Use of Reiki for pain control in post-surgical patients: a critical review of the literature.

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Abstract

This critical review was conducted in order to evaluate the effect of Reiki on post-operative pain given the increasing popularity of Integrative medicine and growing need for unconventional approaches to pain control. The review was conducted at the University of North Carolina at Chapel Hill. Online databases were searched in Spring 2018 and identified five randomized controlled trials meeting inclusion criteria. Risk of bias was evaluated with the Cochrane risk of bias 2.0 tool. Four of five studies, with some concern for bias, showed a statistically significant decrease in post-operative pain in Reiki groups compared to sham-Reiki or control groups. There is evidence, with some concerns for bias, that Reiki attunements can effectively reduce post-operative pain.

Background

According to the latest data from the National Center for Health Statistics and National Quality forum, there were 51.4 million inpatient and 48.3 outpatient surgical procedures in 2010 in the United States.[1,2] That number is projected to continually increase with the growing population and the advent of new procedures each year.[1] One important aspect of the post-surgery recovery process is pain control. Conventional treatment for post-surgical pain has frequently included nerve blocks, acetaminophen, NSAIDs, lidocaine, and more often than not opioids.[3] This approach, in particular the use of opioids, may unfortunately involve unwanted side effects such as somnolence, respiratory depression, urinary retention, nausea, vomiting, tachycardia, hypotension, slowed gastrointestinal transit resulting in constipation and ileus, as well as the potential for developing dependence and abuse.[3] With the ongoing opioid epidemic and 2017 declaration of a public health emergency by the U.S. Department of Health and Human Services

(HHS), pain control has become a very important topic in the healthcare field.[4] The HHS has identified five specific strategies to combat the epidemic, one of which is "Advancing better practices for pain management."[5] With recent changes to the way pain medications are prescribed as was done with North Carolina's Strengthen Opioid Misuse Prevention (STOP) Act of 2017, alternatives are needed to fill the gap[6]. The World Health Organization defines health as "a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity."[7] Focusing on the WHO definition of health, what if it is possible to target the psychosocial aspects of health and treat pain in an unconventional manner?

Gaining popularity in the last few years is the philosophy of Integrative Medicine, which takes into account not only physical but also emotional, mental, social, spiritual, and environmental aspects of a patient's life that ultimately have an effect on their health. According to the American Board of Physician Specialties, Integrative Medicine is defined as the practice of medicine that reaffirms the importance of the relationship between the practitioner and patient, focuses on the whole person, is informed by the evidence, and makes use of all appropriate therapeutic approaches, healthcare professionals, and disciplines to achieve optimal health and healing.[8] Integrative health care often brings conventional and complementary approaches together in a coordinated way and health care systems differ in the forms of Integrative Medicine offered. As an example, UNC Hospitals currently offer acupuncture, nutrition and supplement counseling, massage therapy, multiple mindfulness trainings, yoga, and Tai chi.[9] Complementary and Alternative Medicine (CAM), currently accounts for more yearly outpatient visits when compared with allopathic clinicians and results in more out-of-pocket money spent versus that spent for hospitalization each year.[10] Complementary medicine is not intended to replace medical therapies, but rather to be used in conjunction with them for an additive effect.

While hospitals are approaching Integrative Medicine in different ways, one popular method is Reiki, a form of CAM that is a practitioner-delivered mind-body intervention, now found in 800 hospitals throughout the country with 76 offering it as a standard part of care.[11,12] Developed in 1920's Japan, it has been practiced in the United States since 1937 with increasing popularity. According to the Center for Reiki Research "Reiki is a technique for stress reduction that also promotes healing. During a session, the patient remains clothed and the practitioner's hands are placed near or lightly touching various parts of the body, including areas around the head, shoulders, stomach, legs, and feet. Most patients report feelings of relaxation, and patients often fall asleep during a session. Sessions can last from ten minutes to more than an hour, depending upon available time."[13] Typical sessions last for one hour in a calm environment with either quiet music or silence, in a supine position on a massage table, and consists of a light, gentle touch to various parts of the entire body. Reiki training is available to anyone and although no national standards for Reiki training currently exist, there are three accepted levels with the last being able to teach Reiki to others. Training programs typically last 10-20 hours for the first two levels and another 10-20 hours for the third level.[14] The effects of Reiki have been studied in multiple illnesses to include: anxiety, depression, chronic fatigue, and post-operative pain as well as with various cancer treatments.[15–19]

The purpose of this clinical review will be to evaluate the evidence for the effect of Reiki on post-surgical pain control. Research will be focused on answering the question: In patients undergoing invasive surgical procedures, how beneficial is Reiki attunement in regards to immediate post-op pain control in comparison to those who don't undergo the attunement?

Methods

With the primary objective identified, databases provided by the UNC Health Sciences Library (PubMed, CINAHL, Embase, Cochrane Library, Google Scholar, Web of Science) were used to search the literature with no date restrictions for systematic reviews, peer reviewed research articles, guidelines and randomized clinical trials. Search terms included Reiki, healing touch, integrative, complementary, and alternative. Inclusion criteria were as follows: Reiki/energy attunement, English language, peer-reviewed, direct assessment of effectiveness of Reiki on postoperative pain. Exclusion criteria were distant Reiki and Reiki performed in conjunction with other treatments. Once relevant articles were found, the references of those articles were also screened for pertinent articles. Each source was then appraised as to relevance, design, applicability/appropriateness, follow-up, and bias via the Cochrane Risk of Bias Tool 2.0. Standardized mean difference (SMD) was calculated in order to measure effect size for each study.

Results

Utilizing the predetermined inclusion criteria, studies were identified from electronic databases by review of their titles and abstracts. A total of 47 citations were identified and 15 were eliminated when found to be duplicates. Of those 32, two were excluded for being commentaries, one excluded for only being a study design, and four were excluded due to involving both Reiki and prayer. An additional two articles were excluded for not evaluating pain, eleven for not evaluating Reiki directly, and seven for being systematic reviews or meta-analyses that only repeated information from the primary sources and offered no new data pertinent to the PICOT question.

A total of five documents met both inclusion and exclusion criteria, encompassing three randomized controlled trials and two randomized controlled trial pilot studies. Two studies compared Reiki to sham while the other three compared Reiki to no treatment or standard care. These five studies combined involved 238 participants. All included as a primary objective the evaluation of acute pain following a surgical procedure in those being treated with Reiki as a primary objective. The duration of studies ranged from one to four days. The number of treatment sessions ranged from one to five. Treatment sessions varied from 15 to 30 minutes.

Included Studies

The following are detailed descriptions of the five included studies:

A Quasi-experimental, non-blinded, randomized controlled trial (RCT) Pilot Study conducted in 2006 by Vitale and O'Conner sought to evaluate the effect of pre- and post-operative Reiki on pain in women undergoing elective abdominal hysterectomies. The study followed 22 participants over 72 hours with 10 receiving a daily 30-minute Reiki session in addition to traditional nursing care and the remaining 12 in a control group receiving only traditional nursing care. The Reiki sessions followed a standard protocol with consistent hand placement at 10 sites for three minutes each. A visual analog scale (VAS) from 0-10 was used to gather data on pain ratings from participants. Data were analyzed using SPS 11.0 software and revealed a statistically significant ($P = 0.04$) decrease in mean rating of pain at 24 hours in the Reiki group with 3.8/10 compared to the control group of 5.4/10. The SMD for Reiki vs the control group is 0.8352.[20] There was no statistically significant difference between groups in pain at 48 and 72 hours postsurgery or in the use of postsurgical analgesic use.[21]

A RCT conducted in 2011 by Midilli and Eser in the Obstetrical Unit at Odemis Public Hospital in Izmir, Turkey investigated the effects of Reiki on pain and the need for analgesics on

postoperative days 1 and 2 in patients who had undergone cesarean delivery. The trial included 90 patients who were randomly assigned to either receive 30 minutes of Reiki or rest at scheduled times in similar locations. Participants were equalized for age and number of births in order to increase the reliability of the study. A standardized Reiki protocol and hand positions were used for the treatment group and a VAS score from 0-10 was used to measure pain intensity. Data analysis was performed using SPSS 16.0 statistical software and showed a statistically significant ($p < 0.05$) reduction in pain intensity between the first and second as well as the third and fourth measurements in the Reiki group while there was no significant difference in the control group. Overall, the Reiki group experienced a 66.75% reduction in pain intensity between the first and fourth measurements while the control group experienced only an 8.96% reduction. The SMD for Reiki vs the control group is 1.8856.[20] Additionally, the study found statistically significant differences between the two groups in the length of time between dosing of analgesics as well as total amount of analgesics, both favoring the Reiki group.[22]

Midilli and Gunduzoglu conducted a single-blinded, randomized, double-controlled study in 2012 in order to evaluate the effect of Reiki on pain when applied to the incision site only following cesarean section. The study was double-controlled with sham Reiki and a control group in order to overcome a common source of potential bias in previous Reiki studies, blinding. There were 45 participants that were equalized by age and number of births to the three different groups, 15 each. The VAS score from 0-100 was utilized to measure pain intensity. Data were analyzed using the SPSS 20 program and revealed statistically significant ($P < 0.05$) differences between the groups in that the Reiki group had lower VAS values, felt the need for analgesics later, and needed fewer analgesics in comparison to the other two groups. The SMD between the Reiki and sham Reiki group is 0.3642.[20] The SMD between the Reiki and control group is 0.5409.[20] The

authors noted a 76.06% reduction in pain between day 1 pre-treatment and day 2 post-treatment measurements but did not provide the data per groups for independent calculations.[23]

A single-site, double-blinded, RCT conducted by Kundu et al. at Seattle Children's Hospital in 2013 evaluated the postoperative pain scores in 38 children who received preoperative Reiki vs. sham Reiki prior to undergoing elective dental procedures. Patients ranged from 9-48 months and procedures varied from basic extractions and restorations to palatoplasties with or without bilateral myringotomies. In order to minimize differences among techniques of Reiki practitioners and to keep the procedure consistent between treatment groups, both the Reiki and sham Reiki practitioners had a standardized script, hand positions, and duration of the therapy at each position. The Face, Legs, Activity, Cry, Consolability (FLACC) score was utilized to obtain age-appropriate pain scores postoperatively for 30 minutes. Statistical analysis was completed using R 2.15.3 and revealed that there was no statistically significant difference between groups in regards to pain scores.[24] Data were not published and therefore not available for further analysis.

A 2016 RCT pilot study in Philadelphia was conducted to investigate the impact of Reiki therapy on the pain perception of patients who received total knee arthroplasty (TKA). The study included 43 patients who were randomly assigned to either the Reiki group (n = 23) or the non-Reiki, TKA standard of care group (n = 20). The study was not blinded. A numeric rating scale (NRS) from 0-10 was used to collect pain intensity data from patients. Data were analyzed using SPSS version 17 and revealed statistically significant decreases in pain intensity ratings between pre- and post-Reiki treatments in all but the Post-Anesthesia Care Unit (PACU) treatment. The data were not made available for further analysis or to confirm these findings. The authors reported that there was no statistically significant difference in the total pain medication received between groups.[25]

Through five randomized controlled trials meeting review criteria, two of which were pilot studies, this review evaluated the effectiveness of Reiki on pain control in those undergoing surgical procedures. Of these studies, two lacked blinding and all relied only on subjective pain measurements from participants which ultimately led to some concerns for bias. Lastly, Kundu et al identified relaxing music as an additional variable between Reiki and control groups and were unable to identify the effect that this variable could have had on the overall results.

Discussion

Only one study, by Kundu et al, did not reveal differences between groups. This study involved a pediatric population undergoing various dental procedures. Based on questionnaires given to care-givers, the study had good blinding of both patients and providers. However, due to the young age of the population, with some as young as nine months old; varying lengths of Reiki treatment; different procedures with subsequent varying levels of pain; and only 30 minutes of post-procedure follow-up, there is little if any control. Further, data collected from the participants and the calculations of the authors were not made available for independent interpretation.

The remaining four studies found that Reiki treatment groups had statistically significant decreases in pain scores in comparison to control or sham Reiki treatment groups. Further interpretation of the data from the three studies that made it available revealed one SMD of small magnitude, two of medium magnitude, and one of large magnitude which supports the efficacy of Reiki in regards to pain control[26]. Additionally, Midilli and Gunduzoglu reported a 76.06% reduction in pain in the Reiki group from day one pre-treatment to day two post-treatment.

This critical review of the literature was limited by the small number of studies that investigated the effects of Reiki on post-surgical pain. In addition, the small sizes of the studies

and concerns for bias prevents the drawing of any firm conclusions. While there are many more studies investigating the potential uses of Reiki to include the effects it has on pain, they were excluded from this critical review due to involving distant Reiki or involving concomitant therapies with the attunement sessions.

Currently, these are the only five RCT's that were found in this critical review of the literature that directly evaluate the effects of Reiki on pain control in post-surgical patients. Although there are concerns for bias in each of these trials, mainly due to lack of blinding and subjective measurements, together four of the trials show data to suggest that Reiki may reduce pain experienced following an invasive surgical procedure. Although some would argue that this could be due to some sort of placebo effect, the data from Midilli and Gunduzoglu's Reiki vs sham Reiki groups do not support this conclusion. With the results from 4/5 of the previously mentioned studies and given the easy ability to train current personnel to administer Reiki, the relatively small time investment needed for treatment, and the minimal side-effects when used appropriately, it brings to question: What is the downside to making Reiki available to patients? Further, these studies have identified the potential for Reiki to decrease the requirement of opioids following surgical procedures. On January 1, 2018 The Joint Commission implemented new and revised pain assessment and management standards for accredited hospitals, one addition which states that these hospitals must "Provide at least one non-pharmacological pain treatment modality."[27] Reiki and other CAM treatments are available to fill this role.

Conclusion

In conclusion, with many possible benefits there exists the possibility that Reiki could lead to a quicker recovery which benefits both the patient and the health care system. Future studies

should control for bias with more strict inclusion criteria, a greater number of participants, use of control groups, and adequate randomization/allocation concealment. Moreover, the field would benefit from standardized treatment plans without independent variables such as music. Additionally, as with any therapy, future studies should attempt to identify the ideal duration and frequency of the Reiki attunement sessions for the most benefit.

Table 1: RCT's and RCT Pilot Studies

Author	N	Design	Methods	Outcome Definitions	Results
Vitale, O'Conner 2006	22	Pilot Study	Reiki vs. Control in women undergoing abdominal hysterectomies. 72h, one 30min session/day	-Pain (10-point scale) -Anxiety	Statistically significant difference ($P < .05$) in pain at 24h, less Toradol and no Dilaudid use.
Kundu et al 2013	38	RCT	Reiki vs Sham-Reiki in pediatric post-op pain.	-Pain (FLACC scale) -Opioid requirements (morphine equivalents)	-No statistically significant difference was observed.
Midilli, Eser 2015	90	RCT	Reiki vs. Rest in women post-cesarean delivery.	-Pain using a visual analog scale -Analgesic use	-A reduction in pain intensity was observed between the first and second measurements ($p < .05$), and between the third and fourth measurements ($p < .05$) in the Reiki group, but there was no significant difference in the control group ($p < .05$).
Midilli, Gunduzoglu 2016	45	Pilot Study	Reiki vs. Sham-Reiki vs. Control in women post-cesarean delivery.	-Pain	-Reduction in pain of 76.06% was determined in the Reiki group patients between day 1 pre-treatment and after application on the 2nd day. The Reiki group used fewer analgesics ($P < .05$).
Notte, Fazzini, Mooney 2016	43	RCT	Reiki vs. Control on patients with total knee arthroplasty.	-Pain -Analgesic Use	-Statistically significant decreases in pain intensity ratings were found between pre- and post-Reiki treatment $P = 0.031$

Table 2: Cochrane Risk of Bias Tool 2.0 Results[28]

Reference	Vitale, O'Conner	Kundu et al.	Midilli, Eser	Midilli, Gunduzoglu	Notte et al.
Risk-of-bias arising from the randomization process	Low	Low	Low	Some Concerns[c]	Low
Risk-of-bias due to deviations from intended interventions	Low / Low	Some Concerns[b] / Low	Low / Low	Low / Low	Some Concerns[d] / Some Concerns[e]
Risk-of-bias due to missing outcome date	Low	Low	Low	Low	Low
Risk-of-bias in measurement of the outcome	Some Concerns[a]	Some Concerns[a]	Some Concerns[a]	Some Concerns[a]	Some Concerns[a]
Risk-of-bias in Selection of the reported results	Low	Low	Low	Low	Low
Overall Risk-of-bias	Some Concerns	Some Concerns	Some Concerns	Some Concerns	Some Concerns

[a] Due to participants being the assessors of the outcome
[b] Due to practitioners not being blinded to group allocation
[c] Due to "equalization" and allocation sequence
[d] Due to lack of blinding of participants and practitioners
[e] Due to music played during the Reiki therapy only

Table 3 Standardized Mean Difference (SMD): Reiki effects on post-op pain

Study	Reiki vs Control	Reiki vs Sham
Midilli, Eser	1.8856 (95% CI 1.389, 2.3822)	N/A
Vitale, O'Conner	0.8352 (95% CI 0.0395, 1.7099)	N/A
Midilli, Gunduzoglu	0.5409 (95% CI 0.1766, 0.9053)	0.3642 (95% CI 0.0034, 0.725)

SMDs greater than zero indicate the degree to which treatment is more efficacious than placebo, and SMDs less than zero indicate the degree to which treatment is less efficacious than placebo. Cohen offered the following guidelines for interpreting the magnitude of the SMD in the social sciences: small, SMD = 0.2; medium, SMD = 0.5; and large, SMD = 0.8.[26,29]

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