. Although the lack of randomization in our study can be perceived as a major limitation due to selection bias, we argue that the patient preference method that we utilized in our study reflects real-life patient centered practice. The similarity of patients' characteristics in the CAM and SOC groups suggest that although randomization was not performed, we succeeded to limit bias selection. Finally, the shortcomings of this trial are mitigated by its exceptionally large sample size, and the *P* values bellow 0.001 in all comparisons.

Additional studies are warranted to allow between group analysis using the following parameters: pre-hospitalization CAM use, patients' attitudes and preferences toward CAM, patients' affinities to specific CAM modalities (e.g. traditional medicine among diverse cultural populations), effect of multiple treatments as opposed to single ones, treatment outcomes in various post surgery time frames, and more.

We did not collect data on drug usage between the groups in the peri-intervention period. Such data is important regarding effectiveness as well as financial outcomes. However, since there was no rigorous symptom control protocol at our department, and physician/nurse medication prescription varied widely, we opted not to gather such data in the current study. Future studies should assess medication use prospectively.

Another limitation of our study is the lack of longer follow up period. It is our clinical observation that for pain and nausea the effects of CAM treatments are short term (1–2 h), possibly more for the treatment of anxiety. Future studies will need to assess the duration of CAM treatments, using more prolonged study periods.

In conclusion, our study showed that the addition of CAM treatments to standard care offers an additional benefit in the reduction of perioperative symptoms when compared to standard conventional treatment alone. The CAM treatments were found to be safe when administered by highly qualified practitioners, within an integrative medical framework. Future research is needed to confirm these findings, using a randomized, controlled format with a larger sample size and for a more prolonged period of time.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgements

The authors thank Ronit Leiba for assistance in statistical analysis, Marianne Steinmetz for editing this manuscript, Shlomit Grimberg and Sarah Ben-Shlush for data gathering, Ilana Merhav and Tania Kligerman, Michal Katz (RIP) for qualitative research in CISS, Dr. Amnon Rofe, and Erez Shimko for logistic support.

References

1. Adamina M, Gié O, Demartines N, Ris F. Contemporary perioperative care strategies. *Br J Surg.* 2013;100(1):38–54.
2. Apfelbaum JL, Chen C, Mehta SS, et al. Postoperative pain experience: Results from a national survey suggest postoperative pain continues to be undermanaged. *Anesth Analg.* 2003;97:534–540.
3. Gan TJ. Risk factors for postoperative nausea and vomiting. *Anesth Analg.* 2006;102:1884–1898.
4. Caumo W, Schmidt AP, Schneider CN, et al. Risk factors for preoperative anxiety in adults. *Acta Anaesthesiol Scand.* 2001;45(3):298–307.
5. Williams JB, Alexander KP, Morin JF, et al. A preoperative anxiety as a predictor of mortality and major morbidity in patients aged > 70 years undergoing cardiac surgery. *Am J Cardiol.* 2013;111(1):137–142.
6. Nahin RL, Barnes PM, Stussman BJ, et al. Costs of complementary and alternative medicine (CAM) and frequency of visits to CAM practitioners: United States, 2007. *Natl Health Stat Rep.* 2009;18:1–14.
7. Schieman C, Rudmik LR, Dixon E, et al. Complementary alternative medicine use among general surgery hepatobiliary surgery and surgical oncology surgery. *Can J Surg.* 2009;52(5):422–426.
8. Mitchinson AR, Kim HM, Rosenberg JM, et al. Acute postoperative pain management using massage as an adjuvant therapy: A randomized trial. *Arch Surg.* 2007;142:1158–1167.
9. Kim JT, Ren CJ, Fielding GA, et al. Treatment with lavender aromatherapy in the post-anesthesia care unit reduces opioid requirements of morbidly obese patients undergoing laparoscopic adjustable gastric banding. *Obes Surg.* 2007;17:920–925.
10. Montgomery G, Dana H, Schnur JB, et al. A randomized clinical trial of a brief hypnosis intervention to control side effects in breast surgery patients. *JNCI.* 2007;99:1304–1312.
11. Meurisse M, Hamoir E, Defechereux T, et al. Bilateral neck exploration under hypnosedation: A new standard of care in primary hyperparathyroidism? *Ann Surg.* 1999;229(3):401–408.
12. Sun Y, Gan TJ, Dubose GW, et al. Acupuncture and related techniques for postoperative pain: A systematic review of randomized controlled trials. *Br J Anaesth.* 2008;101:151–160.
13. Schiff E, Attias S, Hen H, et al. Integrating a complementary medicine service within a general surgery department: From contemplation to practice. *J Altern Complement Med.* 2012;18(3):1–6.
14. Frenkel M, Gamus D. Complementary medicine in Israel. *Harefuah.* 2015;154(1):6–8.
15. Shuval JT, Averbuch E. Complementary and alternative health care in Israel. *Isr J Health Policy Res.* 2012;1(1):7. https://doi.org/10.1186/2045-4015-1-7.
16. Schiff E, Ben-Arye E, Attias S, et al. Perceiving integration of a complementary medicine service within a general surgery department through documentation of consultations: A thematic analysis. *Patient Educ Couns.* 2012;89(3):430–433.
17. Zwarenstein M, Treweek S, Gagnier JJ, Altman DG, et al. Improving the reporting of pragmatic trials: an extension of the CONSORT statement. *BMJ.* 2008;337:2390.
18. Moule P, Hek G. *Making Sense of Pain Research.* 4th ed. Thousand Oaks, CA: Sage; 2011:1–23.
19. National Quality Forum. *Safe Practices for Better HealthcareY2009 Update: A Consensus Report.* Washington, DC: NQF; 2009.
20. Ben-Arye E, Schiff E, Golan O. Ethical issues in integrative oncology. *Hematol Oncol Clin N Am.* 2008;22(4):737–753.
21. Attias S, Boker LK, Arnon Z, et al. Effectiveness of integrating individualized and generic Complementary Medicine treatments with standard care versus standard care alone for reducing preoperative anxiety. *J Clin Anesth.* 2016;29:54–64.
22. Myklejord DJ, Yao L, Liang H, Glurich I. Consensus guideline adoption for managing postperative nausea vomiting. *WMJ.* 2012;111(5):207–213.
23. Arsalani-Zadeh R, ElFadl D, Yassin N, MacFie J. Evidence-based review of enhancing postoperative recovery after breast surgery. *Br J Surg.* 2011;98(2):181–196.